

# Pattern of Use and Determinants of Return Visits at Community or *Mohalla* Clinics of Delhi, India

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## Abstract

**Background:** *Mohalla* or Community Clinics of Delhi, India, have made primary care accessible, equitable, and affordable for women, elderly, and children in the underserved areas. **Objectives:** To understand the population subgroups which use these clinics and to analyze why people use these facilities and the determinants of the return visits for health seeking. **Materials and Methods:** This was a community-based cross-sectional study, with primary data collection from 25 localities across Delhi. A pretested semi-structured interview schedule was used for data collection. Two regression models were used for data analysis: a linear probability model to understand the factors contributing to the use of these clinics and a probit regression model to understand the determinants of return visits to these facilities. **Results:** Four hundred ninety-three ever-married women residing in study settings were included. The age of beneficiaries, marital status, distance from the clinics, and awareness about the services were found to be positively associated with the use of *Mohalla* Clinics. The proximity to households, waiting time at clinics, interaction time with the doctor, perceived performance of doctor, and effectiveness of treatment influenced the decision on a return visit for care seeking. **Conclusions:** Improved information on service provision, proximity to the facility, assured provision of doctors and laboratory services, and increased patient–doctor interaction time have the potential to increase the use and return visits to these Community or *Mohalla* Clinics. The lessons from this study can be used to design government primary health-care facilities in urban settings, for increased use by the target populations.

**Keywords:** Community clinics, India, *Mohalla* clinics, primary health care, urban health, universal health coverage

## INTRODUCTION

*Mohalla* (community or neighborhood) Clinics' initiative was launched by the Delhi state of India in July 2015.<sup>[1]</sup> The clinics have been started to make primary care – mostly curative services with a few components of preventive and promotive health services – accessible, equitable, and affordable, and to address the demand-supply gap by making health services available at closer to the marginalized and underserved populations.<sup>[1,2]</sup> These facilities became popular soon and are being widely proposed as a vehicle to reform health systems and a model for scaling up primary health care in urban settings of India. A number of Indian states have initiated or proposed to start similar community clinics since then.<sup>[1,3-5]</sup> The available information indicates that a major proportion of beneficiaries of *Mohalla* Clinics (MCs) are women, elderly, and children, who otherwise either do not access or delay in seeking health services. Many beneficiaries had reportedly come to a government health facility for the first time.<sup>[6,7]</sup> This

study was conducted to understand the pattern of utilization and determinants of the return visit (though could be for different health conditions) to MCs.

## MATERIALS AND METHODS

### Study design

This was a community-based cross-sectional study, with an urban household as a study unit.

### Study setting, sampling units, and respondents

The urban localities inhabited by poor and migrant populations, across Delhi state, with each locality having at least one MC

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within the radius of 1.5 km were the study settings. In each sampling unit, 20 study participants were proposed to be interviewed, giving a total sample size of 500 respondents. Ever-married women in a family were the primary respondent. This was based on a pilot survey prior to the study where it was found that male members were usually not available at home in the daytime (as these localities are mostly of both formal and informal sector workers).

### Selection of sampling units

There were 158 MCs functioning in June–July 2018 (at the time of data collection). Based on time and resources available with researchers, a purposive sample of one-sixth of all localities with MCs was included in the study. A weighted sampling method was used to identify 25 localities, from areas under three different municipal corporations in Delhi, which were proportionately selected. Therefore, 10, 9, and 6 localities were selected from North, South, and East Delhi Municipal Corporations, respectively.

### Data collection and study tools

A semi-structured interview schedule was designed as per the study objectives. The draft of the schedule was pilot tested in three urban settlements (i.e., 60 ever-married women), with similar population profiles as the final study units. The interview schedule was refined and revised, based on feedback from the pilot survey, for the final data collection. Informed verbal consent was obtained from all participants, and anyone who refused to participate was excluded from the study.

### Statistical analysis

Two regression models, linear probability and probit,<sup>[8,9]</sup> were used for the data analysis. The linear probability regression model aimed at determining the factors which impact the likelihood of visiting the MC [detail in Box 1, Section A]. The probit regression model takes into consideration only those who ever visited an MC and analyze the factors impacting the decision of return visits. A performance index, indicative of the performance of the MCs in various parameters, was incorporated in the probit regression model. This index is a continuous variable which reflects the overall performance of MC as compared to the other facilities previously visited by the respondents [Details in Box 1, Section B].

### Study period

March 2018 to October 2018, with primary data collection in June–July 2018.

