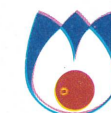
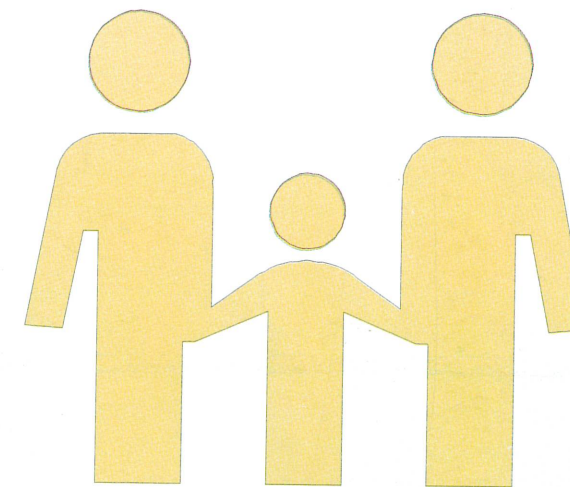


# Health and Population

## Perspectives & Issues



आरोग्यम् सुखसम्यक्

राष्ट्रीय स्वास्थ्य एवं परिवार कल्याण संस्थान  
National Institute of Health and Family Welfare  
Munirka, New Delhi- 110 067

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3. DANDEKAR R. & MINSAS P. (1973): Control of Cross-infection in Hospitals; in: Kuppaswamy m. (ed.), Hospital Management in India, Bombay, Somaiya Publication, P.100

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# **Health and Population: --- Perspectives and Issues**



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**National Institute of Health and Family Welfare**

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## SURVEY METHODOLOGY FOR THE ASSESSMENT OF DISEASE BURDEN OF LEPROSY IN INDIA

Abha Aggarwal\*, Arvind Pandey\*\* and Kiran Katoch\*\*\*

### ABSTRACT

*Estimation of leprosy by conventional sampling requires a large sample size. In addition, there is a likelihood of not getting even a single event after covering a large sample in conventional sampling methodology. In such a situation, inverse sampling procedure could be a choice. During 2009, inverse sampling for estimation of disease burden was tested on pilot basis in one district namely, Bareilly of Uttar Pradesh State, India, with an aim to evolve inverse sampling and validity of inverse sampling vis-à-vis conventional sampling. The pilot study found that inverse sampling is feasible in terms of cost and time and could be adopted at country level. Accordingly, a national level study using inverse sampling with modifications was designed by the National Institute of Medical Statistics during the year 2010. This paper presents the detailed methodology of the inverse sampling for estimation of disease burden of leprosy at national level with a view that the same could be applied in other similar situations.*

**Keywords:** Rare Disease; Conventional Sampling; Inverse Sampling, Feasibility

Conventional sampling techniques for the estimation of disease burden of leprosy are difficult to apply due to large sample size requirement. Further, there is a likelihood of not getting even a single event despite covering a large sample. The sampling techniques for rare events are likely to be more appropriate for the estimation of disease burden. Various sampling methods are available for the estimation of rare events in social surveys.<sup>1</sup> Survey techniques are also developed to be used for the estimation of hidden population like respondent driven sampling (RDS),<sup>2,4</sup> time location cluster sampling,<sup>5</sup> snowball sampling<sup>6</sup> capture recapture sampling and inverse sampling.<sup>7</sup> Leprosy is one of such diseases which is rare in nature and population suffering from it is hidden due to societal stigma associated with the disease. The inverse sampling detects predetermined cases in the study population and is considered appropriate for the survey of rare events.<sup>8-9</sup> Under inverse sampling the number of rare events are fixed in advance or predetermined and the sampling is continued till the predetermined number of rare events is obtained in the population.

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During 2009, a pilot study was conducted by NIMS in two blocks of Bareilly district of Uttar Pradesh State, India, which is an endemic area of leprosy, with the aim of evolving and validating inverse sampling procedure vis-à-vis conventional sampling for the estimation of disease burden of leprosy.<sup>10</sup> The findings of the pilot study showed that the population covered under conventional sampling was three times more as compared to inverse sampling. The number of working days consumed for data collection under inverse sampling was 19 days with two teams of five members while under conventional sampling it took 31 days with three teams of five members. Therefore, the cost of data collection was more in conventional sampling as compared to inverse sampling. Although precision obtained under conventional sampling was more as compared to inverse sampling yet inverse sampling was found to be feasible and suitable for estimation of leprosy due to less population covered, less time consumed and less cost and could be adopted at National level.<sup>11</sup> Accordingly, National Institute of Medical Statistics developed and designed a National level study to provide the state level estimates of Leprosy for Ministry of Health and Family Welfare (MOHFW), New Delhi. The methodology was implemented by National JALMA Institute of Leprosy and Other Mycobacterium Diseases (NJIL&OMD), ICMR, Agra. The data were collected during the year July 2010- Dec 2012 by NJIL&OMD with the financial support of MOHFW. Present paper presents the detailed methodology for implementation of inverse sampling with multiple random starts or villages for estimation of disease burden of leprosy at country level, India, with a view that other researchers may adopt this sampling design for other similar situations.

## **MATERIALS AND METHOD**

A total of 130 districts/cities were included in the survey covering all the 29 states and four union territories namely; Chandigarh, Daman & Diu, Dadar and Nagar Haveli and Puducherry. At the district level, under the assumption of Annual case detection Rate ( $p$ ) < 1 per 10,000, Coefficient of variation (CV) = 20 per cent, the number of new cases of leprosy ( $m$ ) works out to be 28 using the inverse sampling. In areas with very low prevalence where 28 new cases may not be found in a district, a maximum of 40,000 households was surveyed and the number of cases detected in this population was noted. The total coverage at the national level from 130 districts/cities was expected to be 2.43 crore (i.e., 36 lakh households).

### **Selection Procedure**

Three stage sampling design was adopted for the selection of rural population.

At the first stage, districts were allocated to each State by Neyman allocation based on the number of districts in a State and its ANCDR (Table-1) and then the allocated number of districts were selected from each State. At the second stage, two blocks from each of the selected districts were selected and at the third stage, villages were selected from each of the selected blocks. Thus, district was the primary sampling unit and village was the ultimate unit of selection.

**TABLE 1**  
**STATE-WISE ALLOCATION OF DISTRICTS BY NEYMAN ALLOCATION FOR RURAL**  
**POPULATION IN INDIA**

| States            | Total Population | Total No. of districts | ANCDR(pi) per ten thousand | No. of districts allocated |
|-------------------|------------------|------------------------|----------------------------|----------------------------|
| Andhra Pradesh    | 83971017         | 23                     | 1.14                       | 5                          |
| Arunachal Pradesh | 1311884          | 16                     | 0.29                       | 2                          |
| Assam             | 30556288         | 27                     | 0.39                       | 3                          |
| Bihar             | 100979764        | 38                     | 1.99                       | 6                          |
| Chhattisgarh      | 23723551         | 16                     | 3.37                       | 4                          |
| GOA               | 1500927          | 2                      | 0.78                       | 1                          |
| Gujarat           | 59422072         | 25                     | 1.28                       | 4                          |
| Haryana           | 26497407         | 20                     | 0.17                       | 2                          |
| Himachal Pradesh  | 6910993          | 12                     | 0.30                       | 2                          |
| J&K               | 12317178         | 22                     | 0.17                       | 2                          |
| Jharkhand         | 31751927         | 24                     | 1.63                       | 4                          |
| Karnataka         | 59827112         | 29                     | 0.74                       | 4                          |
| Kerala            | 34204523         | 14                     | 0.24                       | 2                          |
| MP                | 71755814         | 48                     | 0.88                       | 6                          |
| Maharashtra       | 113716806        | 34                     | 1.26                       | 5                          |
| Manipur           | 2939979          | 9                      | 0.13                       | 2                          |
| Meghalaya         | 2836145          | 7                      | 0.06                       | 2                          |
| Mizoram           | 1090762          | 9                      | 0.19                       | 2                          |
| Nagaland          | 2931411          | 11                     | 0.22                       | 2                          |
| Odisha            | 41284936         | 30                     | 1.55                       | 5                          |
| Punjab            | 28015421         | 20                     | 0.33                       | 2                          |
| Rajasthan         | 68753330         | 32                     | 0.17                       | 3                          |
| Sikkim            | 676744           | 4                      | 0.43                       | 1                          |
| TN                | 67577617         | 30                     | 0.74                       | 4                          |

| States            | Total Population | Total No. of districts | ANCDR(pi) per ten thousand | No. of districts allocated |
|-------------------|------------------|------------------------|----------------------------|----------------------------|
| Tripura           | 3583509          | 4                      | 0.18                       | 1                          |
| UP                | 199182650        | 71                     | 1.38                       | 9                          |
| Uttarakhand       | 9749676          | 13                     | 0.68                       | 2                          |
| WB                | 91373968         | 19                     | 1.30                       | 4                          |
| Andaman & Nicobar | 430361           | 3                      | 0.58                       | 2                          |
| <b>Total</b>      |                  | <b>612</b>             |                            | <b>93</b>                  |

For the selection of districts from a State, first the districts were arranged in ascending order of their ANCDR and then the districts were stratified into three strata based on their ANCDR namely:

**Stratum I** consists of districts with ANCDR <10 per 100,000,

**Stratum II** consists of districts with ANCDR between 10-20 per 100,000 and

**Stratum III** with districts ANCDR more than 20 per 100,000.

After forming the strata, the number of districts within the stratum was reallocated with proportional allocation. The required number of districts within the stratum were selected by circular systematic sampling ensuring the geographical spread and varying ANCDR level (Table-2).

**TABLE 2**  
**STRATUM-WISE ALLOCATION OF DISTRICTS IN STATES FOR RURAL POPULATION IN INDIA**

| States            | Total no. of districts | No. To be selected | Stratum I<br>ANCDR < 1 | Stratum II<br>ANCDR 1-2 | Stratum III<br>ANCDR > 2 |
|-------------------|------------------------|--------------------|------------------------|-------------------------|--------------------------|
| Andhra Pradesh    | 23                     | 5                  | 6(1)                   | 9(4)                    | -                        |
| Arunachal Pradesh | 16                     | 2                  | 15(1)                  | 1(1)                    | -                        |
| Assam             | 27                     | 3                  | 23 (2)                 | 4 (1)                   |                          |
| Bihar             | 38                     | 6                  | -                      | 24 ( 4)                 | 14(2)                    |
| Chhattisgarh      | 16                     | 4                  | 3 (1)                  | 2( 1)                   | 11(2)                    |
| GOA               | 2                      | 1                  | 2 (1)                  | -                       | -                        |
| Gujarat           | 25                     | 4                  | 16 (3)                 |                         | 9(1)                     |
| Haryana           | 20                     | 2                  | 20 (2)                 | -                       | -                        |
| Himachal Pradesh  | 12                     | 2                  | 12 (2)                 | -                       | -                        |
| J&K               | 22                     | 2                  | 10(1)+<br>12(1)        | -                       | -                        |

| States            | Total no. of districts | No. To be selected | Stratum I<br>ANCDR < 1 | Stratum II<br>ANCDR 1-2 | Stratum III<br>ANCDR > 2 |
|-------------------|------------------------|--------------------|------------------------|-------------------------|--------------------------|
| Jharkhand         | 24                     | 4                  | 5 (1)                  | 12(2)                   | 7(1)                     |
| Karnataka         | 29                     | 4                  | 19 (2)                 | 10(2)                   | -                        |
| Kerala            | 14                     | 2                  | 14 (2)                 | -                       | -                        |
| MP                | 48                     | 6                  | 33 (3)                 | 13(2)                   | 2(1)                     |
| Maharashtra       | 34                     | 5                  | 16 (3)                 | 10(1)                   | 8(1)                     |
| Manipur           | 9                      | 2                  | 9 (2)                  | -                       | -                        |
| Meghalaya         | 7                      | 2                  | 7 (2)                  | -                       | -                        |
| Mizoram           | 9                      | 2                  | 9 (2)                  | -                       | -                        |
| Nagaland          | 11                     | 2                  | 10 (1)                 | 1(1)                    | -                        |
| Odisha            | 30                     | 5                  | 8 (1)                  | 14(3)                   | 8(1)                     |
| Punjab            | 20                     | 2                  | 20 ( 2)                | -                       | -                        |
| Rajasthan         | 32                     | 3                  | 32 (3)                 | -                       | -                        |
| Sikkim            | 4                      | 1                  | 4 (1)                  | -                       | -                        |
| TN                | 30                     | 4                  | 29 (4)                 | 1(0)                    | -                        |
| Tripura           | 4                      | 1                  | 4 (1)                  | -                       | -                        |
| UP                | 71                     | 9                  | 22 (3)                 | 37(4)                   | 12(2)                    |
| Uttarakhand       | 13                     | 2                  | 11 (1)                 | 1(1)                    | -                        |
| WB                | 19                     | 4                  | 8 (2)                  | 6(1)                    | 5(1)                     |
| Andaman & Nicobar | 3                      | 2                  | 2 (2)                  | -                       | -                        |
| Total             | 612                    | 93                 | 53                     | 28                      | 12                       |

Note: Figures in parenthesis indicate the number of selected districts

- Indicates stratum does not exist

Further, all blocks within the selected districts were arranged in ascending order and divided into two groups namely; high and low endemic (cut off being the median ANCDR). One block from each group was selected randomly making two blocks from each district to be covered.

