

The cost of the opioid dependence syndrome.

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ABSTRACT:

The study was conducted in the peripheral area of Delhi where the de-addiction centre, AIIMS New Delhi was running. Majority of patients were within the radius of 60km. Their substances of abuse were heroin (Smack), prescribed opioids, and raw opium. The patients with lower educational level represented a major proportion of the sample and there was no effect of educational level on the expenditure. In India, the expenditure of the opioid dependent patients is increasing. The age group of 31-40 years represented the major proportion of the sample and the expenditure was decreasing progressively with the age of the patients. Most of the patients were transport operators especially into rickshaw drivers. There was definite decrease in the productivity in the form of decreased wages and decreased earning. Most of patients spent more than 3-4 times their percapita income which suggests that the more than 50% of burden was passed to his family members. The patients with more percapita income spent more. The patients who were not on treatment had two times more expenditure than the patients undergoing treatment. Among the untreated patients the maximum expenditure (70% of total expenditure) was on procuring opioids, whereas among the patients, who were on treatment, the expenditure on procuring opioid is only 33% and the maximum loss was due to loss of productivity. The difference between the mean expenditure of the patients undergoing treatment and the patients not on treatment is 2 times.

Key words: Pain Suffering, Value, Non-Health, Raw Opium, Smack

Review of literature

Patterns of substance use keep changing all the time. Changes may occur in the socio-demographic profile of opiate users, the type of drug use, the route of the administration and adverse consequences like economic, health related, and social problems (8, 9, 14 and 35). Heroin use among the young adults has increased during 1988-1992 (SAM SHA 1995). It has been suggested that a decline which was reported after 1992 may be because of underestimation or under reporting (31, 31 and 32).

The use of illicit or licit drugs causes health, social and economical problems within the society. Sickness, death, injury, pain and suffering associated with illicit drug use are all burdensome to the society directly or indirectly. Thus, the drug abuse is a major drain on society's resources. Overall the societies as well as individuals, who are addicted, have to pay the costs of such addiction. Broadly the costs incurred are in the forms of

- (i) Values of goods and services (Health and non-health).
- (ii) Value of the lost productivity (Health and non-health).

- (iii) Some non-quantifiable costs (Heath and non-health) i.e., pain, suffering bereavement etc. (23).

Most of the earlier studies tried to calculate the costs of first two mentioned areas (Cruze et al., 1981; Harwood et al., 1984; and Rice et al., 1990, 1991, 1999). They have used top-down approach in their cost evaluation for calculating the cost of treatment. This approach involves examining all the costs of a treatment centre, or hospital for instance over 1 year, and allocating the resource use to the activity levels of the centre for the year. This method ensures all known costs attributable to the service are allocated to an activity. For many services, only broad totals may be available and therefore this crude approach would be needed. Another approach is bottom-up approach. It gives more accurate estimate than the top-down approach. It involves identifying and measuring each individual activity and directly measuring the relevant resource use. Detailed resource tracing will ensure that a proportion of the capital cost and overheads are allocated to each unit of activity. With good resource management systems this approach can give very accurate costs for each individual event. However, it gives accurate estimate; it is likely that this methodology will not always results in

total cost figure for the unit's activity equal to total expenditure over the period being examined (7, 12, 27, 28 and 29).

Using the Cost of Illness approach, the cost were estimated in four broad areas; medical care, cost productivity, crime and social welfare. They found that the cost of heroin addiction in United States was US\$21.9million in 1996. Of these costs productivity loss accounted for approximately 53%, criminal activities 24%, medical care 22.5% and social welfare 0.5% (29).

In 1992 in US it was calculated the cost per physician visit was \$166 and the number of outpatients' visit were 10.5 million. With this value the cost of outpatient care was \$1.7430 billion (15 and 22).

The misuse of alcohol, tobacco and illicit drugs cost more than \$18.4 billion in Canada in 1992(\$649). Alcohol accounted for \$1.3 billion in direct health care (34).

The US, substance abuse related care accounted 20% of total Medicaid general hospital days in 1992, that was \$4billion. It was \$8billion in 1994 (8).

Alcohol and drug abuse cost society an estimated \$176.4 billion during 1992 in US as a result of lost productivity from premature death and illness among alcohol and drug abusers, associated crime related costs of alcohol and drug abusers and time spent by alcohol and drug abusers in residential treatment. An estimated \$ 107 billion in overall productivity losses attributed to alcohol abuse and \$ 69.4 billion to drug abuse (23).