## RESULTS

A total of 493 individuals living in identified sampling units were included in the study (only 13 respondents could be interviewed from one sampling unit). The average age of the respondent was 37.6 years (range: 17–77 years). The mean year of schooling was 3.1 years, ranging from no formal education to postgraduation. The descriptive comparative information is provided in Table 1.

As shown in Table 1, of all the study participants, nearly two-third were aware and/or heard about MCs; nearly half

## Box 1: Description of variables in two regression models

### Section A: Linear probability regression model

Age: The age of women interviewed; a continuous variable

Marital status: Only ever-married women included as the study respondents. Two groups: (a) living with their husband and (b) not currently living with their husband due to any reason

Occupation: Two groups of those who were involved in paid work and those not involved in paid work (including unemployed or housewives)

Education: Two groups of any formal education and no schooling

Health-seeking decision (Self/Joint/Other): Three subgroups. First, those females who took the health seeking-related decisions on their own (this was base category). Second, group of joint comprises individuals who took health-seeking related decision in discussion with their husband; Third, subgroups of others were those who had no say in their health seeking related decisions and the decision was taken by other individuals like their husband or in-laws, etc

Distance from *Mohalla* Clinics: Two subgroups of the distance between urban poor settlement and the MC less than or equal to 500 m and that of more than 500 m

Heard of *Mohalla* Clinic: Two subgroups of less than three-fourth of respondents had heard of the MC in a particular locality and more than three-fourth had heard of MC.

### Section B: Probit regression model

Performance Index: A continuous variable which reflects the overall performance of MC compared to the other health facilities visited by the respondents: categorized into public, private: formal, and private: informal and unqualified providers. The individuals were asked to compare the MC to other health-care facilities visited by them in the past on the following grounds: (a) Proximity; (b) Waiting time; (c) Doctor's performance; (d) Effectiveness of medicine; and (e) Overall experience at the MC. The response in each aspect was recorded in terms of better, equal, or worse as compared to previous units and was given the scores of 1, 0, and -1, respectively. The performance index for each of the 5 categories was then constructed by taking the average score of that the clinic as compared to other clinics previously visited by an individual. For instance, if a particular MC is better in terms of proximity as compared to both previously visited private and public unit but is equal in the same category as compared to previously visited local unit, then the score of proximity given by that individual becomes 0.66  $([1 + 1 + 0]/3)$ . The overall performance index is finally the average of the performance score for each category. For instance, if all the five categories get a score of 1, then the overall performance index is 1  $([1 + 1 + 1 + 1 + 1]/5)$

Portacabin or rented premises: Two categories being assigned to MC, i. e., the MC operating on Portacabins and the ones operating in the rented premises

Interaction time with the doctor: Two groups of the individual who had the interaction time with the MC's doctor to be sufficient and second who did not

Health-care decision (self/joint/other), occupation, and education: Definitions similar to the linear regression model (as above). However, the data were truncated, and the analysis involved information for only those individuals who ever visited an MC for themselves.

were aware of the location, services, and the timings of the clinic; and two-third of those had visited the clinic at least once. The average number of visits by beneficiaries was 5.6 (range: 3.9–8.6) per year per person. Three-fourth of both the groups (ever or never visitors) were willing to attend these clinics in future. The subgroup analysis across three municipal corporations in Delhi shows a similar pattern, indicating the equity in the use of services.

The linear probability regression model results [Table 2] are based on a sample of 490 (the data collection forms were incomplete for three respondents and thus excluded).

$$\text{Pr. Visited} = \text{Constant} + \beta_1 \text{ Age} + \beta_2 \text{ Marital Status} + \beta_3 \text{ Occupation} + \beta_4 \text{ Education} + \beta_5 \text{ Healthcare Decision} + \beta_6 \text{ Distance to MC} + \beta_7 \text{ Heard of MC} + \text{Error}$$

Table 2 shows that the people living closer to MC were more aware of these clinics and more likely to use the facilities, in comparison to those who were living further from the facilities. The “word of mouth” was one of the major sources of information about the clinics, which, in turn, possibly was an outcome of the proximity of the clinic. The variable

“heard of MC” depicts the level of information about these clinics that reached each locality. The variable is highly significant, and the model depicts that for every locality where the information reached to three-fourth or more respondents, the probability of visiting the MC increased by almost 30%. The age, living without a husband, nonworking or outside working age, any years of education, and proximity to these clinics were found to be associated with higher utilization of these facilities.