### Inverse Sampling

Inverse sampling is a sampling technique to estimate a proportion 'P' for rare events like leprosy. The method consists of sampling until an exactly 'm' predetermined occurrences of rare events appear in the population. Evidently under inverse sampling the required sample size 'n' is a random variable or not known in advance. It is contrary to the conventional cluster sampling where

sample size is fixed and the rare event is counted after attaining the sample size 'n' then the disease burden 'P' is estimated as  $m/n$  where m is the number of events found in the study population.

Under inverse sampling if n is the sample size at which the mth case appears, and then an unbiased estimate of P is given by

$$\hat{p} = \frac{(m-1)}{n-1} \quad (1)$$

The unbiased variance estimator of  $\hat{p}$  is given by,

$$\hat{V}(\hat{p}) = \left(1 - \frac{n-1}{N}\right) \left(\frac{\hat{p}(1-\hat{p})}{n-2}\right) \quad (2)$$

Where, N is the total population of the study area.

### Implementation of Inverse Sampling for Rural Areas

Twenty eight new cases were detected from two selected blocks (one high endemic and other low endemic) of the district. 16 new cases were detected from the high endemic block and 12 new cases were detected from the low endemic block. Four random starts or four villages have been selected randomly from each quadrant of each block using a map of the block to avoid the clustering effect. From the high endemic block, four new cases were detected from each random start/village. On the other hand, from low endemic block, three new cases were detected from each random start or a village.

To begin with, the first household would be selected randomly starting from some landmark area from each village and data were collected moving in a particular direction (Right Hand Rule) till desired number of confirmed new cases (4 in high endemic block and 3 in low endemic block) from a village were obtained. If the four new cases from a village from high endemic block and three new cases in a village from low endemic block were not found then the next village which was nearest from the exit of the surveyed village was taken. The process was continued till the desired number of confirmed new cases were found from each random start.

### Selection of Cities in Urban Population

The urban population of India exhibits a share of about 30 per cent of its total

population. As mentioned in section 2, a sample of about 24 per cent (37) cities including 4 UTs namely; Puducherry, Chandigarh, Dadar and Nagar Haveli, Daman and Diu was covered for the urban population for the study. Urban cities from all the States constitute the sampling frame for selection of urban cities. Cities having population of 2.5 lakh or more were included in the sampling frame for the selection of cities to get the predetermined 28 new cases of leprosy from each city. In all, there were 157 cities having population of 2.5 lakh or more from all the States. These cities were categorized in to four strata namely; Metros, other 4 million cities, 1-4 million and <1 million. Since all the four UTs to be covered in the survey, the remaining 33 cities were selected from 157 urban cities. (Table-3)

TABLE 3  
TYPES OF CITIES OF URBAN AREAS IN INDIA

| Category        | Total Population | No of cities in category | Number of cities to be allocated | No. of wards/ random start each city | No. of new cases to be covered |
|-----------------|------------------|--------------------------|----------------------------------|--------------------------------------|--------------------------------|
| Metros          | 4,90,77,795      | 4                        | 4                                | 10                                   | 120                            |
| Other 4 Million | 1,59,68,495      | 3                        | 3                                | 10                                   | 90                             |
| 1-4 Million     | 4,32,43,723      | 28                       | 12                               | 6                                    | 360                            |
| <1 Million      | 5,86,00,567      | 122                      | 14                               | 6                                    | 420                            |
| Total           | 16,68,90,580     | 157                      | 33                               |                                      | 990                            |
| 4 UTs           | 28,46,217        | 4                        | 4                                | 6                                    |                                |
| Grand Total     | 16,97,36,797     | 161                      | 37                               |                                      | 1110                           |

#### Allocation of Urban Population

All the 4 Metros i.e., Delhi, Kolkata, Chennai and Mumbai and three other 4 Million cities, i.e., Hyderabad, Ahmedabad and Bangalore were included in the survey. The number of cities in category III and category IV were allocated with proportional allocation based on total population available from the census India (Table-3). Selection was made for category III and category IV only. Further, the number of cities were allocated to different States with Neyman allocation or by considering the population of the State and ANCDR, keeping in mind that at least one city from each State should be allocated for better representation of the sample. Further, simple random sampling was adopted to select the required cities from each state from the list of cities obtained from Census. The selected cities are given in Table 4.

**TABLE 4**  
**STATE-WISE SELECTION OF CITIES FOR URBAN SAMPLING**

| Category States  | Population | ANCDR/<br>1,00,000 | No. of cities to be allocated | Metros (4) Category-I | Other 4 million + (3) Category-II | 1-4 million (28) Category-III | <1 million (122) Category-IV |
|------------------|------------|--------------------|-------------------------------|-----------------------|-----------------------------------|-------------------------------|------------------------------|
| Andhra Pradesh   | 15795747   | 8.12               | 2                             |                       | Hyderabad                         |                               | Guntur                       |
| Assam            | 3335451    | 13.25              | 1                             |                       |                                   |                               | Guwahati                     |
| Bihar            | 7284054    | 17.5               | 2                             |                       |                                   | Patna                         | Bhagalpur,                   |
| Chhattisgarh     | 2778873    | 39.73              | 1                             |                       |                                   |                               | Raipur                       |
| Gujarat          | 14460976   | 0.75               | 2                             |                       | Ahmedabad                         |                               | Bhavnagar                    |
| Haryana          | 3404758    | 5.79               | 1                             |                       |                                   | Faridabad                     |                              |
| Himachal Pradesh | 223824     | 7.15               | 1                             |                       |                                   |                               | Shimla                       |
| J&K              | 3442248    | 2.64               | 1                             |                       |                                   |                               | Jammu                        |
| Jharkhand        | 3958026    | 14.93              | 1                             |                       |                                   | Dhanbad                       |                              |
| Karnataka        | 12710955   | 5.55               | 2                             |                       | Bangalore                         |                               | Dharwad                      |
| Kerala           | 4964954    | 6.61               | 1                             |                       |                                   | Kochi                         |                              |
| MP               | 10378057   | 7.47               | 2                             |                       |                                   | Indore                        | Gwalior                      |
| Maharashtra      | 38063755   | 10.2               | 2                             | Mumbai                |                                   | Pune                          |                              |
| Odisha           | 5401346    | 17.22              | 1                             |                       |                                   |                               | Cuttack                      |
| Punjab           | 6549537    | 7.01               | 1                             |                       |                                   | Ludhiana                      |                              |
| Rajasthan        | 8175154    | 4.39               | 1                             |                       |                                   | Jodhpur                       |                              |
| TN               | 17905662   | 7.71               | 3                             | Chennai               |                                   | Vellore                       | Rameshwar                    |
| UP               | 24840575   | 10.83              | 4                             |                       |                                   | Kanpur, Allahabad, Agra       | Shahjahanpur                 |
| Uttarakhand      | 753370*    | 20.18              | 1                             |                       |                                   |                               | Haridwar                     |
| WB               | 10636539   | 27.11              | 2                             | Kolkata               |                                   |                               | Burdwan                      |
| Delhi            | 12877470   | 0.88               | 1                             | Delhi                 |                                   |                               |                              |
| Total            | 207941331  |                    | 157(33)                       | 4(4)                  | 3(3)                              | 28(12)                        | 122(14)                      |

UTS = Pudecherry, Chandigarh, Daman & Diu, Dadar & Nagar Haveli are to be included for Urban

Note: Figures in parenthesis indicates the number of cities to be selected.

For urban areas, six random starts/wards in a city were taken of which two were slums and four were non-slums wards. Sampling was continued till five new cases of leprosy were detected from each ward. The wards were selected through systematic random sampling from the list of slum and non-slum wards using the maps of the selected city/ward to have a representative sample of the city and to minimize the clustering effect.

### Estimation Procedure

The state level estimates with standard error and 95 per cent confidence interval were the estimated using the following notations.

### Notations:

- Let  $m_k$ : Total number of leprosy cases at  $k^{\text{th}}$  village,  $k=1,2,3,4$   
 $m_{jk}$ : Total number of leprosy cases at  $k^{\text{th}}$  village at the  $j^{\text{th}}$  selected block,  $j=1,2$   
 $m_{ijk}$ : Total number of leprosy cases at  $k^{\text{th}}$  village at the  $j^{\text{th}}$  selected block for the  $i^{\text{th}}$  district  $i=1$  to  $l$  where  $l$  is the number of districts selected from a State.  
 $m_{Di}$ : Total number of leprosy cases at  $i^{\text{th}}$  district  
 $m_s$ : Total number of leprosy cases at  $s^{\text{th}}$  State  
 $m_c$ : Total number of leprosy cases at country level  
 $n_k$ : Total population covered at  $k^{\text{th}}$  village  $k=1,2,3,4$   
 $n_{jk}$ : Total population covered at  $k^{\text{th}}$  village at the  $j^{\text{th}}$  selected block  $j=1,2$   
 $n_{ijk}$ : Total population covered at  $k^{\text{th}}$  village at the  $j^{\text{th}}$  selected block from the  $i^{\text{th}}$  district  
 $n_{Di}$ : Total population covered at  $i^{\text{th}}$  district level  
 $n_s$ : Total population covered at  $s^{\text{th}}$  State  
 $n_c$ : Total population covered at country level  
 $N_s$ : Total population of the  $s^{\text{th}}$  State  
 $S$ : Number of States covered in the study

Total number of leprosy cases at  $i^{\text{th}}$  district

$$m_{Di} = \sum_{j=1}^2 \sum_{k=1}^4 m_{ijk}$$

Total population covered at  $i^{\text{th}}$  district

$$n_{Di} = \sum_{j=1}^2 \sum_{k=1}^4 n_{ijk}$$

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Total number of leprosy cases at s<sup>th</sup> State

$$m_s = \sum_{i=1}^I n_{Di}$$

Total population covered at s<sup>th</sup> State

$$n_s = \sum_{i=1}^I n_{Di}$$

Estimated Disease burden of leprosy at s<sup>th</sup> state is given as

$$\hat{p}_s = \frac{m_s - 1}{n_s - 1}$$

The unbiased variance estimator of  $\hat{p}_s$  is given by,

$$S.E(p^{\wedge}IS) = \sqrt{V(p^{\wedge}IS)}$$

$$95\% \text{ CI} = p^{\wedge}IS \pm 1.96 * S.E(p^{\wedge}IS)$$

Now total number of leprosy cases at country level

$$m_c = \sum_{s=1}^S m_s$$

Total population covered at country level

$$n_c = \sum_{s=1}^S n_s$$

Estimated Disease burden of leprosy at country level is given as

$$\hat{p}_c = \frac{m_c - 1}{n_c - 1}$$

The unbiased variance estimator of  $\hat{p}_c$  given by,

$$V(p^{\wedge}_c) = (1 - (n_c - 1)/N) (p^{\wedge}_c (1 - p^{\wedge}_c)/(n_c - 2))$$

Where N is the total population of the country.

