Chapter 3
Socio-economic profile and prevalence of morbidity

Information on prevalence of morbidity or illness patterns is pre-requisite to study economic burden of illness and coping behavior of households with ill-health. Such information facilitates the stakeholders in designing effective and efficient health policy initiatives. As discussed in the previous chapter, there is hardly any comprehensive study on profile of morbidity of slum dwellers of Chandigarh. The present chapter proposes to fill this gap. The main goals of the present chapter are:

i) To identify the socio-economic profile of the sampled households.
ii) To study the nature and extent of morbidity among the slum dwellers.

The chapter is organized as follows: After introduction in section I, in Section II profile of the sampled household of Chandigarh is discussed. Prevalence of morbidity is examined in Section III. Lastly, summary of the finding has been recapitulated in the Section IV.

2. Profile of the sampled households

As per discussion in the previous chapter on data and methodology, 422 households were interviewed to get detailed information on their socio-economic characteristics and illness episodes from slums of Chandigarh. Slums are usually identified with large uneducated families, poor housing and sanitation conditions, and low economic status. Therefore, for better understanding profile of sampled households is divided into three sub-sections namely: demographic profile, housing and civic amenities, literacy level and occupation of slum dwellers. Further, information so generated would be compared with their counterparts in other urban location of the country. These are presented as follows:

A. Demographic profile: Demographic profile of the sampled households is presented in the Table 3.1. Average size of household is 4.94 in the study area. Within the two colonies, average size is higher in the colony number 5 as compared to colony number 4.
### Table 3.1: Demographic profile of the slum dwellers of Chandigarh (in percentage)

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Colony No. 4</td>
<td>Colony No. 5</td>
<td>Overall</td>
</tr>
<tr>
<td>Number of sampled households</td>
<td>165</td>
<td>257</td>
<td>422</td>
</tr>
<tr>
<td>Average size of sampled households</td>
<td>4.47</td>
<td>5.24</td>
<td>4.94</td>
</tr>
<tr>
<td>Population by age group</td>
<td></td>
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</tr>
<tr>
<td>0-6</td>
<td>13.43</td>
<td>16.46</td>
<td>15.39</td>
</tr>
<tr>
<td>7-14</td>
<td>18.32</td>
<td>24.17</td>
<td>22.10</td>
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<td>15-20</td>
<td>14.65</td>
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<td>14.81</td>
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<tr>
<td>21-40</td>
<td>35.55</td>
<td>31.73</td>
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<tr>
<td>41-60</td>
<td>15.60</td>
<td>12.16</td>
<td>13.37</td>
</tr>
<tr>
<td>Above 60</td>
<td>2.44</td>
<td>0.59</td>
<td>1.25</td>
</tr>
<tr>
<td>Population by gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>56.17</td>
<td>52.71</td>
<td>53.93</td>
</tr>
<tr>
<td>Female</td>
<td>43.83</td>
<td>47.29</td>
<td>46.07</td>
</tr>
<tr>
<td>Caste</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scheduled Castes (SC)</td>
<td>14.55</td>
<td>22.18</td>
<td>19.19</td>
</tr>
<tr>
<td>Scheduled Tribes (ST)</td>
<td>1.21</td>
<td>8.56</td>
<td>5.69</td>
</tr>
<tr>
<td>Backward Class (BC)</td>
<td>6.06</td>
<td>5.45</td>
<td>5.69</td>
</tr>
<tr>
<td>General/others</td>
<td>78.18</td>
<td>63.81</td>
<td>69.43</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hinduism</td>
<td>92.73</td>
<td>87.94</td>
<td>89.81</td>
</tr>
<tr>
<td>Islam</td>
<td>7.27</td>
<td>9.34</td>
<td>8.53</td>
</tr>
<tr>
<td>Christianity</td>
<td>0.00</td>
<td>2.33</td>
<td>1.42</td>
</tr>
<tr>
<td>Sikhism</td>
<td>0.00</td>
<td>0.39</td>
<td>0.24</td>
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<tr>
<td>Migration status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uttar Pradesh (Including Uttarakhand)</td>
<td>60.61</td>
<td>63.56</td>
<td>62.31</td>
</tr>
<tr>
<td>Bihar (Including Jharkhand)</td>
<td>30.91</td>
<td>24.00</td>
<td>26.92</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>1.21</td>
<td>0.44</td>
<td>0.77</td>
</tr>
<tr>
<td>Punjab</td>
<td>3.64</td>
<td>6.67</td>
<td>5.38</td>
</tr>
<tr>
<td>Haryana</td>
<td>3.64</td>
<td>3.56</td>
<td>3.59</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>0.00</td>
<td>0.89</td>
<td>0.51</td>
</tr>
<tr>
<td>West Bengal</td>
<td>0.00</td>
<td>0.89</td>
<td>0.51</td>
</tr>
</tbody>
</table>

Note: A: Age categories are different: 0-4, 5-14, 15-24, 25-39, 40-59, 60 and above
Source: Field Survey.

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Socio-economic profile and prevalence of morbidity

The average family size of the slum dwellers is higher than Chandigarh as a whole. It is distressing that on an average 5 members are stuffed in approximately 10 X 10 feet deflated rooms in these slums. Such over-crowding not only lead to inhuman living conditions for slums dwellers, but can also adversely impact their health by rapidly increasing the many communicable diseases. However, average household size of slums of Chandigarh is less than Delhi slums. This may be due to following reasons: 1) Delhi slums are very old slums as compared to slums of Chandigarh. 2) Delhi is very big urban agglomeration as compared to Chandigarh. Due to more population pressure, more people may be residing in the small dwellings in Delhi.