The probit regression model is based on 193 individuals who ever visited a clinic. However, the final analysis used data of 171 individuals due to the incomplete data for 22 respondents [Table 3].

$$\text{Probit (Willingness to Visit in future)} = \text{Constant} + \beta_1 \text{ Performance Index} + \beta_2 \text{ Type of Structure (Rented or Porta Cabin)} + \beta_3 \text{ InteractionTime} + \beta_4 \text{ Healthcare Decision} + \beta_5 \text{ Occupation} + \beta_6 \text{ Education} + \text{Error}$$

The individuals were asked to compare the experience at MC to their experience at health-care facilities [details in Box 1; section B]. The performance of the MC has

**Table 1: Descriptive statistics of participants in the study**

Particulars	South DMC	East DMC	North DMC	Total, n (%)
A. Total number of localities/catchment areas of MC studied	9	6	10	25
B. Total number of respondents (=n). Percentage of total	180 (36.5)	120 (24.3)	193 (39.1)	493 (100)
C. Number of individuals heard of MC. Percentage=c/b×100	115 (63.9)	79 (65.8)	132 (68.4)	326 (66.1)
D. Number of individuals aware of the services of MC. Percentage=d/b×100	83 (46.1)	68 (56.7)	118 (61.1%)	269 (54.6)
E. Number of individuals visited the MC (for self). Percentage=e/d×100	55 (66.3)	44 (64.7)	94 (79.6)	193 (39.2)
F. Average number of visits to MC in the past 1 year. n=e	3.93	8.64	5.24	5.57
G. Number of respondents willing to continue visiting the MC. Percentage=g/e×100	39 (71)	37 (84)	71 (75.5)	147 (76.2)
H. Number of respondents willing to visit MC (of those not visited MC till the time of study). Percentage=h/(b-e) ×100	92 (73.6)	58 (76.3)	72 (72.7)	222 (74)

DMC: Delhi Municipal Corporation, MC: Mohalla Clinic

**Table 2: Findings from the linear probability regression model**

Linear probability regression					
Number of observations	490				
F (8, 24)	8.49				
Probability > F	0.0000				
R <sup>2</sup>	0.1554				
Root MSE	4528				
Visited	Co-efficient	Robust (SE)	t	P > t	95% CI
Age	0.00376	0.00203	1.85	0.076*	-0.00042-0.00794
Marital status (living without husband)	0.12552	0.05339	2.35	0.027**	0.01532-0.23572
Occupation (working)	0.01778	0.04761	0.37	0.712	-0.08048-0.11604
Education (any year of education)	0.04916	0.06092	0.81	0.428	-0.07659-0.17489
Decision-making (base category: Self)					
Joint	-0.01861	0.06774	-0.27	0.786	-0.15843-0.12121
Other	-0.07069	0.06822	-1.04	0.310	-0.21148-0.07009
Distance to MC	-0.12739	0.05690	-2.24	0.035**	-0.24483-0.00994
Heard of MC	0.29124	0.06363	4.58	0.000***	0.15992-0.42255
Constant	0.13576	0.10461	1.30	0.207	-0.08014-0.35165

\*\*\*Significance at 1%, \*\*Significance at 5%, \*Significance at 10%. Description of variables is provided in Box 1, section A. MC: Mohalla Clinic,

SE: Standard error, CI: Confidence interval, MSE: Mean square error

been more satisfactory for the respondents as compared to the public hospitals for addressing the primary health-care needs. When ranked alongside the private providers (both formal or qualified and informal or unqualified), the nondegree allopathic providers, there was a significant proportion responded about MC with higher satisfaction for the indicators such as doctor's performance and perceived effectiveness of treatment, among others [Table 4].

## DISCUSSION

This, to the best of authors' knowledge, is the first community-based study on the determinants of use and return visits to MCs of Delhi. The average number of visits in these facilities was higher than the national average of 1 per person per year in India<sup>[10]</sup> as well as for countries such as Sri Lanka and Thailand, with outpatient utilization rate in the range of