The standard error (SE) of  $\hat{p}_c$  is given as

$$SE(\hat{p}_c) = \sqrt{V(\hat{p}_c)}$$

$$95\% \text{ CI } (p^{\wedge}_c) = p^{\wedge}_c \pm 1.96 SE(p^{\wedge}_c)$$

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## CONCLUSION

The details of sample selection and estimation procedures, SEs and 95 per cent CI which may be of interest to other researchers in designing large scale studies for similar situations in health.

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**AN EXPLORATORY STUDY ON KNOWLEDGE AND UTILIZATION PATTERN OF  
JANANI SURAKSHA YOJANA (JSY) AMONG BENEFICIARIES IN AKOLA DISTRICT  
OF MAHARASHTRA STATE**

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**ABSTRACT**

*This study is important because every day about 800 women die worldwide due to complications related to pregnancy and childbirth. Developing countries account for 99 per cent of the deaths. To assess the knowledge and utilization pattern of Janani Suraksha Yojana beneficiaries this cross-sectional study was conducted in Akola district of Maharashtra state from January-May 2012. Data were collected from eligible JSY beneficiaries with the help of predesigned, pretested and semi-structured schedule. The objective of JSY was to reduce maternal and neo-natal mortality by promoting institutional deliveries among poor women. The findings reveal that (i) almost 50 per cent of the women were in the age group 20-24 years; (ii) only 256 (85.33%) were aware of JSY scheme; (iii) 67.92 per cent received information about JSY from ANM followed by 40.75 per cent from ASHA; (iv) only 241 (80.33%) women received monetary benefits under JSY, while 59 (19.67%) did not; and (v) only 66 (27.39%) women were satisfied with the amount received by them.*

**Keywords:** Mortality, Janani Suraksha Yojana Beneficiary, Source of JSY Information

**INTRODUCTION**

Maternal mortality is a tragic situation as these deaths are not caused by disease but occurred during or after natural process. According to the newly released UN inter agency an estimated 287,000 maternal deaths occurred worldwide in 2010. This means that each day about 800 women die worldwide due to complications related to pregnancy and childbirth. Developing countries account for 99 per cent of the deaths.<sup>1</sup>

The picture is not too different for neo-natal mortality. In 2009, an estimated 3.3 million babies died in the first month of life globally.<sup>2</sup> The main causes of neo-

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natal mortality are intrinsically linked to the health of the mother and the care she receives before, during and immediately after giving birth. Clean delivery practices, improved care during labor and delivery, presence of skilled health worker who can detect early signs of danger are important in preventing both maternal and newborn deaths.<sup>3</sup>

Concerned particularly about the maternal health, the Government of India launched various schemes to promote institutional deliveries from time to time. One such new maternity benefit scheme is Janani Suraksha Yojana (JSY) which was formally launched on 12<sup>th</sup> April, 2005 under National Rural Health Mission with the objective to reduce maternal and neo-natal mortality. It tried to achieve this by promoting institutional delivery, making available quality maternal care during pregnancy, delivery and in the immediate post-delivery period along with appropriate referral and transport assistance.<sup>4</sup>

JSY is the largest conditional cash transfer programme in the world in terms of the number of beneficiaries, and represents a major Indian health programme. Data from the programme suggest substantial scale-up in the past few years in terms of the number of beneficiaries, and a budget allocation of 15.4 billion rupees in the 2009-10 financial year.<sup>5</sup>

In the above context, the present study was conducted to assess the knowledge and utilization of JSY among the eligible women in Akola district of Maharashtra state in India.

## **MATERIALS AND METHOD**

A cross-sectional study was conducted to assess the knowledge and utilization of JSY in Akola district of Maharashtra state in India. Necessary permission was obtained from the head of institute before starting the study. The study was conducted over a period of five months from January to May 2012.

As knowledge and utilization type of study is multifactorial having many issues, no consolidate data were available in previous literature about the proportion of women related to this. Therefore to calculate sample size by probability proportional sampling, P was taken 0.5 which gives maximum sample size. Thus sample size of 300 with 95 per cent confidence interval and 10 per cent allowable error was obtained.

As Akola is a district in Maharashtra which is high performing state, only women above 19 years of age belonging to scheduled caste (SC), scheduled tribe (ST) and below poverty line (BPL) families delivered their first or second child were

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Included in the study. Women delivered in the calendar year 2011 were selected for interview.

Considering the crude birth rate as 17.6 of Maharashtra,<sup>6</sup> there would be approximately 18 births per 1000 population in a year, out of them 15 would be first or second order births (as 47.9% and 35.2% are first or second order births out of total one, total=83.1%<sup>6</sup>). From these 15 births, 4 to 5 can be attributed to BPL and SC/ST category (as 29.6% and 25.5% population is BPL and SC/ST respectively<sup>7</sup>). Therefore for sample size calculation we took 4 per 1000 as the proportion of beneficiaries. Hence to get 300 sample size 75000 population i.e. approximately 15000 houses were covered.

As list of all BPL, SC/ST women in the district was not possible, it was proposed to consider village or ward as a unit. In the district we considered five strata viz. tribal, non-tribal, urban slum, urban non-slum, and councils. Weighted mean of five strata in the same proportion as present in the district was included in the sample.

From each stratum, villages/wards were randomly selected and covered until required sample size was obtained from it. In the selected village/ward house to house visit was made and information was collected if family has a woman eligible for JSY benefit.

Pre-designed, pre-tested and semi-structured questionnaire was used to collect data from participants. Interviews were conducted by trained social workers after making rapport with the women. Informed consent of each participant was taken and confidentiality and privacy of data were maintained.

Collected data were tabulated and analyzed with computerized statistical software. Percentages were used to narrate the situation.

## RESULTS

300 women eligible for JSY were interviewed in the present study. Mean age of the women was 23.06 years (Range 19 to 31 years). Maximum number of women (49%) were in the age group of 20 to 24 years, followed by 25-29 years (32.67%). Parity-wise distribution was more or less equal i.e. 45.33 per cent had delivered their first child and 54.67 per cent had the second one.

Majority of the beneficiaries (42.67%) belonged to SC followed by OBC (25.33%). 79 per cent women were from BPL families and 21 per cent from above poverty line (APL).

All mothers were literate. 40 per cent of women were educated upto primary level and 30 per cent each upto secondary and higher secondary level. Among all beneficiaries, housewives (62.33 per cent ) outnumbered working (37.67%) mothers. Out of these working mothers, 70.80 per cent were agricultural labourers (Table 1).

**TABLE 1**  
**SOCIO-DEMOGRAPHIC PROFILE OF JSY\* BENEFICIARIES (n=300)**

| Variable                   | No  | Per Cent |
|----------------------------|-----|----------|
| <b>Age Group (years)</b>   |     |          |
| <20                        | 44  | 14.66    |
| 20-24                      | 147 | 49.00    |
| 25-29                      | 98  | 32.67    |
| >30                        | 11  | 3.67     |
| <b>Parity</b>              |     |          |
| 1                          | 136 | 45.33    |
| 2                          | 164 | 54.67    |
| <b>Caste Group</b>         |     |          |
| SC                         | 128 | 42.67    |
| ST                         | 32  | 10.67    |
| OBC                        | 76  | 25.33    |
| Others                     | 64  | 21.33    |
| <b>Income Category</b>     |     |          |
| BPL                        | 237 | 79.00    |
| APL                        | 63  | 21.00    |
| <b>Education of Mother</b> |     |          |
| Primary                    | 120 | 40.00    |
| Secondary                  | 90  | 30.00    |
| Higher Secondary           | 90  | 30.00    |
| <b>Occupation</b>          |     |          |
| Agricultural Laborer       | 80  | 26.67    |
| Industrial Laborer         | 9   | 3.00     |
| Farmer                     | 17  | 5.67     |
| Housewives                 | 187 | 62.33    |
| Self Employed              | 7   | 2.33     |

\*Janani Suraksha Yojana

Out of 300 mothers, 256 (85.33%) were aware of JSY scheme, rest 44 (14.67%) were totally unaware of it. Among those who were aware of JSY, 86.79 per cent cited 'safe delivery' as the main purpose of JSY. Additionally, 35.09 per cent study participants mentioned that 'JSY is applicable to SC and ST pregnant woman'. 75.47 per cent were of the opinion that cash amount is given under JSY while 24.15 per cent thought that benefit was not in terms of money (Table 2).

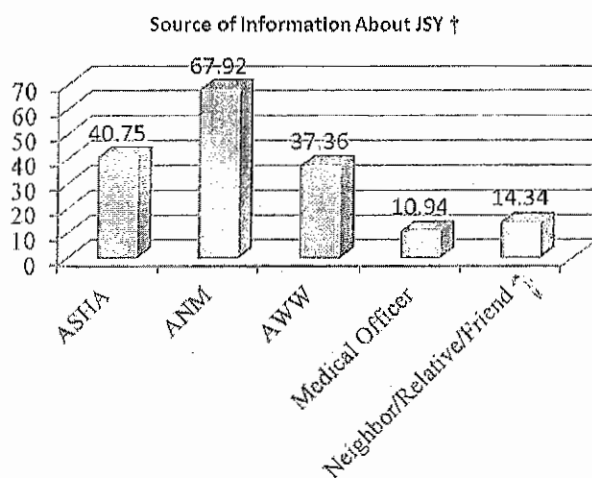
**TABLE 2**  
**DISTRIBUTION OF WOMEN PARTICIPANTS AS PER THEIR 'KNOWLEDGE ABOUT JSY'**  
(n=265)

|                               | No* | Per Cent |
|-------------------------------|-----|----------|
| <b>Purpose of JSY</b>         |     |          |
| Prevention of Maternal Death  | 69  | 26.03    |
| Prevention of Neo-natal Death | 34  | 12.83    |
| Safe Delivery                 | 230 | 86.79    |
| <b>Beneficiaries of JSY</b>   |     |          |
| All Pregnant Women            | 72  | 27.17    |
| BPL Pregnant women            | 218 | 82.26    |
| SC/ST Pregnant Women          | 93  | 35.09    |
| <b>Benefits of JSY</b>        |     |          |
| Cash                          | 200 | 75.47    |
| Non-cash                      | 64  | 24.15    |

\*Janani Suraksha Yojana †Multiple Responses

67.92 per cent of women received information about JSY from ANM followed by 40.75 per cent from ASHA (Figure 1). Out of 300 eligible mothers interviewed, only 241 (80.33%) received monetary benefits under JSY while 59 (19.67%) did not. Among those benefited, 39.83 per cent received it in the form of cash amount and 60.17 per cent got cheques. Majority (40.25%) of women received the amount from primary health centre (PHC) followed by district hospital (29.46%). 41.49 per cent women received the amount within one week after delivery but another 41.49 per cent had to wait for more than one month (Table 3).