Short falls in productivity and employment among individuals with alcohol or drug abuse disorders accounted for estimated losses of \$ 80.9 billion in lost productivity. Of these, it is estimated that \$66.7billion resulted from alcohol problems and \$ 14.2billion resulted from drugs problems (11).

Buck et al (2001) found that the medical health and substance abuse services users were 7-13% of Medicaid enrollers. Across the 10 states, the expenditure on mental health and substance abuse services represented 11% of total Medicaid expenditures. When their expenditures for non-medical health and substance services were also considered, they account for 28% of total Medicaid expenditures (4).

In India, the cost of illness studies related to other illness have been done but alcohol and drug abuse related studies have been very few. The expenditure on health in India in 1990 was 6% of GDP (1.3% in public sectors +

4.7% in private sectors)(Ray, R., 1998). Some studies in India reflect, on an average drug abuser spends about Rs. 500 per week. Drug dependence also has an impact on addicts' employment, and losses due to missing work. In Delhi, it was seen that an abuser spends around 35-95 per day on drugs (24 and 25).

Sharma et al (1995), a heroin addict in Ngaland spends about Rs. 1500/- per month and opium addict spends about Rs. 100-500 per month; and inject able drug abuser spends between Rs. 60-120 daily. In this study, expenditure was mainly on opioid procuring and loss of income due to reduced productivity (33).

In India, such studies are lacking. Therefore it was planned to estimate the cost attributable to opioid dependence syndrome. Such study will be beneficial for policy making regarding the treatment programmes as well as for researchers who would be interested in the economic evaluation for opioid dependence syndrome.

Aim: To estimate an average monthly expenditure over a period of three months by opioid dependent patients attending a De-addiction Centre.

Materials and Method

The study was carried out at De-Addiction Centre, AIIMS, and New Delhi during 1999 to 2001. It is a centre where pharmacological as well as non-pharmacological treatments are given. The study sample comprised of 2 groups. Group I: consisted of the opioid dependent male patients who were aged between 15-45 years and registered at the centre for the first time. Group II: consisted of the opioid dependent male patients who were aged between 15-45 years and were on treatment for more than preceding 3 months from the centre. Two groups were chosen because the patients from group I did not have the cost of treatment. As per ICD-10 DCR Opioid Dependent Patients registered in the OPD were assessed for inclusion in either of the two groups. The male patients aged 15-45 years who came first time to the centre were included in group I and who were on treatment from the centre for at least past three months were included in group II. The patients dependent on substance other than opioids except nicotine and the patients suffering from any chronic psychotic and/or physical illness were excluded from the study. Those fulfilling the inclusion and exclusion criteria were assessed with the help of a *semi structured Performa* (which was specially prepared by investigators for the purpose of this study based on the assumptions made by the researchers) for detail expenditure incurred in association with opioid dependence

after taking written informed consent. All information given by the participants in the study was corroborated by the guardians. The corroborators were adults who had stayed with the patients and they themselves did not have any psychotic illness. A purposive sample of one hundred and fifty six patients in the group I and fifty three in the group II was assessed. First of all, the information regarding demographic variables was collected and then the cost incurred in following areas by the patients was assessed.

a. The cost of treatment

i. The cost of drug treatment (detoxification and maintenance)

The every drug which the group II patients were on for past 3 months were enquired about and their total amount in milligrams, and it was multiplied by the market price price of the each drug (in Rs. / mg) to get the cost of the treatment for the period of 3 months.

ii. The infrastructure cost.

For the group II patients, the cost per visit to OPD per day was used in the study, which was obtained from the Central Govt. Health Services, Ministry of Health and Family Welfare, New Delhi (It was Rs. 40/- per first visit to an OPD, and Rs. 30/- per subsequent visit to the OPD during 1999-2001)

b. The cost incurred in procuring opioids.

i. *The cost of buying opioids:* According to self-structured performa, the amount of opioids and other substance of abuse along with opioids were calculated in the gram, milligram, puria, capsules or ampoules for past 3 months. The amount of opioids or other substance in gram, milligram, puria, capsules or ampoules was multiplied by the mean price in Rs. per gm, mg, puria, capsules, or ampoules which was paid by each patient of both groups..

ii. *The cost of its transportation from the patient's houses to the trafficking place and vice-versa.* It was calculated by summing the rupees spent by the patients separately for group I and II as bus or auto-rickshaw fares while visiting the places of trafficking.

c. Loss of productivity due to average loss of working days

The number of days of absence was enquired and it was multiplied by the patients' daily earning during past 3 months. The product was the lost productivity in rupees due to average loss of working days.

