Original Research Article

Community diagnosis for a slum population under the field practice area of a government medical college, New Delhi: community-oriented primary care exercise for undergraduate students

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ABSTRACT

Background: Rapid urbanization has led to the increase in a group of people called ‘Urban poor’ dwelling as a community in ‘Slums’, worldwide. Slums manifest deprivation that transcends income poverty. Hence, we conducted this Community-oriented primary care (COPC) exercise, to give medical students a greater understanding of the situation of individual patients in the slum and to formulate a community diagnosis.

Methods: The current study was done at Tyagaraj Nagar Jhuggi in the South district of New Delhi, during Community-oriented primary care (COPC) exercise of undergraduate medical students in their 4th semester over a period of 20 days, using a predesigned proforma for collecting data on health events and determinants of health, from families. 35 households were chosen by systematic random sampling.

Results: Out of 179 community members studied, 33 (18.43%) were afflicted with morbidity, which consists of common cold with cough, generalized body pain and joint pain. The sex ratio was found to be 826, literacy rate was 76.9% in the study area, 44.11% of the households were having sanitary latrines owned by them, 68.6% had a closed drainage system 63% of the families used clean fuel for cooking and unmet need of contraception was 85% among eligible couples.

Conclusions: Investments in women’s access to various contraceptive preferences are urgently needed to help increase the contraceptive prevalence rate. Health Education and awareness campaigns on prevention of potential mosquito, fly breeding sites, hand hygiene, avoidance of firewood as fuel, establishing smoke outlet and solid waste management should be arranged.

Keywords: Community diagnosis, Slum health profile, Delhi slum, Community-oriented primary care, Medical students

INTRODUCTION

Community Medicine as a subject and practice is being recognized as a pivotal part in the area of public health. The scope of the subject matches and is in line with the objectives of public health, which aims to prevent diseases and prolong life, with community participation. The essential and basic pillar of community medicine is to assess the health related problems in a community, risk factors for such problems and needs of the communities it cater to, quantitatively and qualitatively, so that planning can be done for targeted and specific health interventions in that community, which is called as ‘Community diagnosis’. Community diagnosis as defined by WHO is, “a quantitative and qualitative description of the health of citizens and the factors which influence their health. It
identifies problems, proposes areas for improvement and stimulates action”. It helps the authorities to plan and allocate resources for health in their domains of administration from the smallest levels of wards/mohallas/villages to blocks, towns, cities and even states. It plays an important role in planning and deliver the most effective care to those in greatest need and to direct the resources by applying the principles of equity and social justice in practice.

In India, according to 2011 census, 37.7% of the population lives in urban area, which was 28.6% in 2001. India is witnessing a rapidly increasing urbanization trend, with rates increasing from 27.81% in 2001 to 31.16% in 2011, signifying a shift towards urbanized society in India, which is predominantly a rural based country. This shift gains our attention, since the determinants of health such as literacy rate, income levels, socio-economic status, accessibility to health care, health care infrastructure are differentially distributed between rural and urban areas. This rapid urbanization has also led to the increase in a group of people called ‘Urban poor’ dwelling as a community in ‘Slums’. Around 6.54 crore people of India live in slums. In Delhi Municipal Corporation area, among the Urban households, 14.6% of them are located in slums. Slums manifest deprivation that transcends income poverty. They are characterized by acute over-crowding, insanitary, unhealthy and dehumanizing living conditions.

The medical council of India, the apex body for Medical education in India, has formulated the regulations for the Undergraduate Medical Curriculum with the primary objective wherein a student is able to identify and manage the common health and nutritional problems in the community, and have a preventive, promotive, curative and rehabilitative approach, rather than just curative role at hospital level. The emphasis has been made on providing field exposure of community to the students where students can see and observe the environmental, social, cultural and economic conditions of the people in the community, to inculcate and improve the community and social approach towards health in them.

Community-oriented primary care (COPC) is a model that uses topics from the individual provider–patient encounter as a starting point. It combines individual patient and physician practice data with public health data at the community level, leading to a “community diagnosis”. The COPC exercise also presents an opportunity to invite Medical-Social Worker (MSW) & students into a joint learning experience. Finally, with this exercise we aim to create a win–win situation for both community and students, thus incorporating some of the recommendations concerning community oriented health education, such as allowing students to distinguish felt needs and actual needs, to let them learn socioeconomic determinants of health, and to let them be the community’s advocates.