**FIGURE 1**  
**BAR DIAGRAM SHOWING DISTRIBUTION OF WOMEN PARTICIPANTS AS PER SOURCE**  
**OF INFORMATION ABOUT JSY\* (n=265)**



\*Janani Suraksha Yojana †Multiple Responses

**TABLE 3**  
**DISTRIBUTION OF WOMEN PARTICIPANTS AS PER 'PAYMENT OF JSY\*'**

|                                               | No (n=241) | Per Cent |
|-----------------------------------------------|------------|----------|
| <b>Mode of Payment</b>                        |            |          |
| Cash                                          | 96         | 39.83    |
| Cheque                                        | 145        | 60.17    |
| <b>Place from Where Money Received</b>        |            |          |
| Sub-centre                                    | 33         | 13.69    |
| Primary Health Centre                         | 97         | 40.25    |
| District Hospital                             | 71         | 29.46    |
| Other Hospital                                | 40         | 16.60    |
| <b>Time Interval Between Receipt of Money</b> |            |          |
| <7 days                                       | 100        | 41.49    |
| 7-15 days                                     | 28         | 11.63    |
| 15-30 days                                    | 13         | 5.39     |

|                                                 | No (n=241) | Per Cent |
|-------------------------------------------------|------------|----------|
| >30 days                                        | 100        | 41.49    |
| <b>Sufficiency about Payment</b>                |            |          |
| Sufficient                                      | 66         | 27.39    |
| Insufficient                                    | 175        | 72.61    |
| <b>Expected Amount (Rs.)</b>                    |            |          |
| <1000                                           | 57         | 23.65    |
| 1000-1500                                       | 41         | 17.01    |
| 15000-2000                                      | 43         | 17.84    |
| 2000-2500                                       | 30         | 12.45    |
| >25000                                          | 10         | 4.15     |
| <b>Difficulties in Obtaining Money (n=145)*</b> |            |          |
| BPL Certificate                                 | 56         | 38.62    |
| Caste Certificate                               | 43         | 29.66    |
| Certificate from Provider                       | 31         | 21.38    |
| Facility Problem                                | 70         | 48.28    |

\* Janani Suraksha Yojana †Multiple response

Only 66 (27.39%) women were satisfied with the amount received by them while remaining 175(72.61%) women expected that amount should be increased. Out of them, maximum (48%) said that it should be Rs. 1000-2000/-.

Out of 241 women who got monetary benefit under JSY, 145 (60.17%) faced one or more difficulties to obtain it. Maximum (48.28%) women narrated facility problem as a main hurdle followed by difficulties to get BPL certificate (38.62%). (Table 3)

## DISCUSSION

In the present study out of 300 beneficiaries eligible for JSY, majority of the women (49%) were in the age group of 20-24 years. According to two studies<sup>8,9</sup> carried out in Madhya Pradesh, 63.3 per cent and 83 per cent JSY beneficiaries were in the age group of 21-25 years and 20-29 years respectively. In the concurrent assessment of JSY in five states<sup>10</sup>, around 41–52 per cent of the mothers who delivered in the last one year in all the states except Uttar Pradesh were found to be younger than

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25 years of age. In Uttar Pradesh only 32 per cent of these women were in this category. Only 2–8 per cent of the mothers were found to be older than 35 years in all these states.

The mothers represented a mixture of caste groups, the highest number of acceptors of JSY belonged to SC (42.67%) and OBC i.e. (25.33%), which is in agreement with the findings of Sanjeev Gupta et al<sup>8</sup>, who reported 45 per cent and 35 per cent of JSY beneficiaries from SC and OBC category at Jabalpur, Madhya Pradesh. Studies from different states in India<sup>9,11-16</sup> documented different pattern of category-wise distribution of JSY mothers; e.g. in Rajasthan 16.9 per cent mothers were from SC and ST each and 50 per cent from OBC while in West Bengal 45.9 per cent were from SC 10.9 per cent from ST and 11.4 per cent from OBC. It is encouraging that medical needs of socially disadvantaged groups are addressed through JSY scheme.

80 per cent of women eligible for JSY were from BPL families in the present study. During the concurrent assessment of JSY in 5 states<sup>10</sup>, the proportion of women belonging to BPL category was the highest in Bihar (71 %) followed by Madhya Pradesh and Odisha (around 55%), Uttar Pradesh (46%) and lowest in Rajasthan (29%). Monetary benefit given under JSY scheme for BPL women is highly appreciable as it serves as an incentive for hospital delivery as well as for ANC and PNC.

All mothers were literate. 40 per cent of women were educated up to primary level and 30 per cent each up to secondary and higher secondary level. This fact is contradictory to other studies carried out in Madhya Pradesh<sup>8</sup> and Rajasthan<sup>17</sup> where approximately three-fourth of the beneficiaries were found illiterate. This may be due to difference in the female literacy rate in these states.

According to present study, more than three-fourth (85.33%) of the beneficiaries knew that there is a scheme in which cash incentive given after institutional delivery, but only 32.44 per cent were able to mention the name as JSY. Likewise in Madhya Pradesh<sup>10</sup> also though 87 per cent beneficiaries had information about scheme giving cash assistance after institutional delivery, only 13 per cent beneficiaries were aware of the name of JSY and its benefits. This indicates the fact that JSY has not been able to create a 'Brand image' in the minds of people like other programmes. This needs to be rectified by social marketing of the JSY.

All those who were aware of JSY scheme received information about it from one or more health worker or other source. ANMs (67.92%) were the most common source of information followed by ASHAs (40.75%) and AWWs (37.36%). Similarly

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other studies<sup>9,11-16</sup> also revealed ANMs was the most source of information in all the states except Odisha (where ASHAs was the commonest). In West Bengal almost all (95%) JSY acceptors got information about the scheme from ANMs.

Out of 300 eligible JSY beneficiaries interviewed, 241(80.33%) received monetary benefits under JSY. Among those benefited, 39.83 per cent women received it in the form of cash and 60.17 per cent got cheques. JSY assessment survey from selected states<sup>10</sup> recorded that among the mothers who were eligible for receiving the incentives under JSY; highest (92.5%) proportion of mothers got it in Rajasthan followed by Odisha (88.6%), Madhya Pradesh (82.7 %), Uttar Pradesh (72.3%) and Bihar (64.5%). But CORT studies<sup>9,11-16</sup> had slightly different results in this respect. They found that proportion of eligible beneficiaries receiving money under JSY was highest in Bihar (90.5%) and least in Uttar Pradesh (50.4%). In other states it was in between this i.e. 84.7 per cent , 70.2 per cent , 75.3 per cent , 76.84 per cent , 80.8 per cent and 63.3 per cent in Rajasthan, Odisha , Madhya Pradesh, Himachal Pradesh, West Bengal and Assam respectively.

41.49 per cent women received money within one week and 17.01 per cent within one week to one month. Remaining 41.49 per cent had to wait more than one month to get money. The study conducted in three districts of Odisha by Shobha Malini et al<sup>18</sup> had also revealed comparable results in this respect. They found 33.33 per cent, 37.6 per cent and 23.3 per cent JSY beneficiaries received money within one week, within one week to one month and after one month respectively. Such delay is not acceptable as such money can be utilized for purposes other than those intended.

Regarding place of distribution of cheques/cash, 40.25 per cent women received money from PHC, 29.46 per cent from district hospital, 13.69 per cent from sub-centre and 16.6 per cent at home. For institutional delivery, beneficiaries received payment at the place of delivery on producing the ante-natal card, discharge slip, BPL certificate, Caste certificate, residence proof and proof of age. The process of payment was simple, but it was necessary for the beneficiary to produce all the required documents. If a woman did not possess these documents, they were paid subsequently at PHC/CHC/SC or by the ANM on producing them. The payment was mostly done at PHC/district hospital/rural hospital/SC or place of delivery. In few instances; ANMs collected the cash assistance from the PHC and handed over to the women subsequently in the village, at sub-centre, Anganwadi centre, or at her residence. Multiple channels of disbursement were followed. In Madhya Pradesh<sup>9</sup> almost all (94.5%) mothers received money from PHC. In West Bengal<sup>12</sup> 41.5 per cent of women received it from sub-centre while another 41.2 per cent got it in their village.

When asked about difficulties to get money, more than half (60.16%) women narrated one or more difficulties. Out of them "problems in distributing at health centre" was the most common, faced by 48.28 per cent beneficiaries. Next to that were problems related to various certificates required to submit for JSY benefit. Out of them 38.62 per cent had difficulties to get BPL certificate followed by getting caste certificate (29.66%) and certificate from health centre (21.38%). Contrary to this finding, majority (>85%) JSY acceptors had not faced any problem in receiving money in CORT studies.<sup>9,11-16</sup> These problems require cumulative and sustained effort as multiple agencies (like Revenue dept, Panchayati Raj Institutes, Health centres etc.) are involved in it.

Only 27.39 per cent of women were satisfied with the amount of money (700 Rs.) received by them. Rest 72.61 per cent told that present amount should be increased. Majority (48%) of them expected that it should be Rs. 1000-2000/-. In the same way, only 30-40 per cent of women in other states<sup>9,12-16</sup> were completely satisfied with the money obtained under JSY. Women's expectation should be seriously considered with respect to gradual upward trend in inflation from launching of JSY.

## CONCLUSION

Though a considerable number of women know about JSY, still there is a gap between knowledge and utilization of the scheme. Various difficulties while getting the cash benefit and producing the certificates might hinder the women from utilizing the scheme.

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## **HEALTH PROFESSIONALS FOR TWENTY-FIRST CENTURY**

**Shiv Chandra Mathur\***

The Commission on "Education of Health Professionals for the 21st Century" was launched in January 2010. This independent initiative was led by 20 leaders from diverse disciplinary backgrounds, institutional affiliations, and regions of the world. They worked together throughout 2010 to review the global status of professional education in health, especially for medicine, public health and nursing. They have appreciated that health professionals have made huge contributions to health and socio-economic development over the past century; nonetheless their report has warned that reforms required in health sector in the 21st century cannot be carried out with outdated and inadequate competencies. This independent Commission has worked on the premise that ultimate goal of health professionals' education is to improve the health of the society. Thus it has articulated a fresh vision to recommend a renewed action to better health professional's education.

The commission's report originally published in full in a regular issue of the *Lancet*<sup>1</sup> was formally launched on 27th January 2011, during the second Global Health Forum convened by WHO and Global Health Workforce Alliance at Bangkok. The Global Independent Commission's report at the outset has stated the problem as "Glaring gaps and inequities in health persist both within and between countries, underscoring our collective failure to share the dramatic health advances equitably. At the same time, fresh health challenges loom. New infections, environmental and behavioural risks, at a time of rapid demographic and epidemiological transitions, threaten health security of all. Medical and nursing education has not kept pace with the new challenges largely because of fragmented, outdated and static curricula that produce ill equipped graduates." This might be close to truth even in Indian context.

Three generations of educational reforms characterise progress during the past century. The first generation, launched at the beginning of the 20th century, taught a science-based curriculum. Around the mid-century, the second generation introduced problem-based instructional innovations. A third generation is now needed that should be systems based to improve the performance of health systems by adapting core professional competencies to specific contexts, while drawing on global knowledge.

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To advance third-generation reforms, the commission puts forward a vision: all health professionals in all countries should be educated to mobilise knowledge and to engage in critical reasoning and ethical conduct so that they are competent to participate in patient and population-centred health systems as members of locally responsive and globally connected teams. The ultimate purpose is to assure universal coverage of the high quality comprehensive services that is essential to advance opportunity for health equity within and between countries.

Worldwide, 2,420 medical colleges produce 389,000 medical graduates every year. Additionally, 467 schools of public health and an indeterminate number of nursing institutions train about one million health workforce including nurses, midwives and public health professionals every year. India is one of those four countries (others include Brazil, China, and USA) which have more than 150 Medical Colleges. 31 countries have no medical school whatsoever, nine of which are in sub-Saharan Africa. 44 countries have only one Medical School. Thus half of the countries worldwide have either one or no medical school. The report has quoted 300 Medical Colleges and 4 Public Health Schools of India as of 2008, producing 30,000 Doctors and 36,000 nurse graduates every year in our country. But how many are compatible with the health systems of our country?

Around the world, US \$ 100 billion per year are spent in health professional's education. Of course, with a great disparity! And this amount is less than 2 per cent of health expenditures worldwide, which is pitifully modest for a labor intensive and talent driven industry. The average cost per graduate is \$113,000 for medical students and \$ 46,000 for nurses with unit costs highest in USA and lowest in China. Stewardship, accreditation and learning systems are weak and unevenly practiced. In national income, the world's richest and poorest countries show a 100-times difference, but in per head health-care expenditures the gap between the richest and poorest nations is 1000-times.

The commission underscores that a large proportion of the 7 billion people who inhabit this planet, are trapped in health conditions of a century earlier. Nevertheless, the report has quoted the 1910 Flexner Report<sup>2</sup>, which led to integration of the science of early twentieth century into the curricula of the then medical and nursing school. The later step contributed to doubling of life span in 20th century, albeit arrival of certain fatal diseases by the end of twentieth century, combined with social and political conflicts in some regions have reversed these gains collapsing the average life expectancy in many parts of the world.