**Table 3: Findings from Probit regression model**

Probit Regression					
Probit regression model					
Number of observations					174
LR $\chi^2$ (7)					58.54
Probability > $\chi^2$					0
Log likelihood					-65.734527
Pseudo R2					0.3081
Continue to visit MC	Co-efficient	SE	Z	P > Z	95% CI
Performance index	1.28389	0.28558	4.50000	0.000***	0.72415-1.84362
Type of structure (rented)	1.04109	0.30536	3.41000	0.0010***	0.44259-1.63957
Interaction time (sufficient)	0.56458	0.26532	2.13000	0.03300**	0.04456-1.08461
Healthcare decision					
Joint	0.02132	0.31001	0.07000	0.94500	-0.58629-0.62893
Other	-0.34475	0.32562	-1.06000	0.29000	-0.98295-0.29345
Occupation	-0.03243	0.28471	-0.11000	0.90900	-0.59045-0.52559
Education (some education)	0.28163	0.27245	1.03000	0.30100	-0.25237-0.81563
Constant	-0.01733	0.27144	0.06000	0.94900	-0.54936-0.51469

\*\*\*Significance at 1%, \*\*Significance at 5%, \*Significance at 10%. Description of variables is provided in Box 1, Section B. MC: Mohalla Clinic, SE: Standard error, CI: Confidence interval, LR: Likelihood ratio

**Table 4: Performance of Mohalla Clinics as compared to other primary health care units (n=193)**

Proximity	Nearer (%)	Equal (%)	Farther (%)
Public	90.3	7.8	1.2
Private: Formal	54.9	25.4	19.7
Private: Informal	38.2	20.6	41.2
Waiting time	Less (%)	Similar (%)	More (%)
Public	80.8	10.6	8.7
Private: Formal	25.4	23.9	50.7
Private: Informal	20.6	26.5	52.9
Doctor's performance in opinion of respondents	Better (%)	Equal (%)	Worse (%)
Public	31.1	35.9	33.0
Private: Formal	32.4	32.4	35.2
Private: Informal	18.2	48.5	33.3
Effectiveness of medicines	Better (%)	Equal (%)	Worse (%)
Public	32.7	38.5	28.9
Private: Formal	22.5	33.8	42.3
Private: Informal	24.2	36.4	39.4
Days taken in which test reports received	Early (%)	Equal (%)	Late (%)
Public	58.8	35.3	5.9
Private: Formal	44.4	33.3	22.2
Overall performance of Mohalla Clinics	Better (%)	Equal (%)	Worse (%)
Public	44.1	28.4	27.5
Private: Formal	28.2	28.2	43.7
Private: Informal	21.9	43.8	34.4

3–4 per person per year.<sup>[11]</sup> This finding, on one hand, indicates unmet health-care needs of population, however, could also be due to the overuse of health services once availability assured. This needs further exploration through operational research.

Age was found to be significantly impacting the decision and likelihood of a respondent to visit these facilities. This could be due to the fact that with aging, the incidence of diseases increases as well as the older age is also positively associated with the autonomy of decision-making and more information availability.<sup>[12]</sup> The women beyond working age are more likely to use free- or low-cost proximate health facility, as their mobility and income reduces and dependency on the other members increases and the attendance at MCs with age shows a positive association.<sup>[13]</sup> Therefore, a community clinic can be considered empowering for the elderly population, especially women members, who have limited mobility and decision-making power. There were a few personal accounts reported where doctor at MC was considered as part of the community and his/her mediation/advice was sought in addressing social health issues such as gender-based violence and problem of alcoholism.

It was found that the women who were living without their husbands had a higher tendency to visit the MC. It is the prevailing form of family and kinship interactions and manner in which the gender roles are allocated, the resources distributed, and the decision-making power assigned that determines the strength of the agency of women.<sup>[14]</sup> These clinics seem to strengthen the agency of women; however, more evidence is needed to support this hypothesis. As the distance to the MC increases (beyond 500 m), the probability of visiting the clinic declines significantly. Distance to the clinic also determines its accessibility since the opportunity costs like time and traveling costs increase with distance.<sup>[15]</sup>

A higher score on the performance index had a significant impact on the likelihood of adhering to the MC for future health needs. These findings also indicate that individuals are not rigid in preference for the local private health-care provider and can shift to a government health facility if considered good. Hence, the MCs have the potential to replace the local, unqualified practitioners, pervasive in such settings. The “interaction Time” with the doctor is the time for determining the suitability of diagnosis and treatment and is considered one of the factors to determine the performance of a doctor, in opinion of beneficiaries.<sup>[16,17]</sup> The findings in this study that likelihood of continuing the visit to MC increases if the interaction time is found sufficient by the respondents and can be used for increasing beneficiary attendance at public health facilities in Indian settings. Interaction times seem to be a key factor in building perceptions of the clinic. Interestingly, the unqualified practitioners or non-degree allopathic practitioners, widely present in the urban poor settlements of Delhi and other Indian settings, take advantage of this behavior of the residents, along with the benefit of proximity and social cohesion, making them popular.

