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'.[1] 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".[2] 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.[1]

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.[3] 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.[4]

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.[5] 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.[6]

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".[7] 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' 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		
Pre lacteal 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' 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)

Table 4: Distribution in the community according to delivery related and family planning practices.

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 measures[#] (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)	18	85
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.

Table 5: Distribution of morbidity status in the community according to gender and age groups (n=179).

Variable	Morbid (%)	Not diseased (%)
Gender wise		
Male	18 (10.05)	80 (44.69)
Female	15 (8.38)	66 (36.88)
Age groups wise (years)		
0-5	3 (1.67)	15 (8.38)
5-10	2 (1.12)	8 (4.47)
10-19	4 (2.23)	34 (18.99)
19-60	17 (9.49)	87 (48.62)
>60	7 (3.91)	2 (1.12)

Table 6: Morbidity profile of the community (n=33).

Morbidity	Number	Percentage (%)
Generalized body pain	18	54.54
Joint pain	5	15.15
Cold with cough	3	9.09
Hypertension and diabetes	3	9.09
Hypertension	1	3.03
Diabetes	1	3.03
Epilepsy	1	3.03
Loose stools	1	3.03

DISCUSSION

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%.[8,9] This higher rate might be due to the unhealthy living conditions which can be attributed to the slums, in general.[4]

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.[3] This might be due to the rapid growth of Delhi as a major provider of employment, thus pulling huge migrations from the nearby states.[9]

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.[8] Lower sex ratio might be due to the son preference prevailing in Indian societies.[11] 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.[12,13]

Literacy rate in our community is 76.9% whereas the national rate is 74.04%, and in overall slums is 84.11%.[4,14] 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%).[4] 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.[4] 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.

Our community reported that 63% of the families used clean fuel for cooking, whereas 97.7% of the families in Delhi and 43.8% of the families nationally, reported using clean cooking fuel.[14,15] The stark difference between Delhi and our study population might be due to lack of awareness about the government schemes subsidizing clean fuel or lack of financial resources to acquire clean fuel. One other reason might be the inability to utilize Pradhan Mantri Ujjwala Yojana, which has made Aadhaar of poor women a mandatory for obtaining LPG connection. Since the migratory population mostly have the Aadhaar issued from their home state, this might be causing red-tapism to obtain LPG connection in Delhi.[16] This in turn will lead to usage of unsafe 4-5 kg mini cylinders, which are refilled locally, under totally unsafe and unauthorized condition, posing a greater risk of accidents.[17,18]

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.[4] 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

India (12.9%).[14,15] This is interesting, especially when interpreted with the finding that 67.74% of the eligible were aware about contraceptives and the places to acquire them. But they were not aware that ASHAs can provide certain contraceptives. Thus the unmet need might have been caused due to the gap between the ASHAs and community, or the reluctance of the community to approach the health centers to get the contraceptives. It becomes even more important, since majority (74%) of the eligible couples, preferred a gap of 3-4 years between child birth. Thus addressing the unmet need alone can provide greater health effects, as the community is already aware of contraception & preferred gap between child births. The difference between the need and supply is huge, warranting further investigations and probing into the determinants responsible for such a wide gap of unmet needs in our community. In addition, the remaining eligible couples should be made aware about the necessity and availability of family planning services

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.[14,15] 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%).[14,15] 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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