Data analysis.

For each patient, all the costs were summed up to get the Grand Total cost. The mean, median and standard deviation was obtained for each type of cost and the grand total cost against various categories of marital status, occupation, age, percapita income, and education for the patients of group I and group II separately.

The Kruskal- Wallis one way analysis of variance was used to see the significant differences within the different categories of age, marital status, occupation, per capita income and education for the patients of group I and group II separately.

Results

Total number of patients diagnosed as opioid dependence syndrome who attended De - addiction Centre OPD, AIIMS, New Delhi for the first time during the period of study (6 months) was 450. Out of them only two were women. Most of the patients (80%) were from Delhi. Most of the patients were fulfilling the inclusion & exclusion criteria but only one hundred fifty six patents were included under group I and fifty three in group II.

In group I, patients aged 15-20 years were least common (5.1%) and 31-40 years comprised the largest group (48.7%) (Table 1). This age group (52.8%) dominated in group II also. There were no patients in the age range 15-20 years in this group (Table 6).

Among the patients of group I, the majority of patients (51.9%) were educated upto primary and middle school level and only 7% were graduates or postgraduates (Table 2). Similarly among the patients of group II, the maximum number of patients (50.9%) fell in the category of primary and middle school level education and only 9.2% were graduates or postgraduates (Table 7).

Among the patients of group I, 60.5% were married and lowest number of patients (10.2%) fell in the category of widower, divorced or separated (Table 3). Similarly in group II, the maximum number of patients (60.3%) was married while 18.8% of patients were either widower, divorced, or separated (Table 8).

In both the groups, the maximum number of patients (41.09% and 45.4%) was transport operators, mainly the

auto-rickshaw drivers operating in Delhi. Professional, Technical and allied jobs categories in both groups were 2.6% and 3.7% respectively (Table 4 & 9).

In group I, most of the patients were with the percapita income between Rs. 501-1000 and Rs. 1001-2000 who constituted 73.3% (35.5 + 37.8%) of total number of patients (Table 5) and in group II also the patients with same percapita income constituted the 79.3% (35.9% + 43.4%) of total number of the patients. In both the groups were minimum numbers of patients having percapita income more than Rs. 4000/- (Table 10).

In groups I (n=156), the number of patients with heroin dependence syndrome was 136 (87.1%). Within this group seven patients were also using oral benzodiazepines; four were using oral benzodiazepine and inj-buprenorphine; and three were using inj-buprenorphine also in addition to heroin in intermittent manner. In group I, 12 patients were using Affim or Doda, as the primary drug of abuse. One of them was also using oral benzodiazepine in addition. In 8 patients buprenorphine (injectable) was the primary drug and three of them were also using Avil(Pheniramine).

In group II, heroin was the primary drug in forty nine patients (92%), buprenorphene (injectable) in three, and *posta* in one. They were also taking the prescribed drugs (buprenorphine or dextoproxyoxyphene)

In group I, the maximum mean expenditure per month was in age group (15-20 years) and progressively declined with age and reduced to a minimum in the 41-45 years age group. However, across the different categories within the group, the expenditures per month was not significant ($p=0.20$). Same trend was found in the expenditure per month for buying opioids and again there was an insignificant difference across different categories of age within the same group of patients was insignificant ($p=0.08$).

Among the patients of group I, the main expenditure per month was on procuring opioids for all the variables (age, marital status, per capita income, occupation and education) (Table 1-5) and in group II, the main loss was because of average loss of working days for all above variables (Table 6-10). There was apparent trend or increasing expenditure due to lost productivity with age and the maximum expenditure were in age group between 31-40 years.

In patients of group I, the maximum mean expenditure per month (Rs. 8970) was among the patients who were

either widower, divorced, or separated (Table 3). In group II, maximum mean expenditure per month was among married patients (Rs. 3899) (Table 8). However, the differences across the categories within both groups of patients were non significant.