The study found a higher likelihood of return visit or repeat utilization of the clinics located in the rented premises. A possible explanation could be the availability of diagnostic tests services in clinics in rented premises and not in those in the portacabin. Arguably, the provision of laboratory tests is crucial to increase the utilization of facilities and lay strong foundations for the sustainability and effective utilization of government health facilities. The expansion of laboratory test services in MCs in portacabins were being considered at the time of study; it is recommended that Delhi Government should provide this provision at all MCs.

Despite variable awareness about these clinics in most urban poor settlements, majority of these clinics were generally very crowded. This is possible that people who were aware were repeatedly using these facilities. A detailed analysis of the health-care needs of the targeted population could provide useful lessons for future health planning. Nonetheless, to ensure optimal utilization of such facilities, a better promotion of the initiative through public campaigns is vital.

This study provides a valuable set of information on the utilization of health services from these clinics. A lot of information generated through this research is desired and not available even from the department of health services (a few queries under the Right To Information Act submitted to Dept of Health & Family Welfare, the Government of Delhi did not generate sufficient information). The situation calls for a strong health information system as well as monitoring and evaluation system for continuous learning and suitable mid-course correction both in Delhi as well as those states, which are planning for similar clinics.<sup>[18]</sup> The use a checklist to assess and monitor progress on design and scale-up of such clinics, if other states adopt similar concepts, has also been suggested.<sup>[1,2]</sup>

The study suggests that the interaction time with doctor and other healthcare providers has a pivotal role in ensuring the success and sustainability of such initiatives. All the factors associated to the performance of the doctor, such as the interaction time, perceived effectiveness of treatment provided, behavior of the doctor as well as their interest in sociocultural activities of communities, were crucial for determining the popularity of these clinics. The learnings from this study could be used to develop and implement a pre & in-service training package for doctors & other health staff before their posting at community clinics.

The clinics being located adjacent to the urban poor settlements have played a remarkable role in addressing the mobility constraints of the women. However, in a few localities studied, women’s attendance at MC was poor as they were not comfortable to visit a clinic with a male doctor. Hence, this social barrier led to a significant underutilization of services. Thus, the availability of a female doctor, once or twice a week, on a rotational basis, might lead to a better turnout for female beneficiaries.<sup>[19]</sup> Sexual and reproductive health of women and that of adolescent age group in underserved localities is

an area of major concern that has been overlooked time and again by the policy-makers, and little has been done as yet to address the quantum of problems.<sup>[20]</sup> The presence of female doctors might be game changing to resolve these problems.

Although the scheme has all elements for replicability, the performance of these clinics in the coming years will determine the true realization of potential. As a number of Indian states such as Telangana, Karnataka, Rajasthan, Madhya Pradesh, Jharkhand, Jammu and Kashmir, and Maharashtra have either shown intentions or are at advanced stage of planning similar facilities, the lessons should be appropriately used for designing new facilities.<sup>[5,6,21]</sup> There is possibility of learnings for health and wellness center initiative under Ayushman Bharat Program of India.<sup>[22]</sup> Globally, there is attention on Universal Health Coverage (UHC) where strengthening primary health care is being considered essential pillar and accelerator to move in this direction. The scale-up of community clinics as an approach to deliver primary health-care services, with ongoing learnings, can contribute to reform health services and help India to make rapid progress toward UHC, also achieve the central goal of the National Health Policy of India.<sup>[23]</sup> The MC in the current form are focused on curative services only, and as a next step, additional services, especially public health and preventive and promotive services, need to be provisioned through these facilities to deliver comprehensive Primary Health Care (PHC) services.

## CONCLUSIONS

Improved information on service provision and location, assured provision of doctors, point-of-care diagnostic services, and increased patient–doctor interaction time have the potential to increase the use and return visits at the government primary health-care facilities. Mohalla clinics are addressing various barriers in access to health services: geographical (by making clinics in community settings), financial (assured and free medicines and the diagnostics services no user fee), and social (by providing culturally appropriate services, i.e., women doctors). Mohalla Clinics of Delhi, India provide important lessons for design and scale-up of community clinics to make PHC services accessible and increase return visits to government facilities by underserved, marginalized populations. The adoption, scale-up, and provision of comprehensive PHC services through community clinics can contribute to accelerate India's progress toward UHC.

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## Conflicts of interest

There are no conflicts of interest.

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