Majority of the population in the study area belongs to working age group. There are variations in the age distribution of residents of colony number 4 and 5 but majority of the population belong to working age group (21 to 40 years). Only 1.25 percent of people belong to elderly age group of above 60. During the survey, it was observed that only in better-off households of the slums or working elderly people were residing with their families. Most of the households sent their elderly members back to their villages. Only in the time of need/crisis, elders live with their families like illness of elderly and/or to look after the kids of working couple.

In the study area, kids aged below seven are 15.39 percent of the total population and adolescents belonging to 6-14 age-group constitute 22.10 percent. According to census 2011 of Chandigarh kids aged below seven are 11.50 percent of the total population. The large households’ size and larger proportion of kids aged below 7 in the slums areas signify that fertility is higher among slums areas as compare to Chandigarh city. Proportion of males is higher than females in the study area and same is true for both the colonies. 53.93 percent of sampled population is male. Due to male migration from backward states for better jobs and opportunities, the proportion of males is higher. In the Chandigarh as a whole, similar pattern was observed. However, the results of Delhi slums look opposite.

In terms of social background, the proportion of upper caste households is fairly large in the study area. 19.19 percent of households belong to schedule castes and 5.69 percent of households belong to schedule tribes and backward class group each. There are
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differences in proportion of different castes between both the colonies. In case of Chandigarh city, data only on proportion of schedule caste households is available. There is a minor difference among the proportion of schedule caste households in Chandigarh and in the study area. However, there are large differences among the households belonging to different social groups in the slums of Delhi and Chandigarh.

In Chandigarh slums, Hindus dominate largely in the sampled population followed by Muslims in both the colonies. Christian and Sikh households have small presence in colony number 5. The residents of these slums settled here from economically backward states of India to better their prospects. Chandigarh despite being located at significant distance from Uttar Pradesh and Bihar attracted migrant for better economic opportunities. Around 62.31 percent of households migrated from Uttar Pradesh (including Uttaranchal), and 26.92 percent from Bihar (including Jharkhand). Only 5.38 percent and 3.59 percent of households migrated from Punjab and Haryana respectively. The trend is almost same in both the colonies. Despite migrating from villages to a modern city Chandigarh, the slum dwellers still carried forward the culture, beliefs and social bonds. It was observed during the survey that these slums are also not free from minor social and religious polarization. Even in these slums, ‘Muslims galis’ ‘Thakuron ke ghar’ are prevailing. This indicated the prevalence of strong social bonds and ties even among the poor migrants.

B. Housing and civic amenities: Housing conditions and civic amenities protect against the agents of many communicable diseases and can also protect against avoidable injuries, poisonings, and other exposures which can lead to chronic diseases. The information on housing and civic amenities is presented in Table 3.2. In both the colonies, majority of the dwellings are semi-pucca type (Appendix 3.1, Picture 3.1). A semi-pucca dwelling is constructed with bricks, tin roofing, and no cemented or bricked floors. A pucca dwelling in the study is the one, which is made of bricks, with concrete roof, and bricked/cemented floor. A serviceable katcha household is the one, which is made of mud bricks, tin roofing and no flooring. An un-serviceable katcha household is the one, which is made of mud bricks or no sidewalls just the sheet covering the three sides, thatched roof and no flooring. Usually slums are characterized by katcha/thatched
households with no flooring but in the study area most of the dwellings are semi-pucca. In the past, there were regular fire outbreaks during summers in the colonies due to thatched roofs and short-circuiting caused by hanging of loose unauthorized electricity wires/connections. Therefore, Chandigarh administration with the help of Red-Cross society of Chandigarh provided tin roofing to the slum dwellers. This way most of the households got tin roofing and are semi-pucca type. This differentiates the Chandigarh slums from slums in other parts of country. For example, in Delhi slums still 46.1 percent of the households are katcha type and in Chandigarh only 22.04 percent of the households are katcha households. Majority of people of Chandigarh city are residing in pucca households and meager 3.5 percent of households are residing in katcha households.

Majority (65.40 percent) of the slum dwellers are using public toilet facilities provided by Municipal Corporation of Chandigarh. Every user is charged Rs 2 per visit. Public toilets are situated at seven places in colony number 4 and at nine places in colony number 5. Roughly 32.70 percent of households defecated in open. Open defecation is more common in colony number 4 (41.82 percent as compared to 26.85 percent of colony number 5). This may be due to following reasons: 1) Less number of public toilets in colony number 4, 2) Colony number 4 is located near the forest and industrial area while colony number 5 is located near the residential area of sector 50-51 (Maps of Colony no 4 and 5). Due to public pressure of the residents most people of colony number 5 were compelled to use public toilets. 3) Slums dwellers paid nominal user charges for use of public toilets. For five family members, the family can end up paying Rs 300 per month. Even this amount can be significant for a family who earns Rs3000-4000 per month. During the interviews, it was also found that public latrine facilities were used predominantly by women folks as compared to their male counterparts. Almost similar results were observed in Delhi slums by Alam and Tyagi (2009) where approximately 35.3 percent of people defecated in open. There are clear differences among the population of Chandigarh and slum dwellers as majority of the Chandigarh’s residents had their own latrine facility.
Table 3.2: Housing and civic amenities in the slums of Chandigarh