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The Commission has presented its major findings in four sections: (i) a century of educational reforms, grouped into three generations; (ii) diagnosing the conceptual framework which includes accreditation, academic systems, faculty development, and collaboration for shared learning; (iii) challenges as four Cs explained in the conceptual framework: criteria for admission, competencies, channels, and career pathways; and (iv) institutional and instructional designs effecting the knowledge flow.

The commission also draws the attention of a teacher of Community Medicine on the growth of internationally acclaimed public health schools reviewed by it. It has examined the influence of Welch-Rose report<sup>3</sup> on the teachers of London School of Tropical Medicine, Tulane University, and Harvard - MIT School for Health. The outcome was seen in terms of new schools starting with Johns Hopkins School of Hygiene and Public Health (1916); the Harvard School of Public Health (1922); the School of Public Health of Mexico (1922); a renewed London School of Hygiene and Tropical Medicine (1924); and the University of Toronto School of Public Health (1927). Welch-Rose model was also exported through Rockefeller funding to 35 new schools of public health overseas. Rural Health Center, Singur affiliated to AIHH&PH, Kolkata, seems to be one visible instance in India.<sup>30</sup>

Core driving purpose of professional education must be to enhance the performance of health systems for meeting the needs of the patients and population in an equitable and efficient manner. Independent commission has concluded that institutional and instructional shortcomings are leading to shortages, imbalances, and maldistribution of health professionals, both within and across the countries. Institutions are not well aligned with burdens of disease or the requirements of health systems. Quantitative deficiencies are driving the growth of for-profit proprietary schools, thereby challenging accreditation and certification processes that are unevenly practiced worldwide. India seems to be no exception in this context.

Professional education must inculcate responsible professionalism, not only through explicit knowledge and skills, but also by promotion of an identity, and adoption of the values, commitments, and disposition of the profession. The ultimate purpose is to assure universal coverage of high quality comprehensive services that are essential to advancing opportunity for health equity within and between countries. They have recommended a transformative learning to fulfill such a vision. It is the highest of the three successive levels of learning, as indicated in following table from the report:

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| Objectives              | Outcome               | Personnel     |
|-------------------------|-----------------------|---------------|
| Informative learning    | Information, skills   | Experts       |
| Formative learning      | Socialization, values | Professionals |
| Transformative learning | Leadership attributes | Change agents |

Thus transformative learning is about developing leadership attributes; its purpose is to produce enlightened change agents. Effective education builds each level on the previous one. As a valued outcome, transformative learning involves three fundamental shifts: from fact memorization to critical reasoning that can guide the capacity to search, analyze, assess, and synthesize information for decision making; from seeking professional credentials to achieving core competencies for effective teamwork in health systems; and from non-clinical adoption of educational models to creative adaptation of global resources to address local priorities.

Five features stand out in the globalisation of professional education. First is the realisation that we increasingly have one global pool of health professional talent. Because of global labour markets, professionals are on the move, crossing national borders and creating global communities of expertise. The World Health Assembly recently approved a code of conduct for the international migration of professionals. Second is the universal aspiration and challenges of primary health care in very different contexts. In both rich and poor countries, primary care constitutes a continuum, requiring adaptation of professional education to substantially different contexts. Training primary care professionals can only be effective if the health system generates an effective demand that attracts such trained professionals to rewarding jobs. A supply approach alone, although useful, cannot generate a strong primary care system. A third implication for professional education is underscored by our growing interdependence in all health matters. The fourth aspect in the globalisation of professional education is the movement abroad of schools in developed countries to establish affiliated campuses in emerging economies. Many variants of this export of brand-name professional schools are underway—export of technical expertise, joint ventures, and even overseas campuses. Some medical schools from high-income countries now have independent branches overseas, and others have stationed faculties in different countries worldwide. Finally, global health as a field is expanding rapidly in professional education. Centres, institutes, units, and programmes in global health are being established worldwide. In 2008, several major US schools established a Consortium of Universities for Global Health that now includes more than 60 universities<sup>4</sup>.

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The Independent Commission has recommended many reforms. First, the need for leadership to come from within the academic and professional communities backed by political commitment; Second, substantial expansion in the investment of health professionals education from all sources; and Third, socially accountable accreditation. The instructional reforms, if clubbed together would include adopting a competency based curriculum; promoting inter-professional education; exploiting the power of IT for learning; harness global resources and adapt locally; strengthen educational resources; and promote new professionalism. The institutional reforms should take care to expand from academic centers to academic systems; link through network, alliances, and consortia; and last but not the least must nurture a culture of critical enquiry. It has urged upon every country to double its investment in health professionals education over the next 5 years as an indispensable contributor for effective and sustainable health systems. Thus the Commission has called for a social movement involving medical educators, professional bodies, universities, international donors, and young health workers. There is certainly a need for better performing health systems than at present with consequent benefits for patients and populations everywhere. Faculty of Preventive and Social Medicine can play an instrumental role in changing the proposed reforms into reality<sup>5</sup>.

Instructional reforms should encompass the entire range from admission to graduation, to generate a diverse student body with a competency-based curriculum that, through the creative use of information technology, prepares students for the realities of teamwork, to develop flexible career paths that are based on the spirit and duty of a new professionalism. They include:

1. Adoption of competency-based curricula that are responsive to rapidly changing needs rather than being dominated by static course work.
2. Promotion of inter-professional and trans-professional education that breaks down professional silos while enhancing collaborative and non-hierarchical relationships in effective teams.
3. Exploitation of the power of IT for learning through development of evidence, capacity for data collection and analysis, simulation and testing, distance learning, collaborative connectivity, and management of the increase in knowledge. Universities and similar institutions have to make the necessary adjustments to harness the new forms of transformative learning made possible by the IT revolution, moving beyond the traditional task of transmitting information to the more challenging role of developing the competencies to access, discriminate, analyze, and use knowledge. More than ever, these institutions have the duty of teaching students how to think creatively to master large flows of information in the search for solutions.

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4. Adaptation locally but harnessing of resources globally in a way that confers capacity to flexibly address local challenges while using global knowledge, experience, and shared resources, including faculty, curriculum, didactic materials, and students linked internationally through exchange programmes.
  5. Strengthening of educational resources, since faculty, syllabuses, didactic materials and infrastructure are necessary instruments to achieve competencies.
  6. Promote a new professionalism that uses competencies as the objective criterion for the classification of health professionals, transforming present conventional silos. A set of common attitudes, values, and behaviours should be developed as the foundation for preparation of a new generation of professionals to complement their learning of specialties of expertise with their roles as accountable change agents, competent managers of resources, and promoters of evidence-based policies.
  7. Establishment of joint planning mechanisms in every country to engage key stakeholders, especially ministries of education and health, professional associations, and the academic community, to overcome fragmentation by assessment of national conditions, setting priorities, shaping policies, tracking change, and harmonizing the supply of and demand for health professionals to meet the health needs of the population.
  8. Expansion from academic centers to academic systems, extending the traditional discovery-care-education continuum in schools and hospitals into primary care settings and communities.
  9. Linking together through networks, alliances, and consortia between educational institutions worldwide and across allied actors, such as governments, civil society organizations, business, and media.
  10. Nurturing of a culture of critical inquiry as a central function of universities and other institutions of higher learning, which is crucial to mobilize scientific knowledge, ethical deliberation, and public reasoning and debate to generate enlightened social transformation.

Richard Horton, the Editor-in-Chief of *The Lancet*, who was one of the twenty Commissioners, annexing a separate comment to the report, argues for nothing less than a remoralisation of health professional's education. He reiterates that for decades, health professionals have colluded with centers of power (governmental, commercial, institutional, and even professional) to preserve their influence. What is the result? It seems to be contraction of ambition and a failure to provide moral leadership. "It is the academic's job in a free society to serve the public culture by asking questions the public doesn't want to ask, investigating subjects it cannot or will not investigate, and accommodating voices it fails or refuses to accommodate."

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The Commission's report closes with a very meaningful quote from Louis Menand: "The pursuit, production, dissemination, and preservation of knowledge are the central activities of a civilization. Knowledge is social memory, a connection to the past; and it is social hope, an investment in the future. The ability to create knowledge and put it to use is the adaptive characteristics of humans. It is how we reproduce ourselves as social beings and how we change – hope we keep our feet on the ground and our heads in the clouds."

### **Introspection**

This report has quoted: "Private investments in professional education might be increasing. Although private funding is welcomed, it generates concerns about quality and social purpose. Analysis of new medical schools in India and Brazil show a spurt of new private establishments. In India, the growth of private medical schools raises concerns about the quality and transparency of one of the world's largest medical educational systems."; It has also quoted a paper from the Lancet<sup>6</sup> saying "The India case also shows that profit status might be less important than social purpose, since most new Indian private schools are listed as non-profit but actually generate large income streams".

At the end of the last century, Shiv<sup>7</sup> has compiled the challenges to the health systems of the Indian states in context of health manpower development. Educating health professionals while they are in-service is possible only by tracking them through a Personnel Management Information System. This can be possible by creating technically efficient human resource cells in the Directorates of health systems of each state. Medical and Nursing education systems need to be in consistent dialogue with the health systems to incorporate their needs in the educational programmes and strike a balance with the requirements of the future. Some of these issues were again highlighted by the author in background papers developed for National Commission on Macroeconomics and Health<sup>8</sup>.

In this background, there is an urgent need to review the status of educating health professionals in general and medical education in particular. This is all the more important when privatization in health professionals' education is fastly increasing. Rao<sup>9</sup> has indicated that India is the only country which as official policy admits the students in institutes educating health professionals on the basis of their capacity to pay overlooking the merit. With this political issue, India has to stay competitive globally and produce the professionals compatible in the changing paradigm.

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In 2010, Ministry of Health and Family Welfare drafted a bill to establish a National Commission for Human Resources for Health (NCHRH) to address the issue of quality by balancing the three critical function of the health profession: (a) curriculum - development taking care of what is to be taught and for how long; (b) accreditation – who is to teach and in what manner; and (c) ethical practice-adhering to the best interests of patients. Although NCHRH is yet to see the light of the day, but it will have to shoulder the onerous responsibility particularly when the deliverables from the regulating bodies in vogue are questioned from many quarters.

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## PSYCHO-SOCIAL FACTORS AFFECTING ELDERLY PERSONS IN RURAL AREA OF DISTRICT GURGAON, HARYANA

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### ABSTRACT

*The last century has witnessed a rapid increase in the population of the elderly (persons >60 years of age) in the developed and industrialized countries. A perception is now growing among the aged persons that the attitude of the younger generation towards them is not as desired. In view of this, this study was conducted to understand the psycho-social factors which affect the elderly persons residing in rural area of district Gurgaon, Haryana, Village Kaliawas. The sample of elderly persons was selected using purposive sampling technique. Data were collected with the help of a specially designed structured schedule which was administered to the selected sample through house-to-house survey. Eligibility condition for inclusion in the study group was that the person should be >60 years of age. Results of the study revealed that most of the elderly persons were of the view that the younger generation of their families did not give them due respect, love and affection. To overcome this problem, majority of the elderly opted to go to temple/satsang/kirtan, etc.*

**Keywords:** Elderly persons, Modernization, Urbanization, Life expectancy

### INTRODUCTION

Increase in population of the elderly could be attributed to a combination of multiple factors such as enhanced longevity due to phenomenal advancement in the field of medical sciences. However, elderly do have their special psycho-social needs-based on the traditional value system. "Some people use their chronological age as a criterion for their ageing whereas others use such physical symptoms as failing eye-sight or hearing, tendency to increase fatigue, decline in sexual potency etc. Still others assess their ageing in terms of their capacity for work, their output in relation to standards set in earlier years, their lack of interest in competing with others, lack of motivation to do things or a tendency to reminisce and turn

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their thoughts to the past rather than dwell on the present or the future."<sup>13</sup> The acceptance of the fact is that the old develops "old age complex".<sup>1</sup> Out of all these criteria, chronological age has been considered as one of the appropriate criteria for labelling a person as 'elderly'.