In the patients of group I, difference of mean expenditure per month across the patients with different educational level was less (range = 5891-7648) (Table 2). In the patients of group II such range was Rs. 2094-4422. The maximum mean expenditure per month was among the patients who were high school students (8th to 10th class). The difference was again non-significant ($p=0.76$) within the patients with different educational levels in this group (Table 7).

In the patients of group I, the mean expenditure per month ranged from Rs. 5963-9328 within the categories of occupation. The monthly mean expenditure was more than Rs. 9000 among those who were professional, technical and related workers, administrative executive and managerial workers; and workers not classified by occupations. The difference across the different occupations was insignificant ($p=0.63$) (Table 4). In patients of group II, maximum mean expenditure per month was among sales workers (Rs. 7433). However the range of expenditure per month across the patients with different occupations was between Rs.461 to 7433 and it was still insignificant ($p=0.049$) (Table 9).

In the group I, the patients with highest percapita income (Rs. >4000/month) had highest mean expenditure per month (Rs. 8118). The mean expenditure per month showed increasing trend with increase in per capita income but the difference across the patients with different percapita income was insignificant ($p=0.94$) (Table 5). In group II, the patients with percapita income between Rs. 501-1000 per month had highest mean expenditure per month (Rs. 4384). The difference across the different patients with different income group was non-significant ($p=0.265$) (Table 10). In both groups, almost in each category the mean expenditure was 3-4 times more than that of their percapita income.

The grand total cost (including all type of cost) incurred by the group I patients was Rs. 1102611 (mean=Rs. 7063/month) (Table 11) and for the patients of group II, it was estimated Rs. 162045 (mean=Rs. 3057/month) (Table 12). In group I, the maximum expenditure was on procuring opioids and in group II, it was due o lost productivity.

There difference between the mean expenditure of patients of group I and group II were 2 times in almost all variables considered.

Table 1: for the patient of group 1

Cost of opioid dependence for each category of age.

| Table 1 | Age (Years) | 15-20 | 21-30 | 31-40 | 41-45 | P value |
|-------------|-------------|-----------|------------|------------|-----------|---------|
| | N = 106 | 8 (5.1%) | 41 (38.2%) | 74 (48.7%) | 33 (21%) | |
| Mean ± S.D. | A | 7035±3609 | 8006±5085 | 5226±4311 | 4203±3678 | 0.1386 |
| | B | 106±176 | 184±279 | 202±498 | 141±262 | 0.8765 |
| | C | 1262±1630 | 1083±1645 | 1846±2057 | 1676±2850 | 0.54 |
| | E(7245) | 8404±4225 | 7274±5543 | 7276±5394 | 8021±5541 | 0.20 |

*Significant (Kruskal-Wallis one way analysis of variance)

A = The cost in Rs/month of buying opioids

B = The cost in Rs/month of transportation of opioids by the patients from the patients houses to the trafficking place or vice-versa.

C = Loss of productivity due to average loss in Rs/month of working days.

D = The cost in Rs/month of treatment including the cost of drug treatment (Detoxification & maintenance) and the infrastructure cost.

E = The total cost in Rs/month.

Table 2 for Group I Patients

Cost of opioid dependence for each category of education.

| Table 2 | Education | Illiterate | Primary & idle School Educated | High School Educated | Graduate & post Graduate | P Value |
|-------------|-----------|------------|--------------------------------|----------------------|--------------------------|----------|
| | N = 156 | 38 (24.3%) | 81 (51.9%) | 28 (17.9%) | 11 (7%) | |
| Mean ± S.D. | A | 4819±3054 | 588±5204 | 4418±4011 | 4857±3205 | 0.496212 |
| | B | 177±230 | 179±447 | 199±308 | 145243 | 0.553 |
| | C | 895±1997 | 1580±2445 | 2050±2595 | 2522±2620 | P = 0.18 |
| | E | 5851 | 7648 | 6708 | 7556 | 0.58 |

*Significant (Kruskal-Wallis one way analysis of variance)

Table 3 for Group I Patients

Cost of opioid dependence for each category of education.

| Table 3 | Marital Status | Never married | Married | Widower, divorced or separated | P Value |
|-------------|----------------|---------------|-------------|--------------------------------|---------|
| | N = 156 | 33 (21.1%) | 107 (68.5%) | 16 (10.2%) | |
| Mean ± S.D. | A | 5496±4048 | 5116±4600 | 5201±4507 | 0.3145 |
| | B | 177±261 | 174±252 | 348±808 | 0.228 |
| | C | 1460±2381 | 1481±2438 | 2421±2474 | 0.15 |
| | E | 7107±5311 | 6771±5445 | 8670±5400 | 0.17 |