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Area</th>
<th>Overall</th>
<th>Chandigarh*</th>
<th>Delhi Slums+</th>
</tr>
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<tr>
<td></td>
<td>Colony No. 4</td>
<td>Colony No. 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household type</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Pucca</td>
<td>5.45</td>
<td>4.67</td>
<td>4.98</td>
<td>69.3</td>
</tr>
<tr>
<td>Semi-pucca</td>
<td>83.03</td>
<td>66.54</td>
<td>72.99</td>
<td>27.2</td>
</tr>
<tr>
<td>Serviceable kutcha</td>
<td>11.52</td>
<td>27.63</td>
<td>21.33</td>
<td></td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>0.00</td>
<td>1.17</td>
<td>0.71</td>
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<tr>
<td>Latrine facility</td>
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<td></td>
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<tr>
<td>Own latrine-flush/pit</td>
<td>0.00</td>
<td>1.95</td>
<td>1.18</td>
<td>87.14</td>
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<tr>
<td>Own latrine-septic</td>
<td>0.00</td>
<td>1.17</td>
<td>0.71</td>
<td>0.50</td>
</tr>
<tr>
<td>Public toilets</td>
<td>58.18</td>
<td>70.04</td>
<td>65.40</td>
<td>9.13</td>
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<td>Open</td>
<td>41.82</td>
<td>26.85</td>
<td>32.70</td>
<td>3.22</td>
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<tr>
<td>Drainage facility</td>
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<td>Under ground</td>
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<td>1.56</td>
<td>0.95</td>
<td></td>
</tr>
<tr>
<td>Open pucca</td>
<td>9.70</td>
<td>14.79</td>
<td>12.80</td>
<td></td>
</tr>
<tr>
<td>Open kutcha</td>
<td>37.58</td>
<td>30.74</td>
<td>33.41</td>
<td></td>
</tr>
<tr>
<td>No drainage</td>
<td>52.73</td>
<td>52.92</td>
<td>52.84</td>
<td></td>
</tr>
<tr>
<td>Cooking fuel</td>
<td></td>
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</tr>
<tr>
<td>LPG</td>
<td>18.18</td>
<td>28.79</td>
<td>24.64</td>
<td></td>
</tr>
<tr>
<td>Kerosene</td>
<td>76.97</td>
<td>61.48</td>
<td>67.54</td>
<td></td>
</tr>
<tr>
<td>Coal</td>
<td>0.00</td>
<td>1.95</td>
<td>1.89</td>
<td></td>
</tr>
<tr>
<td>Firewood / charcoal</td>
<td>4.85</td>
<td>7.78</td>
<td>6.64</td>
<td></td>
</tr>
<tr>
<td>Source of lighting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td>100.00</td>
<td>93.39</td>
<td>95.97</td>
<td>98.36</td>
</tr>
<tr>
<td>Kerosene</td>
<td>0.00</td>
<td>6.61</td>
<td>4.03</td>
<td>1.18</td>
</tr>
<tr>
<td>Others</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.46</td>
</tr>
<tr>
<td>Source of drinking water</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Public tap</td>
<td>98.79</td>
<td>97.28</td>
<td>97.87</td>
<td></td>
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<tr>
<td>Hand pump</td>
<td>1.21</td>
<td>2.72</td>
<td>2.13</td>
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</tbody>
</table>


Apart from latrine facility, proper drainage is another important civic amenity to maintain proper hygiene and healthy environment. Poor drainage is a fertile ground for vector-borne organism leading to their rapid multiplication. It can cause filthy smell and unhygienic conditions. Unfortunately, the proper drainage facility is lacking in both the...
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colonies. Even if drainage facility is available then, it is open kutcha type. 33.41 percent of the households responded that their drainage facility is open kutcha type. Almost half of the households have no drainage facility in the study area. The open pucca or covered type drainage facility is available only to 13.75 percent of households in the study area. Even this pucca facility is available on periphery of slums, whereas interiors in both the slums are devoid of such facilities. The sad part is that even available facility is not maintained properly (Appendix 3.1, Picture 3.2). In Delhi slums, only 23.5 percent of households had no drainage facility. Around 76.5 percent of households had open drainage facility. In terms of drainage facility, Delhi slums fair better than slums of Chandigarh.

It is now well-accepted that use of source of energy for cooking has significant bearing on health of the household members in general and the cook in particular. 6.64 percent of the slum dwellers still rely on firewood/charcoal/dung for cooking fuel and most of these households are relatively poor. Most of the households (67.54 percent) in the study area use kerosene as main cooking fuel and mainly get this subsided fuel from Public Distribution System (PDS). 24.64 percent of households use LPG, which is considered to be most safe source of energy for cooking. These are predominantly better off households. Interestingly, the proportion of LPG users in Delhi slums (46.10) is double of LPG users in Chandigarh slums.

Majority of the dwellings of the slums are electrified. Colony number 4 is fully electrified. This is due to the reason that all the households were dependent on unauthorized/ theft of electricity from nearby passing electricity wires (kundi connection). In contrast, nobody is stealing electricity in colony number 5 as Chandigarh electricity department employed an innovative method for the same. A contractor, who is provided electricity by Chandigarh electricity department at a single point, is responsible for distribution of electricity among slum dwellers and also the recovering of charges thereof. 93.39 percent of households are getting electricity from this contractor and only 6.61 percent of households still use kerosene oil. Situation is same in Delhi slums where 97.1 percent of the dwellings are electrified. However, in Chandigarh city 98.36 percent of households are electrified and only 1.18 percent use kerosene. Apart from electricity
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facility, the slums dwellers of Chandigarh have drinking water facility through piped taps at public places. Majority of the households in both the colonies are using public tap water. A minor 2.13 percent of households are also using hand pump, which were mainly installed with the financial assistance of philanthropic organizations/individuals.