The Department of Community Medicine developed a COPC-inspired exercise as a regular component in the MBBS curriculum. The aim of the exercise is to give students a greater understanding of the situation of individual patients in the community, an appreciation of the roles of patients’ different caregivers, and an opportunity to learn to combine data obtained from different sources into a community diagnosis, making the link between the individual’ health and the community. The students are also supposed to develop the skill of collecting, analyzing and interpreting data from the community. In this study we have described the methods of collection, collation and analysis of the health related data obtained in the survey from a slum under the urban field practicing area of a government medical college and arrived at a community diagnosis using the data to assess the health needs and determinants of the slum population.

**METHODS**

The current study was done at Tyagaraj Nagar Jhuggi, a slum in Kotla-Aliganj of the South district, New Delhi, which is the Urban field practice area of the Department. The data was collected during Community-oriented primary care (COPC) exercise of undergraduate medical students in their 4th semester over a period of 20 days in May-2018, using a predesigned proforma for collecting data on health events and determinants of health, from families. A 4 day orientation session was conducted for the students under the supervision of a professor, residents, health educator and Medical Social Worker on the technical details, importance of each topic in the proforma and on the communication skills required for interaction with the community and data collection from the families, by means of role plays. Since community diagnosis is in the routine curriculum as an exercise for MBBS medical students, Ethical Committee clearance was not required and hence not sought.

As there were 35 students in the batch and 140 houses in the slum, 35 families were to be selected which was one-fourth of the total families in the slum. The 35 households were chosen by using Systematic Random Sampling. The sampling interval came to be 4. The first household was chosen by selecting a number between 1 and 4, through simple random sampling by lottery method, which came out to be 2. From there, every 4th house was chosen. After obtaining consent from the selected family, the students were allotted one family each. Detailed data collection of the family was done and the proforma was filled by the students. Each student was asked to enter the data of their respective families in the master sheet made in MS excel. The consolidated data sheet was then analyzed in MS Excel and descriptive statistics were obtained. Based on this, health care needs and gaps were determined, and recommendations to meet those needs were made. The symptomatic patients found during the survey were brought to the residents, who made a diagnosis and treated, or referred to Safdarjung hospital, as needed.
RESULTS

The 35 families surveyed comprised of 179 members, with an average family size of 2.6. 54.7% were males and 45.3% of them females with a sex ratio of 826. Majority (88.6%) were following Hinduism as religion. Among the

35 families, 22 (63.1%) were migrants. Majority (58%) of the participants belonged to the age group 19-60 years i.e. adults. 18 (10.1%) of the population were under five children, 38 (21.2%) were adolescents and 9 (5%) were adolescents.

Table 1: Socio-demographic profile of the study participants/families in the community.

| Variable                        | Frequency | Percentage (%) |
|---------------------------------|-----------|----------------|
| Gender (n=179)                  |           |                |
| Male                            | 98        | 54.7           |
| Female                          | 81        | 45.3           |
| Age group wise distribution (n=179) |           |                |
| 0-6 years                       | 18        | 10.1           |
| 6-10 years                      | 10        | 5.6            |
| 10-19 years                     | 38        | 21.3           |
| 19-60 years                     | 104       | 58             |
| >60 years                       | 9         | 5              |
| Religion (n=35)                 |           |                |
| Hinduism                        | 31        | 88.6           |
| Others                          | 4         | 11.4           |
| Migration status (n=35)         |           |                |
| Migrants                        | 22        | 63.1           |
| Natives                         | 13        | 36.9           |
| Family type (n=35)              |           |                |
| Nuclear                         | 26        | 74             |
| Joint/Extended                  | 9         | 26             |
| Socio-economic status* (n=35)   |           |                |
| Upper                           | 1         | 2.85           |
| Upper Middle                    | 5         | 14.28          |
| Lower Middle                    | 12        | 34.28          |
| Upper Lower                     | 15        | 42.85          |
| Lower                           | 2         | 5.71           |

*Based on Kuppuswamy’ scale, revised for CPI-January 2018.