In the changing economic and social milieu, the younger generation has developed materialistic attitude and have redefined social roles within, as well as outside the family. The changing economic structure had reduced the dependence of rural families on land which had been providing strength to connect from one to another generation. The older generation is caught between the decline in traditional values on one hand and the absence of adequate social security system on the other<sup>6</sup>.

Illness increases with age. Understandably older population has greater needs for health care. Health and life satisfaction continues to be important construct in the psycho-social study of ageing. These are commonly the accepted subjective conditions of quality of life and seem to be the facets of successful ageing, both of which are key concepts in ageing.<sup>9</sup>

There is a need to enhance self-esteem of the elderly by changing the attitude of families towards the care of the elderly.<sup>2</sup> This will ensure that they do not spend the twilight years of their life in isolation, pain and misery. Older persons are, therefore, in need of vital support that will keep important aspects of their lifestyles intact while improving their over-all quality of life.<sup>4</sup>

The present study was conducted to assess the psycho-social aspects affecting elderly residing at Village Kaliawas, District Gurgaon, Haryana, which happens to be the field practice area of a Private Medical College, Gurgaon, Haryana. The specific issues of the study include (i) general perceptions of elderly persons and their social interactions within and outside the family; (ii) attitude of other family members towards the elderly; and (iii) the personal likes and dislikes of elderly persons.

## **MATERIALS AND METHOD**

A cross-sectional study of demographic and psycho-social profile of elderly population aged 60 years and above residing in the Village Kaliawas District Gurgaon, Haryana, was carried out during the period February 2012 - July 2012. Total population of the village is 2079; including 168 elderly persons out of which 154 took part in the study. Data were collected using a specially designed interview schedule and by following observation technique through house-to-house

visits of the target group. The purpose of the study was explained to them and confidentiality of the information was maintained. Udai Pareek Socio-economic Categorization Status Scale was used to categorize the socio-economic status of the family. Psycho-social profile was elicited by discussion with the elderly persons in a comfortable and homely atmosphere. The information, thus, obtained was collated, tabulated and analyzed applying appropriate statistical methods.

## OBSERVATIONS

**TABLE 1**  
**AGE AND SEX WISE DISTRIBUTION OF THE STUDY GROUP**

| Age         | Male<br>No. (%age) | Female<br>No. (%age) | Total<br>No. (%age) |
|-------------|--------------------|----------------------|---------------------|
| 60-65 yrs   | 28 (39.43)         | 20 (24.10)           | 48 (31.17)          |
| 65-70 yrs   | 17 (23.94)         | 36 (43.37)           | 53 (34.41)          |
| 70-75 Yrs   | 12 (16.90)         | 18 (21.69)           | 30 (19.48)          |
| 75-80 Yrs   | 09 (12.67)         | 06 (07.23)           | 15 (09.74)          |
| 80+         | 05 (07.04)         | 03 (03.61)           | 08 (05.20)          |
| Grand Total | 71 (46.10)         | 83 (53.90)           | 154 (100.00)        |

Out of a total population of 2079 in Village Kaliawas, 168 were elderly persons which works out to be 08.08 per cent, against the National value of 07.70 per cent (Census India 2011). The study population consisted of 154 elderly person aged 60 years and above, out of which 46.10 per cent were males and 53.90 per cent were females. Maximum population of females was found in the age group of 65-70, (i.e. 43.37%) and males in the age group of 60 – 65 years (i.e. 39.43%). The difference in age and sex is statistically significant ( $P=0.049$ ). (Table 1)

**TABLE 2**  
**LITERACY AND SEX-WISE DISTRIBUTION OF THE STUDY GROUP**

| Literacy       | Male<br>No. (%age) | Female<br>No. (%age) | Total<br>No. (%age) |
|----------------|--------------------|----------------------|---------------------|
| Illiterate     | 05 (07.04)         | 12 (14.46)           | 17 (11.04)          |
| Literate       | 42 (59.15)         | 50 (60.24)           | 92 (59.74)          |
| Primary        | 12 (16.90)         | 12 (14.46)           | 24 (15.58)          |
| <Matriculation | 08 (11.27)         | 09 (10.84)           | 17 (11.04)          |
| >Matriculation | 04 (05.63)         | 00 (00.00)           | 04 (02.60)          |
| Grand Total    | 71 (100.00)        | 83 (100.00)          | 154 (100.00)        |

The number of male elderly educated up to primary standard was 83.09 per cent where as, the number of females educated up to primary standard was 89.16 per cent. There is no significant difference between male and female literacy up to Primary level ( $P=0.19$ ). Difference between male and female literacy >matriculation is significant, was found ( $P=0.045$ ) (Table 2).

**TABLE 3**  
**DISTRIBUTION OF ELDERLY AS PER SOCIO-ECONOMIC STATUS**

| Variables | Number | Percentage |
|-----------|--------|------------|
| Class-I   | 01     | 0.65%      |
| Class-II  | 12     | 07.80%     |
| Class-III | 41     | 26.63%     |
| Class-IV  | 63     | 40.90%     |
| Class-V   | 37     | 24.02%     |
| Total     | 154    | 100.00%    |

**Socio-Economic Status Scale (Rural) By Udai Pareek and G. Trivedi (1964)**

26 – 29 Upper (I) 16 – 25 Upper Middle (II) 11 – 15 Middle (III) 05 – 10 Lower Middle (IV) < 4 Lower (V).

Out of the total study population, most of the elderly persons (40.90%) were in the class IV of socio-economic status according to Udai Pareek scale which is statistically significant ( $P < 0.0001$ ) and only 0.65 per cent was in class I. Out of the total study population, 24.02 per cent was in class-V (Lower) (Table 3).

**TABLE 4**  
**DISTRIBUTION OF THE ELDERLY AS PER SOURCE OF INCOME**

| Variables        | Male |        | Female |        | Total |        |
|------------------|------|--------|--------|--------|-------|--------|
|                  | No.  | %age   | No.    | %age   | No.   | %age   |
| Retired Pension  | 14   | 19.72  | 05     | 06.02  | 19    | 12.34  |
| Old-Age Pension  | 29   | 40.84  | 54*    | 65.06  | 83    | 53.90  |
| Service/Business | 06   | 08.45  | 02     | 02.42  | 08    | 05.20  |
| Agriculture      | 06   | 08.45  | 05     | 06.02  | 11    | 07.14  |
| Labourer         | 07   | 09.86  | 00     | 00.00  | 07    | 04.54  |
| Dependent        | 09   | 12.68  | 17     | 20.48  | 26    | 16.88  |
| Total            | 71   | 100.00 | 83     | 100.00 | 154   | 100.00 |

*\*Most of the Female elderly were housewives.*

Table 4 shows that most of the male elderly persons were getting pension either old age (53.90%) or after retirement (12.34%). Female elderly persons were getting pension and housewives. 12.68 per cent of male elderly persons were dependent whereas 20.48 per cent of female elderly persons were dependent. 83.12 per cent of elderly people were actively involved in some or the other activity. As a whole, 16.88 per cent of elderly persons were dependent which is statistically significant ( $P < 0.0001$ ).

**TABLE 5**  
**DISTRIBUTION OF THE ELDERLY BY SOCIO-DEMOGRAPHIC PROFILE**

| Variables      | Categories    | Total |       |
|----------------|---------------|-------|-------|
|                |               | No.   | %age  |
| Type of Family | Joint         | 123   | 79.87 |
|                | Nuclear       | 28    | 18.18 |
|                | Single Member | 03    | 01.95 |
| Marital Status | Married       | 134   | 87.01 |
|                | Unmarried     | 02    | 01.30 |
|                | Widow         | 13    | 08.44 |
|                | Widower       | 05    | 03.25 |

Table 5 shows that 79.87 per cent of elderly were living in joint families, 18.18 per cent in nuclear families and 01.95 per cent living alone. 87.01 per cent of elderly were married and only 01.30 per cent was unmarried and 11.69 per cent were widows/widowers.

**TABLE 6**  
**DISTRIBUTION OF THE ELDERLY BY PSYCHO-SOCIAL PROFILE**

| Variables                  | Males      | Females    | Total       |                                            |
|----------------------------|------------|------------|-------------|--------------------------------------------|
| 1. Availability of Company |            |            |             |                                            |
| Always/Mostly              | 68 (95.78) | 79 (95.98) | 147 (95.45) | (P<0.0001)<br>statistically<br>significant |
| Feel Lonely                | 03 (04.22) | 04 (04.82) | 07 (04.55)  |                                            |
| 2. Active With Family      |            |            |             |                                            |
| Always/Mostly              | 62 (87.32) | 73 (87.95) | 135 (87.66) | (P<0.0001)<br>statistically<br>significant |
| Sometimes/Never            | 09 (12.68) | 10 (12.05) | 19 (12.34)  |                                            |

| Variables                                                             | Males      | Females    | Total       |                                                |
|-----------------------------------------------------------------------|------------|------------|-------------|------------------------------------------------|
| 3. Activity Outside Home                                              |            |            |             |                                                |
| Active                                                                | 67 (94.37) | 78 (93.98) | 145 (94.16) | (P<0.0001)<br>statistically<br>significant     |
| Not Active                                                            | 04 (05.63) | 05 (06.02) | 09 (05.84)  |                                                |
| 4. Attitude Towards Life                                              |            |            |             |                                                |
| Favourable                                                            | 46 (64.79) | 38 (45.78) | 84 (54.54)  | (P<0.0001)<br>statistically<br>significant     |
| Unfavourable                                                          | 10 (14.08) | 25 (30.12) | 35 (22.73)  |                                                |
| Neutral                                                               | 15 (21.12) | 20 (24.10) | 35 (22.73)  |                                                |
| 5. Reasons For Unfavourable Attitude Towards Life (Multiple Response) |            |            |             |                                                |
| Loneliness                                                            | 12 (15.38) | 11 (11.58) | 23          | The Values<br>are not<br>mutually<br>exclusive |
| Poverty                                                               | 29 (37.18) | 33 (34.74) | 62          |                                                |
| Illness                                                               | 16 (20.51) | 21 (22.10) | 37          |                                                |
| Loss of Spouse/<br>Child                                              | 19 (24.36) | 25 (26.31) | 44          |                                                |
| Liability                                                             | 02 (02.56) | 05 (05.26) | 07          |                                                |

(Figures in Parenthesis indicate percentage.)

95.45 per cent of elderly have some company whereas only 04.55 per cent feel loneliness which is statistically significant ( $P<0.0001$ ). 87.66 per cent elderly were actively involved in family activities and 12.34 per cent were not involved which is statistically significant ( $P<0.0001$ ). 94.16 per cent elderly persons were active outside home and only 05.84 per cent of them were not so which is statistically significant ( $P<0.0001$ ). 54.54 per cent of elderly persons have a positive attitude towards life which is statistically significant ( $P<0.0001$ ). 22.73 per cent of elderly persons have unfavourable attitude towards life and the same number of elderly persons were neutral towards life (Table 6).

## DISCUSSION

Age group of 60-70 years constitutes the major fraction of the elderly population (65.58%), followed by 71-80 years (29.22%), and 80 years and above (05.20%), in comparison to 72.4 per cent, 22.6 per cent, and 5 per cent respectively in Aligarh city, and 77.0 per cent, 17.1 per cent, and 4.9 per cent respectively in Amritsar city.<sup>11,16</sup> The major fraction of elderly population (age group 60-70 years) in all these studies has the basis of the fact that life expectancy in India at birth is 62.8 years for males and 64.0 years for females. The sex distribution in the present study was weighted in favour of females (1169 females {53.90%} per 1000

males {46.10%}) and this finding collaborates the observations of ICMR (50.8% and 49.2% respectively), in rural area of Meerut (52.8% females to 47.2% males), at Wardha (55% females to 45% males) and in rural area of south India (52.3% female to 47.7% males).<sup>8,10,17</sup> Sex ratio in favour of females is due to the more longevity than that of males.