The common perception regarding the slums is that they are unclean, dirty, have poor sanitation facilities, no proper housing facilities, no access to safe drinking water, and inadequate lighting. But from the Table 3.2 it is evident that majority of slums dwellers of Chandigarh have semi-pucca housing, almost universal access to safe drinking water, are universally electrified, and are using comparatively safe cooking fuel (kerosene). If we focus only on the extent and magnitude of these facilities, then slums dwellers of Chandigarh have all the civic and basic amenities. But if we go beyond quantity and focus on quality then this rosy picture turns grim. Often the residents get unclean drinking water supply. The public water taps are located in unhygienic and filthy places (Appendix 3.1, Picture 3.3 and 3.4). Water is often clogged near the public taps as there is little drainage facility in the study area. This often results in dampness and mosquito breeding which causes several diseases. The residents of colony number 4 are using kundi connections to draw unauthorized electricity. This not only causes loss to state exchequer but causes serious health hazards as few residents got electrocuted (Appendix 3.1, Picture 3.5 and 3.6). Supply of kerosene and other ration from PDS is often irregular and moreover residents have to wait in the queue for several hours to get few liters of kerosene. Public toilets are often unclean and unhygienic and open defecation to such an extent is blow on the face of city beautiful (Appendix 3.1, Picture 3.7 and 3.8).

C. Literacy level, workforce and occupation of slum dwellers: Literacy not only plays crucial role in human resource development and hence can impact earning capacity of the households but it is likely to impact the treatment seeking behavior and coping behavior. As per population census of India, a person is termed as literate who at the time of survey is aged seven years or above and can read and write with understanding. The same definition is adapted to measure literacy in study area. Around 72.29 percent of sampled population is literate. There is minor difference in literacy levels among the residents of colony number 4 and 5.
### Table 3.3: Education, occupation and economic status of the slum dwellers of Chandigarh

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Slums of Chandigarh</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Colony No. 4</td>
<td>Colony No. 5</td>
<td>Overall</td>
</tr>
<tr>
<td>Literacy Rate</td>
<td>72.26</td>
<td>72.32</td>
<td>72.29</td>
</tr>
<tr>
<td>Maximum education level attained by household member</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>4.24</td>
<td>3.11</td>
<td>3.55</td>
</tr>
<tr>
<td>Primary</td>
<td>16.97</td>
<td>16.34</td>
<td>16.59</td>
</tr>
<tr>
<td>Primary to middle</td>
<td>21.21</td>
<td>29.18</td>
<td>26.07</td>
</tr>
<tr>
<td>Middle to matric</td>
<td>35.76</td>
<td>23.74</td>
<td>28.44</td>
</tr>
<tr>
<td>Matric to senior secondary</td>
<td>15.76</td>
<td>19.07</td>
<td>17.77</td>
</tr>
<tr>
<td>Above senior secondary</td>
<td>6.06</td>
<td>8.56</td>
<td>7.58</td>
</tr>
<tr>
<td>Principal occupation of household</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Domestic servants only</td>
<td>1.21</td>
<td>3.50</td>
<td>2.61</td>
</tr>
<tr>
<td>Petty traders/ self-employed in menial jobs</td>
<td>31.52</td>
<td>47.47</td>
<td>41.23</td>
</tr>
<tr>
<td>Salaried job</td>
<td>61.21</td>
<td>37.35</td>
<td>46.68</td>
</tr>
<tr>
<td>Own business/ self-employed</td>
<td>6.06</td>
<td>11.67</td>
<td>9.48</td>
</tr>
<tr>
<td>Working Members</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only head working</td>
<td>63.03</td>
<td>58.37</td>
<td>60.19</td>
</tr>
<tr>
<td>Head and partner both working</td>
<td>4.24</td>
<td>8.95</td>
<td>7.11</td>
</tr>
<tr>
<td>Head, partner, and children working</td>
<td>1.82</td>
<td>3.50</td>
<td>2.84</td>
</tr>
<tr>
<td>Head and children both working</td>
<td>18.79</td>
<td>19.07</td>
<td>18.96</td>
</tr>
<tr>
<td>Only children working</td>
<td>8.48</td>
<td>6.61</td>
<td>7.35</td>
</tr>
<tr>
<td>Head and other relatives working</td>
<td>2.42</td>
<td>3.11</td>
<td>2.84</td>
</tr>
<tr>
<td>Only partner working</td>
<td>0.61</td>
<td>0.39</td>
<td>0.47</td>
</tr>
<tr>
<td>Household relying on pension etc</td>
<td>0.61</td>
<td>0.00</td>
<td>0.24</td>
</tr>
<tr>
<td>Poverty level (Multidimensional Poverty Index)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic poor</td>
<td>7.27</td>
<td>12.45</td>
<td>10.43</td>
</tr>
<tr>
<td>Poor</td>
<td>43.64</td>
<td>56.03</td>
<td>51.18</td>
</tr>
<tr>
<td>Non-poor</td>
<td>49.09</td>
<td>31.52</td>
<td>38.39</td>
</tr>
<tr>
<td>Before migration profession</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Own farming/allied activities</td>
<td>70.30</td>
<td>71.43</td>
<td>70.95</td>
</tr>
<tr>
<td>Causal labour in agriculture</td>
<td>19.39</td>
<td>13.39</td>
<td>15.94</td>
</tr>
<tr>
<td>Small business/ self-employed in menial jobs</td>
<td>4.24</td>
<td>6.70</td>
<td>5.66</td>
</tr>
<tr>
<td>Handicraft/artisans etc</td>
<td>1.21</td>
<td>1.34</td>
<td>1.29</td>
</tr>
<tr>
<td>Others</td>
<td>4.85</td>
<td>7.14</td>
<td>6.17</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Field Survey.

However, literacy level in Chandigarh (86.43 percent) is very high as compared to the slums. The literacy level of Delhi’s slums was estimated to be 64.3 percent by Alam and...
The situation is really grim in 3.55 percent of the households as none of their member is literate. On the other hand, 17.77 percent of the households have a member educated 10th -12th standard and only 7.85 percent of the households have above senior secondary educated member. Majority of the households have a member with maximum education of 5th to 10th standard. In both the colonies, different pattern emerges for maximum education level attained by any household member. On the one hand, in colony number 5, 29.18 percent of households have a member educated 5th - 8th standard and 23.74 percent of the households have a member educated 9th -10th standard. On the other hand, in colony number 4; 21.21 percent of households have a member educated 5th -8th standard and 35.76 percent of the households have a member educated 9th -10th standard.