Table 2: Status of the physical, biological and psychosocial environment in the community (n=35).

| Factor                        | Frequency | Percentage (%) |
|-------------------------------|-----------|----------------|
| House-construction material   |           |                |
| Wall                          |           |                |
| Pucca                         | 26        | 74.3           |
| Kutcha                        | 2         | 5.7            |
| Pucca Kutcha                  | 7         | 20             |
| Roofing                       |           |                |
| Pucca                         | 15        | 42.8           |
| Kutcha                        | 14        | 40             |
| Pucca Kutcha                  | 6         | 17.2           |
| Floor                         |           |                |
| Pucca                         | 31        | 88.6           |
| Kutcha                        | 2         | 5.7            |
| Pucca Kutcha                  | 2         | 5.7            |
| Ventilation                   |           |                |
| Inadequate                    | 23        | 65.7           |
| Adequate                      | 12        | 34.3           |
| Cross ventilation             |           |                |
| Present                       | 5         | 11.5           |
| Absent                        | 30        | 88.5           |

Continued.
| Factor                                      | Frequency | Percentage (%) |
|---------------------------------------------|-----------|----------------|
| **Artificial source of light**              |           |                |
| Inadequate                                  | 13        | 37.14          |
| Adequate                                    | 22        | 62.86          |
| **Natural source of light**                 |           |                |
| Inadequate                                  | 22        | 62.86          |
| Adequate                                    | 13        | 37.14          |
| **Presence of overcrowding**                |           |                |
| Person per Room Criteria                     | 30        | 85.71          |
| Floor Space Criteria                         | 29        | 82.85          |
| Sex Separation                              | 18        | 51.40          |
| Over all by any criteria                    | 34        | 97.14          |
| **Location of the Kitchen**                 |           |                |
| Open area                                   | 25        | 71.42          |
| Separate in the house                       | 4         | 11.42          |
| Within a living room of the house           | 6         | 17.14          |
| **Fuel used for cooking**                   |           |                |
| Cooking Gas                                 | 22        | 63             |
| Firewood                                    | 7         | 20             |
| Both                                        | 6         | 17             |
| **Smoke outlet**                            |           |                |
| Present                                     | 21        | 60             |
| Absent                                      | 14        | 40             |
| **Type of drainage**                        |           |                |
| Open                                        | 24        | 68.6           |
| Closed                                      | 11        | 31.4           |
| **Water source**                            |           |                |
| Tap water supply, shared by families        | 26        | 74.3           |
| Bottled water supply                        | 2         | 5.7            |
| Tanker supply                               | 2         | 5.7            |
| Ground water (Boring)                       | 5         | 14.3           |
| **Waste disposal**                          |           |                |
| Collection method inside the house          |           |                |
| -heaps                                      | 4         | 11.4           |
| -closed bins                                | 18        | 51.4           |
| -open bins                                  | 13        | 37.2           |
| Disposal outside                            |           |                |
| -thrown away (into pit)                     | 19        | 54.3           |
| -public bins                                | 16        | 45.7           |
| **Sanitary latrines (usage)**               |           |                |
| Yes                                         | 34        | 97.10          |
| No                                          | 1         | 2.90           |
| **Sanitary latrines (Ownership) (N=34)**    |           |                |
| Exclusively owned by the family             | 15        | 44.11          |
| Shared with any other families              | 4         | 11.76          |
| Community Latrines                          | 15        | 44.11          |
| **Biological environment**                  |           |                |
| Presence of Potential Mosquito breeding sites in & around households | 27 | 77 |
| Presence of Potential fly breeding sites in & around households | 20 | 57 |
| Presence of Rodents reported in the households | 16 | 45 |
| Presence of Pets (dogs, cats, parrot) in the households | 4 | 11 |

*Mutually inclusive

The crude birth rate was 39.10 per 1000 population and the crude death rate was 11.17 per 1000 population. All the births and deaths were registered (100%). The marriage rate in the study population (OECD) was 11.17.
The literacy rate was 76.9% in the study area. Majority (74%) of the families studied were nuclear. The average monthly income of the residents was Rs.2845. Among the participant families, 8.57% were living below poverty line, according to Tendulkar committee (state specific). Major part of the average expenditure by the families was spent on food (67%), followed by clothing (13%), transport (7%), electricity (5%). 3% of total monthly expenditure was on health. Total dependency ratio was 57%, which had a distribution of 51.4% as young age dependency ratio and 5.6% as old age dependency ratio. Majority (42.85%) of the families belonged to Upper lower socio-economic class, followed by lower middle class (34.28%), according to revised Kuppuswamy’s scale.