*Significant (Kruskal-Wallis one way analysis of variance)

Table 4 : For the patients of Group I

Cost of opioid dependence for each category of occupation.

| Table 4 | Group | Professional, technical & related workers; administrative, executive and managerial workers; and clerical & related workers | Sales workers | Service workers: casual labourers, labourers and related workers; and production and related workers | State post operators | Labourers | Workers not classified by occupation | P Value |
|-------------|---------|---|---------------|--|----------------------|------------|--------------------------------------|---------|
| | N = 156 | 4 (2.6%) | 18 (11.5%) | 11 (7.1%) | 54 (34.6%) | 26 (16.7%) | 24 (15.5%) | |
| Mean ± S.D. | A | 7548±3133 | 4802±3954 | 2813±3011 | 6192±3872 | 4802±3838 | 7038±5785 | 0.022 |
| | B | 162±177 | 195±198 | 104±171 | 260340 | 271±638 | 879280 | 0.85 |
| | C | 1023±1883 | 1834±2538 | 2941±3888 | 1714±2127 | 1982±1711 | 11802±2250 | 0.41 |
| | E | 8338±5991 | 6011±4754 | 5913±4981 | 7107±5058 | 6371±4683 | 9548±7824 | 0.83 |

*Significant (Kruskal-Wallis one way analysis of variance)

Table 5 : For the patient of Group I

Cost of opioid dependence for each category of percapita income.

| Table 5 | Percapita income | <500/month | 501-1000 /month | 1001-2000 /month | 2001-3000 /month | >4000 /month | P Value |
|-------------|------------------|------------|-----------------|------------------|------------------|--------------|---------|
| | N = 156 | 10 (6.4%) | 55 (35.5%) | 59 (37.8%) | 22 (14.1%) | (6.4%) | |
| Mean ± S.D. | A | 5641±5074 | 8084±4174 | 5409±4182 | 4548±3111 | 7477±7906 | 0.5341 |
| | B | 115±242 | 138±220 | 206±407 | 239±434 | 193±257 | 0.78 |
| | C | 643±733 | 1633±2059 | 1696±2595 | 2073±3548 | 4486±1040 | 0.35 |
| | E | 6200 | 5875 | 7312 | 6810 | 8119 | 0.94 |

*Significant (Kruskal-Wallis one way analysis of variance)

Table 6 : For the patients of Group II

Cost of opioid dependence for each category of the age.

| Table 6 | Age (Years) | 15-20 | 21-30 | 31-40 | 41-45 | P value |
|-------------|-------------|-------|------------|------------|------------|---------|
| | N = 53 | 0 | 13 (24.5%) | 28 (52.8%) | 12 (22.6%) | |
| Mean ± S.D. | A | 0 | 630±1078 | 1305±1972 | 583±1145 | 0.48 |
| | B | 0 | 81±225 | 38±75 | 0 | 0.136 |
| | C | 0 | 350±1261 | 1740±4522 | 1500±3118 | 0.35 |
| | D | 0 | 476±355 | 738±1113 | 788±580 | 0.15 |
| | E | 0 | 1538±4242 | 3850±4530 | 3851±4857 | 0.80 |

*Significant (Kruskal-Wallis one way analysis of variance)

Table 7 : For Group II patients

Cost of opioid dependence for each category of education.

| Table 7 | Education | Illiterate | Primary & idle School Educated | High School Educated | Graduate & post Graduate | P Value |
|-------------|-----------|------------|--------------------------------|----------------------|--------------------------|---------|
| Mean ± S.D. | A | 498±1014 | 872±1401 | 1556±2564 | 1066±888 | 0.40 |
| | B | 13±37 | 50±163 | 8±25 | 142±99 | 0.04* |
| | C | 333±1000 | 1376±3889 | 2333±4942 | 827±1455 | 0.60 |
| | D | 1248±1896 | 514±310 | 524±246 | 995±883 | 0.98 |
| | E | 2094±1890 | 2715±4048 | 4422±5509 | 3002±2054 | |

*Significant (Kruskal-Wallis one way analysis of variance)