Information detailed in Table 3.3 suggests big occupational diversions among the slum dwellers of Chandigarh. About 87 percent of the workers in slums were employed in agriculture as small/marginal farmers or as agricultural labour in their ancestral villages. Only small proportion of them was employed in non-agricultural activities. However after migration, almost half of them are working on fixed salaries either as factory workers or small time servants in formal and informal sectors. The slum dwellers are self-employed in their own business/enterprises. Most of these self-employed are working either as petty traders or in low return menial jobs. Only 9.48 percent of the workers are self-employed in reasonable business/enterprises. In 60.19 percent of the sampled households, families are dependent upon working heads only. In 7.11 percent of households both head and partner were working. Situation seems to be worse in case of 7.35 percent of households who are exclusively surviving on the earnings of children. In another 20.8 percent of households children were found to be working along with other members for the survival of the family.

Besides workforce participation of children and employment of slum dwellers in low return activities, poor plight of the slum dwellers is also evident from prevalence of mass poverty. We measured the incidence of poverty by employing multidimensional poverty index based on type of latrine, cooking fuel, dwelling, workers, education, mode of transport, entertainment, assets, and principal occupation of households are utilized to
Socio-economic profile and prevalence of morbidity

calculate the poverty index (Full details appendix 3.2). Based on this poverty index, 61.1 percent of slum dwellers are found to be living in abject poverty. Among these, 10.43 percent are chronically poor, who seems to be permanently trapped in low level of living. Extent of poverty is significantly higher in colony number 5 as compared to colony number 4. This seems to be because of difference in employment patterns in these colonies. As majority of slum dwellers in colony number 4 are employed in fixed salary jobs, which insulate households from risk and uncertainty. This enables households to borrow and plan their expenditure as per their known fixed earnings.

3. Prevalence of morbidity

3.1. Methodology for measuring morbidity

Morbidity is a multidimensional concept and therefore its measurement is a complex phenomenon. The concept of morbidity is studied on four quasi independent dimensions: extent, duration, severity, and depth or co-morbidity (Johansson, 1991). The first dimension captures the proportion of patients in a given population over a specified period of time. This is further divided into two sub-dimensions: incidence and prevalence. Incidence of morbidity measures proportion of people perceived or observed to be ill in the reference period. This sub-dimension ignores the people who were already ill at the beginning of reference period. Prevalence includes people who are already ill at the beginning of reference period and also those who become sick in the reference period of the survey.

The second dimension is duration of morbidity. The longer duration of illness increases the probability of average person being reported sick. Duration of illness is influenced by medical technology for detection and treatment of diseases, time and resources to avail health services, and social safety nets. Third dimension of morbidity is severity. Furthermore, it is also called stage/degree of morbidity. Some diseases need hospitalization while others can be cured by self-medication. Like duration, severity of illness is also influenced by medical technology and access to health services. Fourth dimension, co-morbidity, is that situation where a person suffers from more than one
Socio-economic profile and prevalence of morbidity
disease. These four dimensions are measured in two ways: self perceived and observed (Murray and Chen, 1992, p.481). Self-perceived morbidity is the condition of health by the individuals in response to enquiries regarding their health. It is based upon perception of individuals about a particular disease. It depends upon knowledge, information and understanding of ailments, memory of the respondents, proxy responses (a member reporting for other members’ illness), level of communication of interviewer and respondents, and efficiency of health services availed. Observed morbidity is the assessment by a medical professional or other investigator of illness using an examination or some tests. The supremacy and accuracy of these two measurement techniques is still a controversial issue. Advocates of observed morbidity emphasize on significance of professional diagnosis over a lay man’s perceptions. On the other hand, advocates of self-perceived illness reason that unless any person perceives he/she has illness, he/she will not avail any healthcare services. Moreover, studies based on self-perceived illness are quick and cost effective as compared to diagnostics analysis of health professional. Further, information on many other compounding factors like socio-economic characteristics, treatment seeking behavior, economic burden, and coping behavior can also be collected from respondents in self-perceived morbidity surveys. Probably due to these reasons, data generated on morbidity worldwide in general and developing world in particular is based on self perceived morbidity approach. The present study also adopts self-perceived morbidity approach. This study also employs various health and disease related concepts and definitions adopted by the National Sample Survey Organization (NSSO) during their health and morbidity rounds. According to NSSO, prevalence rate of morbidity is estimated as per thousand persons reporting any kind of ailment during the last 15 days, preceding the date of visit to the household. For inpatients, prevalence rate of morbidity is per thousand estimated number of persons reporting any incident of hospitalization during last 365 days, preceding the date of visit to the household.

3.2. Morbidity in the slums of Chandigarh

Prevalence of morbidity: Using self-perceived approach and the definition of NSSO, the prevalence of morbidity was estimated and presented in Table 3.4. 165 persons per 1000
Socio-economic profile and prevalence of morbidity of population are found to be suffering from illness in the slums. Though the prevalence of morbidity of slums is not strictly comparable with Chandigarh and the country as whole, yet the available figures indicate that morbidity among slums is almost double of the morbidity in Chandigarh and country as whole. Interestingly, morbidity among Chandigarh slums is also slightly higher than prevalence of morbidity in Delhi slums. There is hardly much difference in prevalence of morbidity among the colony number 4 and colony number 5.