In the present study 87.01 per cent of the elderly persons were found to be married with both the spouses alive, 11.69 per cent were widows/widowers, and 01.30 per cent of them were unmarried in comparison to the findings in Aligarh city (58.6%, 39.4 per cent and 0.8 per cent being married, widowed and unmarried respectively), and in Chandigarh city (63.2%, 35.8% and 1.0%) elderly were found married, widows/widowers and unmarried respectively.<sup>4,6</sup> The incidence of widowhood (08.44%) was much greater among females than among males (03.25%) owing partly due to comparatively higher expectation of the life among the females and partly due to taboos against remarriage of females. Majority (79.87%) of the study population was living in joint family, 18.18 per cent in nuclear family and 01.95 per cent living alone which is almost similar to the study carried out in Aligarh city (78.1%, 20.3% and 1.6% respectively), in Delhi (83.1%, 13.9% and 3.0% respectively) and in Chandigarh city (72.9%, 24.0% and 3.1%) respectively.<sup>10,11</sup>

In the present study, 11.4 per cent elderly persons were found to be illiterate, which is less than that found in Chandigarh city (18.8%), but far lesser than Aligarh (77.2%), Baroda (77.0%) and Amritsar (38.6%).<sup>10,11,14</sup> It was found that 87.66 per cent of the elderly, in present study were active in some occupation including housewives, and 12.34 per cent elderly were leading to retired life; these findings were not similar to that found in Aligarh (67.2% and 32.8% respectively), in Amritsar city (57.5% and 42.5% respectively) and in Chandigarh (68.6% and 27.5% respectively)<sup>10,11</sup>. 53.90 per cent of elderly persons were receiving old age pension (a social benefit service by the Government of Haryana). Majority of the beneficiaries were females (65.06%).

In the present study 16.88 per cent of the elderly persons were found to be financially dependent on others while rest (83.12%) had some source of income (old age pension being the commonest source 53.90%), which is not similar to economic dependency reported by the NSSO 52nd round (53.2%).<sup>15</sup> Relative to males (12.66%), females had a significantly greater economic dependency (20.48%) on family, although it is not similar to the reports of the NSSO 52nd round as 60.0 per cent and 29.1 per cent respectively. Majority of the elderly persons were found to have company of others (94.16%) either most of the time

or always in comparison to 58.7 per cent as reported by Pradhan in urban area of Delhi.

Loneliness was felt by 17.3 of elderly in comparison to that reported in Udaipur (24.2%).<sup>13</sup> It was found that loneliness was higher in females (21.4%) than in males (12.6%). The contributing factors for higher loneliness in females were loss of companion, illiteracy, less social contacts and maltreatment by family members. Majority of the elderly persons (91.3%) were found to be having social contacts outside home, i.e., with neighbours, their relatives or with friends, going to Temple/Satsang/Kirtan; almost similar findings (87.3%) were reported in Urban Area of Delhi<sup>17</sup>. It was found in the present study that 94.16 per cent of the elderly persons were involved in activities outside home, performing the household and family related works, religious functions, informal meeting with others, and the social functions as compared to the findings of Pradhan (73.7%).<sup>17</sup> In the present study, 54.54 per cent of the elderly persons were found having favourable attitude towards life, 22.73 per cent had unfavourable attitude towards life while 22.73 per cent of elderly had neutral attitude towards life; as compared to the findings reported by Khan et al. (50.1%, 45.3 and 4.6% respectively).<sup>11</sup> Females (30.12%) were found to be having significantly more unfavorable attitudes towards life than male (14.8%), the commonest reason being illness (22.10%), loneliness (11.58%). Females have more morbidity than males; however, the longevity in females is more than males.

## CONCLUSION

Old age had never been a problem in India where a value-based joint family system is supposed to prevail. Indian culture is automatically respectful and supportive of elders. Better social relations were maintained by the family dwellers because they had regular interaction, expression of their feelings and support from the family. The situation calls for concerted efforts of the government, non-governmental organizations, religious institutions and individuals not only to understand but also to solve or at least mitigate the whole gamut of problems resulting from a greying society so that the aged people can lead a dignified and meaningful life. This study may not represent the rural areas of Haryana State because of its peculiar geographical situation. More studies are required to understand the whole gamut of the ever increasing number of the elderly. The author suggest that geriatric health service should be integrated with the present health delivery system.

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## PATIENT SATISFACTION WITH MEDICAL SERVICES: A HOSPITAL-BASED STUDY

Seetesh Ghose\* and S. Vivek Adhish\*\*

### ABSTRACT

*The study was conducted in Mahatma Gandhi Medical College and Research Institute, Puducherry to find out the views of in-patients on hospital admission process, pharmacy service, billing service, cleanliness, pantry service, nursing care, physician care and overall perception. Besides, socio-demographic characteristics of patients such as age, sex, address and education-level were also included in the study. The answers for various services were obtained in the form of 'not satisfied' and 'satisfied'. In this study, it was observed that patients' satisfaction was greatly influenced by timing of admission, MRD, pharmacy, pantry services, nursing care and doctor's care. The findings further revealed that their satisfaction with various services of the hospital was not influenced by age, address, qualification, duration of hospital stay and cleanliness. In the era of quality patient care, assessment of patients' satisfaction with various services is essential and plays a pivotal role in evaluating the present services, which in turn, helps in planning and implementing improved services in future, besides reducing the litigation.*

**Keywords:** Patient Satisfaction, In-patient, Medical Services, Health, Socio-economic Status

Health as a fundamental right, is gaining popularity in the past few decades and it has become a social goal. This is essential for the satisfaction of basic human needs and to improve the productivity of the nations. But the expected standard of public health has not improved considerably in both the developed and developing countries<sup>1</sup>. Patient satisfaction levels, therefore, indicate the quality of health care services and the care received by the patients<sup>2</sup>. They may, therefore, be used as means of evaluating health care services in general<sup>3</sup>. Patient satisfaction may be the ultimate goal of hospitals for various reasons. For example, a mission of the

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hospital may be ultimately committed to healing; a corporate hospital workers for profit. However, similarly the health workers in an institution are committed to provide the best available health care. If patient satisfaction is a means to achieve a goal, it will never be achieved effectively unless there is patient satisfaction and quality care. So, the aim of this study is to evaluate patient satisfaction with various services provided by a tertiary care hospital in Puducherry, India.

## **METHODOLOGY**

This cross-sectional descriptive study was conducted in Mahatma Gandhi Medical College and Research Institute (MGMCR&I), Puducherry, India which is a multi-specialty private college hospital. The target population was patients available in the wards of various departments at the time of data collection over a period of one week who were able to listen and understand either Tamil or English language and above 18 years. The patients were explained the purpose of the study before administering the interview schedule and data were collected from those who agreed to participate in the study. Based on the fact of 80 per cent bed occupancy rate at any period of time and on the assumption that 75 per cent of the randomly selected in-patient would be satisfied with the care received from the hospital; a minimum sample size of 134 was required to provide a confidence level (CI) of 95 per cent. But the researchers considered all the 152 in-patients as all of them agreed to provide the information. The variables included to assess the patient's satisfaction were perception about the hospital admission process, pharmacy service, billing service, cleanliness, pantry service, nursing care, physician care and overall perception about the hospital. The answers to the various services were obtained in the form of 'not satisfied' and 'satisfied'. A score of 2 was given for the response 'satisfied' and 1 for 'not satisfied'. Overall score for each service was assessed by adding the scores of each component and graded as: Excellent=6, Good=5, Average=4 and Poor=3. The response of the respondents to the question whether they would recommend this hospital to others was recorded in the form of 'yes' or 'no'. Analyses of results were primarily descriptive and variables are put in tabular formats with frequency and percentage. Association of these variables were examined by using cross-tabulation. For the above analysis, SPSS version 16 was used.

## **FINDINGS**

Socio-demographic data of the respondents showed that majority of the patients were in between 21 and 50 years, constituting 80.9 per cent of the study population. The study population below 21 years and above 50 years were 2.6 per

cent and 16.4 per cent respectively with the youngest patient being 18 years and the oldest being 75 years. Mean age of the patients was 38.04 years while it was 52.6 years for males and 47.4 per cent for females. 71.4 per cent of the patients were from rural areas and 28.9 per cent from urban areas. This is because the hospital is situated in a rural area of the Puducherry. It is seen that 72.4 per cent of the respondents were illiterate and below SSLC. Graduates were very less (5.9%) and Post-graduates were very negligible (0.7%), Table 1.

**TABLE 1**  
**DISTRIBUTION OF RESPONDENTS BY THEIR SOCIO-DEMOGRAPHIC CHARACTERISTICS**

| Socio-demographic Characteristics |               | Number = 152 | Per Cent |
|-----------------------------------|---------------|--------------|----------|
| Age (years)                       | <20           | 4            | 2.6      |
|                                   | 21-40         | 92           | 60.5     |
|                                   | 41-60         | 40           | 26.3     |
|                                   | >=61          | 16           | 10.5     |
|                                   | Total         | 152          | 100.0    |
| Gender                            | MALE          | 80           | 52.6     |
|                                   | FEMALE        | 72           | 47.4     |
|                                   | Total         | 152          | 100.0    |
| Address                           | RURAL         | 108          | 71.1     |
|                                   | URBAN         | 44           | 28.9     |
|                                   | Total         | 152          | 100.0    |
| Education                         | Illiterate    | 51           | 33.6     |
|                                   | <SSLC         | 59           | 38.8     |
|                                   | SSLC          | 32           | 21.1     |
|                                   | Graduate      | 9            | 5.9      |
|                                   | Post-graduate | 1            | 0.7      |
|                                   | Total         | 152          | 100.0    |

Data in Table 2 show the proportion of the patients admitted to different wards. Out of the total respondents, patients from the Orthopaedics ward comprised 27.6 per cent, General medicine 22.4 per cent, Obstetrics and Gynaecology 18.4 per cent and General surgery 17.1 per cent. Other departments like Dermatology, Otolaryngology, Ophthalmology, Psychiatry and Paediatrics contributed only 2.6 per cent, 3.3 per cent, 2.6 per cent, 0.7 per cent and 5.3 per cent of the study population respectively.

**TABLE 2**  
**DEPARTMENT-WISE DISTRIBUTION OF PATIENTS**

| Departments      | Number = 152 | (%)   |
|------------------|--------------|-------|
| Dermatology      | 4            | 2.6   |
| Otolaryngology   | 5            | 3.3   |
| General Medicine | 34           | 22.4  |
| General Surgery  | 26           | 17.1  |
| Obs. & Gyn.      | 28           | 18.4  |
| Ophthalmology    | 4            | 2.6   |
| Orthopaedics     | 42           | 27.6  |
| Paediatrics      | 8            | 5.3   |
| Psychiatry       | 1            | 0.7   |
| Total            | 152          | 100.0 |

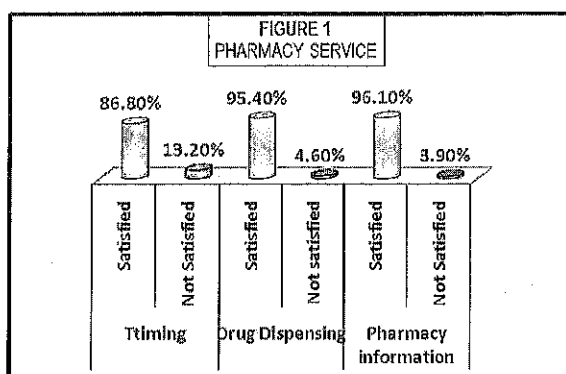
The study revealed that out of the total 152 patients, 124 (81.6%) were admitted to the different wards of the hospital on elective basis and 28 (18.4%) got admitted on emergency basis. Figures in Table 3 speak about the duration of stay of patients at the hospital. This information was collected from the patients at the time of discharge and most of them (61.8%) had spent less than seven days in the hospital which is an indication of quick patient recovery rate. Four patients (2.6%) had spent more than 30 days. These four patients were from the orthopaedic department, where prolonged stay is expected. The mean duration of stay for a patient was 8.8 days.