Table 8 : For the patients of Group II

Cost of opioid dependence for each category of marital status.

| Table 8 | Marital Status | Never married | Married | Widower, divorced or separated | P Value |
|-------------|----------------|---------------|-----------|--------------------------------|---------|
| Mean ± S.D. | A | 566±583 | 1251±7918 | 573±1957 | 0.25 |
| | B | 80±240 | 15±50 | 68±111 | 0.57 |
| | C | 413±1371 | 1994±4527 | 315±474044 | 0.38 |
| | D | 1073±1584 | 634±556 | 423±253 | 0.16 |
| | E | 2133±2378 | 3893±4750 | 1379±1414 | 0.138 |

*Significant (Kruskal-Wallis one way analysis of variance)

Table 9 : For the patients of Group II

Cost of opioid dependence for each category of occupation.

| Table 9 | Group II | Professional, technical, and related workers; Administrators, executive and managerial workers; and clerical and related workers | Sales workers | Service workers; farmers; laborers; hunters, loggers and related workers; and production and related workers | Transport operators | Laborers | Workers not classified by occupation | P Value |
|-------------|----------|--|---------------|--|---------------------|-----------|--------------------------------------|---------|
| | N = 53 | 2 (3.7%) | 7 (13.2%) | 4 (7.5%) | 25 (23.4%) | 9 (16.9%) | 9 (17%) | |
| Mean ± S.D. | A | 209±230 | 76±94 | 81±62 | 94±102 | 94±201 | 0.21 | |
| | B | 10±42 | 4±12 | 3±12 | 4±15 | 3±18 | 17±40 | 0.94 |
| | C | 403±592 | 8 | 30±185 | 248±380 | 30±108 | 0.48 | |
| | D | 30±8 | 128±208 | 92±16 | 59±58 | 44±107 | 21±201 | 0.96 |
| | E | 481±45 | 703±485 | 171±197 | 229±247 | 307±439 | 248±215 | 0.049 |

*Significant (Kruskal-Wallis one way analysis of variance)

Table 10 : For the patient of Group I

Cost of opioid dependence for each category of percapita income.

| Table 10 | Per capita income | <500/month | 501-1000 /month | 1001-2000 /month | 2001-3000 /month | >4000 /month | P Value |
|-------------|-------------------|------------|-----------------|------------------|------------------|--------------|---------|
| | N = 53 | 3 (3.8%) | 19 (35.9%) | 23 (43.4%) | 6 (11.9%) | 0 | |
| Mean ± S.D. | A | 395±521 | 900±1600 | 1351±1931 | 254±718 | 0 | 0.22 |
| | B | 0 | 23±59 | 99±175 | 44±82 | 0 | 0.79 |
| | C | 1000 | 257 | 87 | 0 | 0 | 0.42 |
| | D | 311±128 | 903±1326 | 520±348 | 787±439 | 0 | 0.121 |
| | E | 1287±1749 | 4364±5323 | 2798±3294 | 1085±1040 | 0 | 0.285 |

*Significant (Kruskal-Wallis one way analysis of variance)

Table 11 : All type of the cost for Group I

| Table 11/Group I (n=156) | Mean (Rs.) | Grand total (Rs.) |
|--------------------------|------------|-------------------|
| A | 5308 | 828083 (70%) |
| B | 180 | 28094 (1.4%) |
| C | 1580 | 246494 (28.5%) |
| E | 7058 | 1102671 (100%) |

Table 12 : All type of the cost for Group II

| Table 12 /Group II (n=53) | Mean (Rs.) | Grand total (Rs.) |
|---------------------------|------------|-------------------|
| A | 961 | 52000 (33%) |
| B | 40 | 2163 (1.4%) |
| C | 1349 | 71527 (51%) |
| D | 685 | 36305 (14.6%) |
| E | 3057 | 162095 (100%) |

Table 13 : All type of the cost attributable to raw abuse for group I (n=12)

| Table 13 | Mean (Rs.) | Grand total (Rs.) |
|----------|------------|-------------------|
| A | 1841 | 22090 |
| B | 52 | 625 |
| C | 586 | 7009 |
| D | 2404 | 29024 |