Table 3.4: Prevalence of morbidity in Chandigarh’s slums, 2011
[Persons per 1000 reporting ailment (during last 15 days)]

<table>
<thead>
<tr>
<th>Area</th>
<th>Colony number 4</th>
<th>Colony number 5</th>
<th>Overall</th>
<th>Delhi Slums*</th>
<th>Chandigarh Slums*</th>
<th>India*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>157</td>
<td>138</td>
<td>145</td>
<td>147</td>
<td>51</td>
<td>85</td>
</tr>
<tr>
<td>Female</td>
<td>183</td>
<td>192</td>
<td>189</td>
<td>163</td>
<td>89</td>
<td>97</td>
</tr>
<tr>
<td>Overall</td>
<td>168</td>
<td>163</td>
<td>165</td>
<td>154</td>
<td>68</td>
<td>91</td>
</tr>
<tr>
<td>Differentials (in percent)</td>
<td>16.56</td>
<td>39.13</td>
<td>30.34</td>
<td>10.88</td>
<td>74.51</td>
<td>14.12</td>
</tr>
</tbody>
</table>


Despite almost similar prevalence of morbidity, there seems to be interesting male-female differentials among the slum dwellers as well as in both the colonies. In line with empirical evidences by Singh (2012), Shariff (1995), Dilip (2002), Ghosh and Arokiasamy (2007), overall morbidity is significantly higher among female than males. The pattern is same for residents of both the colonies. Identification of reasons for male-female differentials can be rewarding exploration for reduction in overall morbidity and up-liftment of women. The same is outside the purview of present study; therefore it is not dealt in detail here. However, there is opposite trend in intra-gender prevalence of morbidity. Prevalence of morbidity is significantly higher in males in colony number 4 whereas prevalence of morbidity among the females is higher in the colony number 5. This pattern may be owing to the fact that most of male workers in colony number 4 are working in various factories. It is quite possible the adverse working conditions drawing upon their health and these workers are also exposed to work-related various accidents/injuries.
Socio-economic profile and prevalence of morbidity

**Duration of illnesses:** Duration of ailment is the period between beginning of the ailment and the recovery of the ailing person. To study the duration of illness, diseases had been categorized into acute and chronic disease. Acute diseases are those diseases which terminate within 30 days and chronic diseases are those which continue for more than 30 days. This definition of acute and chronic illness is adopted in many national and international studies like Russell (2005), Save the Children (2002), Gupta and Dasgupta (2000), and Singh (2012). Evidence presented on Table 3.5 suggests that people suffered more from chronic diseases as compared to acute diseases in the slums.

Table 3.5: Duration of illnesses in Chandigarh’s slums, 2011

<table>
<thead>
<tr>
<th>Area</th>
<th>Any ailment per 1000 persons (during last 15 days)</th>
<th>Differential (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acute</td>
<td>Chronic</td>
</tr>
<tr>
<td>Colony number 4</td>
<td>62</td>
<td>106</td>
</tr>
<tr>
<td>Colony number 5</td>
<td>64</td>
<td>99</td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>102</td>
</tr>
</tbody>
</table>

Source: Field Survey.

One hundred two people per 1000 are suffering from chronic diseases and on the other hand sixty three people per 1000 are suffering from acute diseases. This may be happening due to late complications of diseases. During the interview, it was observed that diseases like conjunctivitis and skin diseases which could have otherwise cured in short duration, took longer time to heal. This may be happening due to lack of knowledge, incorrect attitude, absence of practices of good health and hygiene of slum dwellers. The differentials in acute-chronic diseases exist in both the colonies. The differentials are large in colony number 4 as compared to colony number 5.

**Severity of illnesses:** The severity of diseases can be measured in several ways like their fatal and non-fatal outcomes. Generally the severity of diseases is measured into two categories: outpatients’ visits and hospitalization/inpatients. Inpatients/hospitalization means a patient is admitted to the hospital for more than one night. NSSO adopts 365 days’ reference period prior to the date to interview to measure the number of inpatients. In the present chapter, the same methodology is adopted. Outpatient is a patient who is
not hospitalized but visits the medical facility for consultation/diagnosis/curative services. The proportion of ailing persons (PAP) of outpatients and of inpatients is presented in Table 3.6.

<table>
<thead>
<tr>
<th>Area</th>
<th>Outpatients per 1000 (during last 15 days)</th>
<th>Hospitalized per 1000 (during last 365 days)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Colony number 4</td>
<td>118</td>
<td>157</td>
</tr>
<tr>
<td>Colony number 5</td>
<td>104</td>
<td>155</td>
</tr>
<tr>
<td>Total</td>
<td>109</td>
<td>156</td>
</tr>
</tbody>
</table>

Source: Field Survey.

In the study area, 133 per 1000 persons are outpatients. In line with earlier observation, proportion of female is significantly higher than males among the outpatients. The outpatient PAP is higher in colony number 4 as compared to colony number 5. However, trend is opposite for inpatient PAP. 34 patients per 1000 people are hospitalized. On the one hand, 28 per 1000 people are hospitalized in colony number 4 and 37 per 1000 persons are hospitalized in colony number 5. There also exists male-female differential in the study area. Female inpatients were more as compare to males in the colony number 5. But the pattern of this differential got reversed in colony number 4 and there were more male inpatients than female. It was observed during the survey that few cases of factory accidents in the colony number 4 were reported and the injured male factory worker required hospitalization.

Co-morbidity in the study area: Co-morbidity not only complicates the treatment procedure for health professional but it can also increase the economic burden of households. Evidences reported in Table 3.7 reveals that a very low level of co-morbidity among the slum dwellers. Only 4.49 percent of patients suffer from co-morbidity whereas remaining 95.51 percent are affected by one disease at the time of survey. Prevalence of co-morbidity is higher in colony number 5 as compared to colony number 4. On further
Socio-economic profile and prevalence of morbidity

exploration of the data, it was observed that these patients were suffering from two or more chronic non-communicable diseases at the same time.