**TABLE 3**  
**NUMBER AND PERCENTAGE OF PATIENTS BY DURATION OF HOSPITAL STAY**

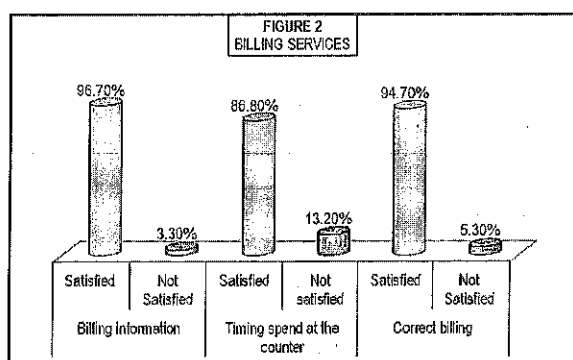
| Duration of Hospital Stay | Number = 152 | Per Cent |
|---------------------------|--------------|----------|
| <7 Days                   | 61.80%       | 94       |
| 8-30 Days                 | 35.50%       | 54       |
| >30 Days                  | 2.60%        | 4        |
| Total                     | 100          | 152      |

On enquiring about the difficulties faced at the medical record department during admission, 84.2 per cent of the respondents stated that they didn't find any difficulty while 13.2 per cent of them mentioned about difficulties during admission process. Questions about the pharmacy services included: (a) time

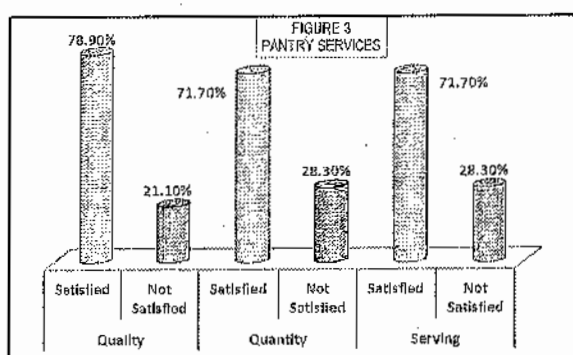
spent at the counter; (b) correct dispensing and exchanging of drugs, and (c) information about the drugs, if asked by the patient. 86.8 per cent, 95.4 per cent and 96.1 per cent of the patients were satisfied for the respective pharmacy service, whereas 13.2 per cent, 4.6 per cent and 3.9 per cent of the patients were not satisfied respectively (Figure 1).



Billing services included billing information, time spent at the billing counter and correctness of billing were assessed from the patients. While 97.7 per cent, 86.8 per cent and 94.7 per cent of the respondents replied 'positive' for the services; while 3.3 per cent, 13.2 per cent and 5.3 per cent responded 'negative', respectively (Figure 2).



Similarly, food services were assessed by asking the patients about the quality and quantity of the food and the manner in which the food was served to the patients. Figure 3 shows that 78.9 per cent, 71.7 per cent and 71.4 per cent patients, respectively were satisfied with the food services while 21.10 per cent, 28.3 per cent and 28.3 per cent of the patients were not satisfied with the food services.



The various aspects of cleanliness in the hospital included the bed provided to the patient, toilet used by them and ward in which they were admitted. 86.8 per cent, 70.4 per cent and 84.9 per cent of the patients respectively were satisfied with the cleanliness of the bed, toilet and ward whereas 12.5 per cent, 29.6 per cent and 15.1 per cent of the patients respectively were not satisfied. Nursing services were assessed on the aspects of availability of nursing personnel, nursing care and drug dissension to the patient. 98.7 per cent, 98.7 per cent and 99.3 per cent of the patients responded in affirmative with the nursing services respectively while the others were not satisfied. Response of the patients about the physician services such as availability of the doctor, doctor's care and the treatment was sought and it was observed that 99.3 per cent, 97.4 per cent and 95.4 per cent of the patients respectively were satisfied with the physician services of the hospital. Only negligible number of patients stated that they were not satisfied with the physician services.

Cross-tabulation of patient satisfaction with the services by age, sex, address, literacy, duration of hospital stay, source of information about hospital, medical record service, pharmacy service, billing service, pantry service, cleanliness, nursing services, and doctor's. The findings revealed an association between patients' satisfaction and the timing of admission, MRD, pharmacy, pantry services, nursing care and doctor's care. But no association was found to have been established between age, address, qualification, duration of hospital stay, pantry service and cleanliness with the services, Table 5.

**TABLE 5**  
**ASSOCIATION BETWEEN DIFFERENT SERVICES AND PATIENT SATISFACTION**

| Services | Patient satisfaction |     |         |
|----------|----------------------|-----|---------|
|          | X <sup>2</sup>       | #df | P Value |
| Age      | .375                 | 3   | .945    |
| Sex      | 2.426                | 1   | .119    |

| Services                  | Patient satisfaction |     |                   |
|---------------------------|----------------------|-----|-------------------|
|                           | $\chi^2$             | #df | P Value           |
| Address                   | 1.117                | 1   | .291              |
| Qualification             | 30.904 <sup>a</sup>  | 8   | .846              |
| Duration of Hospital Stay | 2.688                | 2   | .261              |
| Nature of Admission       | 8.778                | 1   | .003 <sup>*</sup> |
| Medical Record            | 13.043               | 1   | .000 <sup>*</sup> |
| Pharmacy                  | 16.625               | 3   | .001 <sup>*</sup> |
| Billing                   | 7.674 <sup>a</sup>   | 6   | .002 <sup>*</sup> |
| Pantry                    | 5.887                | 4   | .208              |
| Cleanliness               | 6.744                | 3   | .081              |
| Nursing                   | 43.898 <sup>a</sup>  | 4   | .000 <sup>*</sup> |
| Doctor                    | 33.421               | 2   | .000 <sup>*</sup> |

# Degrees of freedom

<sup>\*</sup> $p < .05$  = significant

## DISCUSSION

Quality improvement is essential for improvement in health care systems. It is envisaged that through regular tracking of dimensions of quality of care as cited above, health providers and hospitals could receive timely feedback on areas of deficiency paving the way to stimulate a mechanism to improve patient satisfaction. The providers must get first-hand information from their clients that helps them reorienting their services by adopting more client-centric approach, moulding their attitude and introducing congenial ambiance at health service outlets. In other studies, patient age, education, occupation and ethnic group are inconsistently associated with ratings of satisfaction. When a correlation is found, it is reported to be weak. These inconsistent correlations may be due to measurement problems (e.g., in non-standardized surveys) or other methodological pitfalls (e.g., varying population and sampling bias).

In this study, significant association between age and patient satisfaction was found whereas Gani et al in their study "Assessment of Patient Satisfaction with Mental Health Services in a Tertiary Care Setting" found a significant association between age of the patient and patient satisfaction<sup>4</sup>. This study shows that with the increase in age of the patients, the perception of patient satisfaction with regard to health care services also increases. The findings of this study revealed that there is a definite correlation between gender and patient satisfaction as more number of males was satisfied with the hospital services in comparison to the females. Similar findings have also been reported by Ottosson, B. et al<sup>5</sup>. But

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some other three studies elsewhere have reported that more number of females was satisfied with all the three domains of hospital care than the number of males ( $P < 0.005$ )<sup>6-8</sup>.

The current study revealed the highest satisfaction among the orthopaedic patients than any other department while another study reported the highest satisfaction among patients who sought obstetrics services<sup>7</sup>. These may be due to the different composition of the patients and various factors associated with these. Some researchers attribute the departmental preference to the nature of the condition normally seen in the departments and normally the final outcome. There was higher satisfaction with other services than surgical services but this reached a significant level for the overall center score domain only (4.1, 0.3% versus 4.0, 0.3%;  $P < 0.0001$ ). This study tried to find out the association between patient from rural and urban areas, and their satisfaction. Surprisingly, no association was seen between these two whereas Oz MC et al in their study found that although age, gender and race/ethnicity were generally not predictive of satisfaction, non-urban setting was correlated with greater patient satisfaction<sup>9</sup>. Although it is obvious that there is no association between hospital stay and patient satisfaction; still proportion of the patient satisfaction is more when hospital stay is less. In this study, the mean length of hospital stay was 8.8 days. Similarly, another study has also mentioned that satisfaction level of patients drops significantly with LOS of more than 4 days hospital stay ( $P < 0.006$ )<sup>6</sup>. Qualification does not play any role in patient satisfaction, the findings revealed.

There is an association between the nature of admission i.e. elective or emergency. The findings reveal that elective group of patients are more satisfied than emergency group of patients. No other study mentioned about this. Medical record department is the first service department where patients first come in contact with. It guides the patients how and where to go, whom to meet, etc.

Patient satisfaction surveys are the most commonly used method of measuring patient satisfaction in outpatient pharmacies. The current study shows that patient satisfaction with various pharmacy services like the time-spent, billing and drug information varies which is almost similar with the findings of another study that states the average satisfaction rate among the patients for the pharmacy services was 88 per cent<sup>10</sup>. But the current study was conducted among the in-patients whereas the other study was conducted among the patients who were discharged from the hospital and were interviewed through telephone. Pharmacy service has a definite bearing for patient satisfaction<sup>10</sup>. Although satisfaction among the patients for various components of billing services varies from 85.9 per cent to 96.7 per cent, 86.2 per cent graded it 'excellent' for overall services while 9.9

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per cent graded it 'good'. This study revealed that there is a definite association between billing services and patient satisfaction while an earlier study found 20 per cent complaints by the patients were against the billing and payment<sup>11</sup> which is comparatively higher from the findings of the present study.

A large number of the patients were satisfied with the quality and quantity of the food and the manner in which the food was served to them. Hospital patients are not a homogeneous group. A quite good number of them graded the pantry services 'excellent' while a few graded it 'good'. Perceptions about the quality of service and satisfaction vary among population groups. In this study no association was found between food service and patient satisfaction. The reason for no association between pantry service and patient satisfaction may be due to low socio-economic patient group of the general ward, who are not bothered about it as long as it is available free of cost. Cleanliness of bed, toilet and ward are major issues to provide satisfaction among patients. 86.8 per cent, 70.4 per cent and 84.9 per cent of the patients were satisfied with the cleanliness of the bed, toilet and ward respectively whereas 12.5 per cent, 29.6 per cent and 15.1 per cent of the patients respectively were not satisfied. But 69.1 per cent and 14.5 per cent of the patients viewed the services as 'excellent' and 'good' respectively. An earlier study reported that 7 per cent of the patients complain against cleanliness or safety of the environment<sup>11</sup>. The present study revealed no association between cleanliness services and patient satisfaction. This could also be due to the low socio-economic status of the patient group.

Quite good number of the respondents were satisfied with the various components of nursing services like availability of nursing personnel, nursing care and drug dispensing to the patients, which the other study revealed that majority of the patients were satisfied with the care and explanation about the disease and treatment given to them by the nursing staff. However, only 40 per cent of the patients were satisfied with the friendliness component of the nursing services<sup>12</sup>. This aspect of the nursing services is not assessed in the present study. A survey conducted by the Department of Public Health, Ireland, states that nurses were perceived as 'friendly' by 72 per cent and 'rude' by 1 per cent of the patients<sup>13</sup>. A definite association between nursing care and patient satisfaction has been observed in the present study. A very high percentage of the patients were satisfied with the physician services like availability of the doctor, doctor's care and the treatment given by them. But an Ireland study reports that 61 per cent of the patients viewed Public Health doctors 'friendly' and only one per cent viewed them 'rude'<sup>13</sup>. A study conducted elsewhere found that 29 per cent of the patients complained against the care and treatment received from the physician<sup>11</sup>.

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## LIMITATIONS

The present study has a few limitations. The sample size was small and collected within a short duration. It involved recall bias associated with questionnaire-based study. Study population included the patient group admitted to general ward only where bed charges and pantry services were free. Data were not collected from paid ward which is representative of higher socio-economic group of patients.

## CONCLUSION

Patient satisfaction is the essential indicator that reflects the service quality at any level of health services. The study on the patient satisfaction is an effective mean of evaluating the performance of hospital from the view of patients. The information obtained through this type of studies is valuable to remove discrepancies which are distorting the patient satisfaction so as to make the hospital more attractive for the patient. Patients attending each hospital are responsible for spreading the good image of the hospital and therefore satisfaction of patients attending the hospital is equally important for hospital management.

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