Table 14 : Sociodemographic variables

| Table 14 | Group I | Group II |
|--|------------|-----------|
| Age (N=156) | | |
| 15-20 | 8(5.1%) | 0 |
| 21-30 | 41(26.2%) | 13(24.5%) |
| 31-40 | 74(48.7%) | 28(52.8%) |
| 41-45 | 33(21%) | 12(22.6%) |
| Education | | |
| Illiterate | 38(24.3%) | 9(17%) |
| Primary & middle school | 81(51.9%) | 27(50.5%) |
| High school | 28(17.9%) | 13(22.6%) |
| Graduate | 11(7%) | 5(9.2%) |
| Marital status | | |
| Never married | 33(21%) | 11(20.5%) |
| Married | 107(68.5%) | 30(56.3%) |
| Widower, divorced or separated | 16(10.2%) | 10(18.8%) |
| Per capita income (Rs) | | |
| <500/month | 10(6.4%) | 3(5.6%) |
| 501-1000 | 55(35.5%) | 16(30.3%) |
| 1001-2000 | 59(37.8%) | 23(43.4%) |
| 2001-4000 | 22(14.1) | 8(15.9%) |
| >4000 | 10(6.4%) | 3(5.6%) |
| Occupation | | |
| Sales workers | 18(12.8%) | 7(13.2%) |
| Transport operators | 54(35.5%) | 23(43.3%) |
| Laborers | 28(18.5%) | 8(15.1%) |
| Professional, technical, and related workers; Administrators, executive and managerial workers; and clerical and related workers | 4(2.6%) | 2(3.7%) |
| Farmers, fishermen/hunters, loggers, and related workers; And production and related workers | 19(12.8%) | 4(7.5%) |
| Workers not classified by occupation | 24(15.7%) | 9(17%) |

Discussion

In Myanmar, the number of drug abusers registered with government hospitals in 1997 was 58,728 of which 60.8% were opium abusers, 30% were heroin users and polydrug users (WHO report, 2001). In present study in group I (n=156), the number of patients with heroin dependence syndrome was 136 (87.1%). Within this group seven patients were also using oral benzodiazepines; four were using oral benzodiazepine and inj-buprenorphine; and three were using inj-buprenorphine also in addition to heroin in intermittent manner. In group I, 12 patients were using Affim or Doda, as the primary drug of abuse. One of them was also using oral benzodiazepine in addition. In 8 patients buprenorphine (injectable) was the primary drug and three of them were also using Avil (Pheniramine). In group II, the heroin was the primary drug in forty nine patients, buprenorphine (injectable) in three and posts in one. Illicit substance use was reported by this group over and above the prescribed drugs (buprenorphine or dextropropoxyphene) they were getting from the centre..

In India, the prevalence is increasing in the younger age group (5 and 33). The current heroin use in general population among males has increased from 0.3% to 1.1% in some parts of India (Channavasabana et al., 1990, Mohan et al., 1992, 1993, 1994, 1998, 1999). In present study the patients aged 31-40 years comprised the largest group (>50%) (Table 1 and 6). Rice et al. (1999) also found that 80% of male patients alcohol and drug abuse were aged between 20-49 years (27).

In India, a study reported the monthly expenditure of a heroin dependent patient to be Rs. 1,500/month. The expenditure per month per opium addict was Rs. 100-500/month. It was estimated Rs. 1800-3600 per month for an injecting drug user in Nagaland. In the study, the data on the separate cost due to procuring heroin is not available (33). In the present study, the cost incurred in procuring opioids was considered separately which constituted around 70.1% of total expenditure for the patients of group I and which 33% was for the patients of group II. The mean monthly expenditure per patient was for 2495 for an opium (Affim, doda) abuser and Rs. 4575 for a heroin dependent (Table 12&13) which is four times that of the cost reported earlier (33).

In this study among the patients of both the groups, the maximum number of patients (>50%) reported primary and middle school level education and only 7% in group I and 9.2% in group II were graduates or postgraduates (Table 2 and 7). The reason was not investigated but could be a reflection of the educational status of patients coming

to our centre and not a function of opioid abuse per se. Mullahy and Sindelar (1989) found that the alcohol abuse at young ages was associated with a 1.5 year reduction in education attainment (21).

In this study, among the patients of group I, 60.5% were married and minimum number of patients (10.2%) fell in the category of widower, divorced or separated (Table 3). In group II also, the maximum number of patients (60.3%) were married and 18.8% of patients were either widower, divorced or separated (Table 8).