Table 3.7: Proportion of patients with multiple diseases in the study area

<table>
<thead>
<tr>
<th>Area</th>
<th>Patient with three disease</th>
<th>Patient with two disease</th>
<th>Patient with one disease</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colony number 4</td>
<td>0.00</td>
<td>3.33</td>
<td>96.67</td>
<td>100.00</td>
</tr>
<tr>
<td>Colony number 5</td>
<td>0.47</td>
<td>4.67</td>
<td>94.86</td>
<td>100.00</td>
</tr>
<tr>
<td>Overall</td>
<td>0.30</td>
<td>4.19</td>
<td>95.51</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Field Survey.

Composition of morbidity: Information on prevalence of morbidity across broader group of diseases by outpatients and inpatients is detailed in Table 3.8. On the whole, other diagnosed ailments, fever of unknown origin, neurological disorders, skin diseases, and gastritis/peptic ulcers turned out to be the top five diseases among the slum dwellers of Chandigarh. The top diseases differ across acute and chronic category. In the category of acute diseases, fever of unknown origin, other diagnosed ailments, skin diseases, diarrhea, gastro ailments, and diseases of ear, nose, and throat emerged as the top five ailments in Chandigarh’s slums. On the other hand, among the chronic ailments other diagnosed ailments, neurological/psychiatric disorders, kidney diseases/stone, tuberculosis, gastritis, diabetes, asthma, and disorders of joints and bones are major prevalent diseases. Information on ailment of inpatients reveals that other diagnosed diseases, accidents, cardio vascular diseases, pneumonia, and kidney stone are the top five reasons for hospitalization of people from the slums.

Is this a unique pattern?: The life-style diseases like diabetes and cardiovascular problems which were once considered being diseases of rich people, are quite common in slum areas. This is peculiar situation of slums areas that on the one hand diseases like tuberculosis, cholera, malaria, fever are present and on the other hand, diseases like cardiovascular problems and diabetics are also widespread. As per earlier discussion, slum dwellers sometimes face late complications of disease. Diseases like conjunctivitis and diarrhea/ dysentery which can be cured in few days, took longer time to heal.
### Table 3.8: Composition of morbidity in slums of Chandigarh

<table>
<thead>
<tr>
<th>Disease(s)</th>
<th>Outpatients</th>
<th>Inpatients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acute</td>
<td>Chronic</td>
</tr>
<tr>
<td>Accidents/Injuries/Burns/Fractures/Poisoning</td>
<td>2.54</td>
<td>3.13</td>
</tr>
<tr>
<td>Asthma</td>
<td>--</td>
<td>5.63</td>
</tr>
<tr>
<td>Cancer and other tumors</td>
<td>--</td>
<td>1.87</td>
</tr>
<tr>
<td>Cataract</td>
<td>0.85</td>
<td>--</td>
</tr>
<tr>
<td>Cholera</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Conjunctivitis</td>
<td>1.69</td>
<td>3.13</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>--</td>
<td>6.25</td>
</tr>
<tr>
<td>Diarrhea/ Dysentery</td>
<td>8.48</td>
<td>2.50</td>
</tr>
<tr>
<td>Disease of Ear, nose, and throat</td>
<td>2.55</td>
<td>3.13</td>
</tr>
<tr>
<td>Diseases of kidney/urinary system/ Stone etc</td>
<td>1.69</td>
<td>8.13</td>
</tr>
<tr>
<td>Diseases of Mouth/Teeth/Gum</td>
<td>1.69</td>
<td>0.63</td>
</tr>
<tr>
<td>Diseases of skin</td>
<td>11.86</td>
<td>3.74</td>
</tr>
<tr>
<td>Disorders of joints and bones</td>
<td>--</td>
<td>5.63</td>
</tr>
<tr>
<td>Fever of unknown origin</td>
<td>36.45</td>
<td>1.87</td>
</tr>
<tr>
<td>Gastro-intestinal diseases (Gastritis/gastric or peptic ulcer)</td>
<td>5.93</td>
<td>6.25</td>
</tr>
<tr>
<td>Gynecological disorders</td>
<td>1.69</td>
<td>3.74</td>
</tr>
<tr>
<td>Heart/Cardiovascular disease</td>
<td>--</td>
<td>1.87</td>
</tr>
<tr>
<td>Hernia</td>
<td>0.85</td>
<td>--</td>
</tr>
<tr>
<td>Hypertension/ Blood pressure</td>
<td>--</td>
<td>3.13</td>
</tr>
<tr>
<td>Malaria</td>
<td>0.85</td>
<td>--</td>
</tr>
<tr>
<td>Neurological/ Psychiatric disorders</td>
<td>2.54</td>
<td>14.37</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>0.85</td>
<td>0.63</td>
</tr>
<tr>
<td>Pregnancy related problems</td>
<td>--</td>
<td>2.50</td>
</tr>
<tr>
<td>Tuberculosis (TB)</td>
<td>--</td>
<td>7.50</td>
</tr>
<tr>
<td>Other diagnosed ailments</td>
<td>18.64</td>
<td>14.37</td>
</tr>
<tr>
<td>Other undiagnosed ailments</td>
<td>0.85</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Field Survey. - - signify not applicable/available.
The comparison of top five ailments of the slums of Chandigarh with other regions of the country also reveals interesting facts. The comparison of ranking of top five ailments of outpatients is presented in the Table 3.9 and comparison of ranking of top five ailments of inpatients is presented in the Table 3.10. In case of outpatients, a comparison with Punjab and slums of Delhi is carried out. Out of five, at least three diseases are common in all the three study areas. Neurological or psychiatric diseases are not top-ranking in the Punjab and slums of Delhi; while these are ranked third in Chandigarh slums. Respiratory, cardiovascular diseases and diseases of joints/bones are not among the top five diseases in the Chandigarh slums as well as among the top five diseases of Punjab and slums of Delhi.