**Table 3: Distribution in the community according to family customs and practices of health (n=35).**

| Characteristic                                      | Number of families | Percentage (%) |
|-----------------------------------------------------|--------------------|----------------|
| **Family customs**                                  |                    |                |
| Form of marriage                                    |                    |                |
| Monogamy                                            | 34                 | 97.14          |
| Polygamy                                            | 1                  | 2.86           |
| Marriage regards to caste                           |                    |                |
| Within caste                                        | 16                 | 46             |
| Inter caste                                         | 19                 | 54             |
| Usual age at marriage for females                   |                    |                |
| <18 years                                           | 5                  | 14             |
| 18-20 years                                         | 25                 | 72             |
| 20 years                                            | 5                  | 14             |
| Dowry practice                                      |                    |                |
| Present                                             | 17                 | 49             |
| Absent                                              | 18                 | 51             |
| Son preference                                      |                    |                |
| Present                                             | 12                 | 34             |
| Absent                                              | 23                 | 66             |
| Ante natal care services                            |                    |                |
| Availed                                             | 7                  | 20             |
| Not availed                                         | 28                 | 80             |
| Customs and practices of health                     |                    |                |
| Prelacteal feed                                     |                    |                |
| Yes                                                 | 5                  | 14             |
| No                                                  | 30                 | 86             |
| Colostrum given                                     |                    |                |
| Yes                                                 | 32                 | 92             |
| No                                                  | 3                  | 8              |
| Usual Initiation of breastfeeding from time of birth |                    |                |
| within 1 hour                                       | 4                  | 11             |
| 1-3 hours                                           | 8                  | 25             |
| 4-6 hours                                           | 12                 | 34             |
| 6-12 hours                                          | 2                  | 5              |
| 12-24 hours                                         | 6                  | 17             |
| >24 hours                                           | 2                  | 5              |
| Exclusive breastfeeding from birth upto              |                    |                |
| 6 months                                            | 25                 | 71             |
| 7 months                                            | 1                  | 3              |
| 8 months                                            | 6                  | 17             |
| 1 year                                              | 3                  | 9              |
| Total duration of breastfeeding                     |                    |                |
| 6 months                                            | 7                  | 19             |
| 1 year                                              | 12                 | 34             |
| 1-2 years                                           | 7                  | 19             |
| 2-3 years                                           | 9                  | 28             |

Continued.
Characteristic | Number of families | Percentage (%)  
---|---|---  
**Immunization practice** | |  
Present | 32 | 91  
Absent | 3 | 9  
**Health care seeking behavior** | |  
**System of medicine followed*** | |  
Allopathy | 35 | 100  
Other systems of medicine | 4 | 11  
**Disease causation belief** | |  
Scientific reasons | 26 | 74  
God’s will | 7 | 20  
Past sins | 2 | 6  
**Source of medical care** | |  
Government hospital/Dispensary/MCH center | 25 | 71  
Private clinic/hospital | 10 | 29  
*Mutually inclusive  
#Maternal & Child Health centers (under Delhi Municipal corporations)  

| Characteristic | Frequency | Percentage (%)  
---|---|---  
**Delivery related (number of infants, n=3)** | |  
Mode of delivery | |  
Caesarean Section | 1 | 33.33  
Vaginal delivery | 2 | 66.67  
Birth weight (kg) | |  
<2.5 | 2 | 66.67  
>2.5 | 1 | 33.33  
**Family planning (eligible couples, n=31)** | |  
Awareness about child birth planning | |  
Present | 21 | 68  
Absent | 10 | 32  
Awareness about contraceptive measures² (n=21) | |  
Condoms | 14 | 66  
IUCD | 10 | 47  
Sterilisation | 5 | 23  
OCPs | 5 | 23  
Places known to acquire contraception (n=21) | |  
Government hospital/Dispensary/MCH center | 14 | 40  
Private clinic/chemists | 5 | 14  
Anganwadi | 2 | 6  
Preferred gap between children in years (n=31) | |  
1 | 2 | 6  
2 | 6 | 20  
3 | 14 | 42  
4 | 10 | 32  
Couples with unmet needs* for contraception (n=21) | |  
Unmet need for spacing (n=18) | 15 | 83  
Unmet need for permanent contraception (n=18) | 3 | 17  
*Unmet need for family planning refers to fecund women who are not using contraception but who wish to postpone the next birth (spacing) or stop childbearing altogether (limiting); #Mutually Inclusive.  