In this study, in both group I and II the maximum number of patients (41.89% and 45.4%) were transport operators mainly the auto rickshaw drivers (Table 4 & 9).

This study found that the monthly expenditure of an opioid dependent patient undergoing treatment was Rs. 3057/- and who were not on treatment had 7068/-. In India, the cost of illness studies related to other illness have been done but alcohol and drug abuse related studies have been very few. The expenditure on health in India in 1990 was 6% of GDP (1.3% in public sectors + 4.7% in private sectors) (26). In India, on an average drug abusers spend about Rs. 500 per week. In Delhi, it was seen that an abuser spends around 35-95 per day on drugs. (Prasant, 1993; Purohit, 1994) Sharma et al (1995), a heroin addict in Nagaland spends about Rs. 1500/- per month and opium addict spends about Rs. 100-500 per month; and injectable drug abuser spends between Rs. 60-120 daily (33).

In group I, the maximum mean expenditure per month was in age group (15-20 years) and lowest in age group (41-45). The expenditure per month progressively decreased with age and reduced to a minimum in the 41-45 age group, although the difference in the expenditure per month were not significant ($p=0.20$) (Table 1). Same trend was found in the expenditure per month due to buying opioids and again there were insignificant differences within the different age group. There was an opposite trend that the cost increased progressively with the age in group II (Table 6). In a previous Cost of Illness study, the core cost of alcohol and drug abuse and mental illness increased progressively upto age of 44 years then it decreased in both the samples of male and female separately (28).

In this study, among the patients of group I, the main expenditure per month was on procuring opioid in all the considered variables whereas in group II it was because of the lost productivity. However, we could take

into account only the cost due to average loss of working days (Table 12). In the previous studies main costs was due to lost productivity which included loss due to morbidity as well as mortality (Rice et al., 1991; Single et al., 1998; Xie et al., 1998). The patients who were on treatment had more number of days of absence from duty because of weakness and the patients who were not on treatment and were active abusers had to work to earn money to arrange the opioids and hence did not have much absence from duty. There has been definite reduction in the wage or earnings of the patients reported previously (Rice et al., 1990, 1999; Kraestmer 1994b, Buchmueller & Zuvekas 1994; 1996 Grant et al., 1994).

In the group I, the maximum mean expenditure per month (Rs. 8970/-) was among the patients who were either widowers, divorced or separated (Table 3). In the patients of group II, maximum expenditure was among married patients (Rs. 3899/-) (Table 8). In the group I the patients with highest per capita income (Rs. >4000/month) has highest mean expenditure per month (Rs. 8118) and the mean expenditure per month showed increasing trend with increase in the percapita income (Table 5). In group II, the patients with percapita income of Rs. 500-1000 per month had highest mean expenditure per month (Rs. 4384/-) (Table 1). In both the groups, almost in each category the mean expenditure was 3-4 times greater than their percapita income. In this study the differences across different categories of marital status and per capita income within the both groups of patients were insignificant. NIDA with NIAAA (1998) and Rice et al., (1990, 1999) also found no clear relationship between the expenditure by drug abusers and their income status or marital status. It had also been reported that there was worksite productivity effects in terms of lost earnings of drug and alcohol abusers. The loss of earning attributable to alcohol and drug problems affects everyone in a household whether earnings are reduced through lower wage rates or reduced days of work. This loss would directly affect the wellbeing of any additional members, particularly those who do not work, or do not have an independent source of income. The same was also with present study, which was reflected in the form of mean expenditure 3-4 times greater than per capita income.

Limitations

1. This study could include only limited aspects of opioid use which are attributed as the causes of economic loss.
2. Number of the patients was too small to provide a broader picture of loss of productivity and cost of opioid use.

3. The cost was not correlated with severity of the illness.
4. The amount of opioids was estimated in different units i.e. mg, gram, puria, or capsules, hence we could not estimate the price range of these substances prevailing in illicit drug market.
5. The study was confined to the patients who sought treatment at a treatment centre, which is only the tip of iceberg so it would be difficult to generalize the estimated cost for the whole population of opioid users at a city level.

For future work in this field

1. To include the cost incurred for many other aspects of substance abuse.
2. To correlate the cost with severity of illness.
3. To evaluate the cost-effectiveness of the any treatment program of treatment centre.
4. To estimate the cost of population samples of substance abusers, so that the estimated cost to can be generalized.

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