Table 3.9: Brief comparison of ranking of various ailment groups of outpatients

<table>
<thead>
<tr>
<th>Disease</th>
<th>Study area</th>
<th>Punjab*</th>
<th>Delhi slums+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever of unknown origin</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Other diagnosed ailments</td>
<td>2</td>
<td>1</td>
<td>--</td>
</tr>
<tr>
<td>Neurological/ Psychiatric disorders</td>
<td>3</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Diseases of skin</td>
<td>4</td>
<td>--</td>
<td>4</td>
</tr>
<tr>
<td>Gastritis/gastric or peptic ulcer</td>
<td>5</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Respiratory Diseases</td>
<td>--</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Heart/ Cardiovascular Disease</td>
<td>--</td>
<td>4</td>
<td>--</td>
</tr>
<tr>
<td>Disease of joints and bones/ Orthopaedics</td>
<td>--</td>
<td>--</td>
<td>5</td>
</tr>
</tbody>
</table>


In case of inpatients, other diagnosed ailments and accidents/injuries are top two ranked diseases in Chandigarh slums, Punjab and all over India. Diseases like cardiovascular, kidney/stones, and pneumonia are among the top five diseases in study area while in Punjab and all over India these are not among the top five diseases. Some of the diseases like accidents which are widely prevalent in Chandigarh slums are also widely prevalent in other parts of India. On the other hand, some of the diseases like cardiovascular and pneumonia which are not so common in other parts of India are considerably present in Chandigarh slums.
Socio-economic profile and prevalence of morbidity

From the discussion on morbidity of Chandigarh’s slums, it is evident that Chandigarh slums are facing ‘Double burden of disease’. Infectious diseases like tuberculosis (TB), malaria co-exist with lifestyle diseases like cardiovascular, diabetes.

Table 3.10: Brief comparison of ranking of various ailment groups of inpatients

<table>
<thead>
<tr>
<th>Disease</th>
<th>Study area</th>
<th>Punjab*</th>
<th>India®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other diagnosed ailments</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Accidents/Injuries/Burns/Fractures/Poisoning</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Heart/ Cardiovascular Disease</td>
<td>3</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>4</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Diseases of kidney/urinary system/ Stone</td>
<td>5</td>
<td>5</td>
<td>--</td>
</tr>
<tr>
<td>Diarrhoea/ dysentery</td>
<td>--</td>
<td>--</td>
<td>3</td>
</tr>
<tr>
<td>Fever of unknown origin</td>
<td>--</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Gynecological disorders</td>
<td>--</td>
<td>--</td>
<td>5</td>
</tr>
<tr>
<td>Gastro-intestinal diseases</td>
<td>--</td>
<td>3</td>
<td>--</td>
</tr>
</tbody>
</table>


4. Summary

The present chapter examined the socio-economic profile and prevalence of the morbidity among the slum dwellers of Chandigarh. The socio-economic profile of the slum dwellers studied on demographic characteristics, housing and civic amenities, literacy level, and occupation characteristics of slum dwellers. Prevalence of morbidity has been examined on account of duration, severity, and co-morbidity dimensions. The main findings of the chapter are:

1. Most of the slum dwellers in the Chandigarh are migrants from backward states namely; Uttar Pradesh and Bihar.
2. Most of the slum dwellers have comparatively large family size and low proportion of females.
3. Four-fifth of the slum dwellers are living in the pucca or semi-pucca houses whereas one-fifth of households still live in katcha dwellings. About one-third of the households are going in for open defecation.
4. The slum dwellers have universal access to piped water supply through public taps but non-availability of drainage facility is proving them counterproductive.
Half of the households have no connectivity with drainage facilities, consequently, water flowing from public taps and disposed grey water from the houses get accumulated in streets. Same may be posing serious health hazards to slum dwellers.

5. Access to electricity is almost universal but residents of colony number 4 are found to be stealing electricity from overhead electricity wires/lines. Two-third of slum dwellers are literate but only one fourth of slum dwellers attain matriculation or above educational level.

6. Most of the migrants were employed in farming and low rewarding traditional non-farm activities. On migration, majority of them are found to be working low paid activities like petty traders, domestic servants, and factory workers.

7. 61.1 percent of households are found to be in poverty on basis of composite multi-dimensional index of poverty. One-tenth of the slum households are chronic poor and seem to be permanently trapped in poverty.

8. 16.5 percent of slum dwellers are suffering from one or other type of disease. The prevalence of morbidity among the slum dwellers of Chandigarh is significantly higher than city as a whole, nearby state of Punjab, and slums of Delhi.

9. Morbidity among slum dwellers has a specific gender dimension. Morbidity among females is 30 percent higher than the prevalence of morbidity among males.

10. Contrary to general perception, prevalence of morbidity of chronic ailments is about 60 percent higher among the slum dwellers as compared to acute ailments.

11. The prevalence of co-morbidity is negligible among the slum dwellers as only 4.4 percent of patients were suffering from more than one disease.

12. In the category of acute diseases, fever of unknown origin, other diagnosed ailments, skin diseases, diarrhea, gastro ailments, and diseases of ear, nose, and throat emerged as the top five ailments in Chandigarh’s slums.

13. Among the chronic ailments other diagnosed ailments, neurological/psychiatric disorders, kidney diseases/stone, tuberculosis, gastritis, diabetes are the top five ailments in the slums of Chandigarh.
14. Information on ailment of inpatients reveals that other diagnosed diseases, accidents, cardio vascular diseases, pneumonia, and kidney stone are the top five reasons for hospitalization of people from slums.

15. Contrary to general perception, many diseases like diabetes and cardio-vascular diseases are ailment of rich people. However, significant numbers of slum dwellers are suffering from these chronic and lifestyle diseases.