All the children (100%) were immunized appropriately for their age. 100% institutional delivery was observed in the community (n=3). Out of 179 community members studied, 33 (18.43%) were afflicted with morbidity (Table 5 and 6), which consists of common cold with cough, generalized body pain and joint pain.
The prevalence of morbidity in our community was 18.43%, similar to the morbidity rate of 15.4% obtained in the studies by Marimuthu at slums of Delhi and South India, but higher than the All India Urban morbidity, which was 10.8%. This higher rate might be due to the unhealthy living conditions which can be attributed to the slums, in general.

63% of the participant families were migrants, which is very much higher than the national migration rate of 29%, indicating the marginalized nature of the community. This might be due to the rapid growth of Delhi as a major provider of employment, thus pulling huge migrations from the nearby states.

The sex ratio in our community was found to be 826 which is much lower than that of national (991), Delhi (849) and overall city slums’ sex ratio, but higher than the sex ratio obtained (729), in the study conducted by Marimuthu in Delhi slums. Lower sex ratio might be due to the son preference prevailing in Indian societies. The sex ratio lower than the national average might be due to the reason that majority of the families in our population are migrated and migratory population are predominantly male populated, as employment is the major reason for migration, and slums constitute manual labor migratory population, formed by the males.

Literacy rate in our community is 76.9% whereas the national rate is 74.04%, and in overall slums is 84.11%. The difference of 8 percentage points between national level literacy rates in slums and our study population might have been due to greater migratory nature (63%) of our community.

74.3% of the families studied were getting their drinking water by taps, shared with other families which is similar to the drinking water source used by the slums, nationally (74%). 2 (5.7%) families in our community were using the bottled water supply for drinking, as one of the members from each family were working in the bottled water manufacture and/or distribution firms in Delhi.

The Municipal Corporation shall be informed of the need for continuous water supply in the pipes and more public dust bins in the community, as the wastes are being thrown into pits by majority of the families (54.3%).

Our community study revealed that 44.11% were having sanitary latrines owned by them, exclusively, whereas nationally 66% of the slum households were owning latrines. The initiative for building toilets for each household under swatch bharat must be promoted to cover the rest of the families in the community. However, open defecation was practiced by only 1 (2.90%) family studied, against a whopping 18.9% slum families practicing open defecation overall. This indicates a better sanitary latrine knowledge and practice among our community, thus indicating the scope for health education and empowerment of the community in other domains.

68.6% of the households in our community had a closed drainage system, which is way above the rate (36.9%) reported by the national level survey of slums. This might be due to the better service provision by the Delhi Jal Board.

Unmet need for contraception was reported as 85% among the eligible couples of our community, which is not line with the unmet need rate of Delhi (15.8%) and...
Only 11% of our study families reported early initiation of breastfeeding, while 29.1% in Delhi and 41.6% in India reported early initiation of breastfeeding. In our study, exclusive breastfeeding for 6 months was reported as custom in 71% of the families, which is well above the national (54.9%) and Delhi rates (49.6%). The inadequacies in their breastfeeding customs and practices might be attributed to the cultural and societal norms in which the families are bred. The early initiation of breastfeeding within 1 hour, avoidance of pre-lacteal feeds, duration of exclusive breastfeeding, and continuation of breastfeeding, must be promoted in the community.

CONCLUSION

Investments in women’s access to various contraceptive preferences are urgently needed to help increase the contraceptive prevalence rate. Thus, interventions that focus on needier sections of the population will accelerate contraceptive acceptance and improve maternal and child health. Health Education and awareness campaigns on prevention of potential mosquito, fly breeding sites, hand hygiene, avoidance of firewood as fuel, establishing smoke outlet and solid waste management should be arranged. Lighting can be improved by addition of LEDs, which is being provided at subsidized rates by the Government of India. Families in Overcrowded, poorly ventilated and kutcha houses need to be relocated/rehabilitated, which involves greater commitment and involvement at the highest level of Government through the Slum Improvement/Slum clearance schemes, Pratan Mantri Awas Yojana, “In-situ” slum rehabilitation. Nowadays there is a renewed interest in the role of primary care as an essential component of the delivery of health care and COPC is a broad approach to care, taking into account the socioeconomic and cultural factors of health, pinpointing health needs, and providing health care to the total community. Accordingly, further studies are needed to explore the environmental and social determinants of slums as to why they have higher morbidity and mortality, and studies need to consider collecting and using longitudinal data to compare health indicators among these residential domains.

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