

Smile Foundation- Karma Primary Healthcare

Report: Integrated use of digital connectivity and technology to improve the health of mother and child

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EXECUTIVE SUMMARY

In partnership with Karma Healthcare and the Department of Foreign Affairs and Trade, Smile Foundation aimed to take primary healthcare services to the socially disadvantaged population of rural parts of Bhilwara district in Rajasthan through digital connectivity and strong community outreach. Karma Healthcare led the clinical and operational aspects and operated six 'Women and child health focused' e-Doctor *clinics* in this region. Smile Foundation shouldered the responsibility of outreach and community mobilization.

The first objective of this study is to analyse and document the impact created by the collaborative project-based effort of Smile Foundation and Karma Healthcare to improve the health outcomes of women of reproductive age and children under the age of 5 years, with a primary focus on anaemia and malnutrition. The second objective of the study is to understand the strategies, incentives, and other approaches adopted to bring about the expected outcome of the project, and in the process, study the best practices to be followed and gaps/constraints that need to be addressed.

The expectations from the project were as follows:

1. To scale operation and leverage the expertise gained from the existing operations of both the partners - Karma Healthcare and Smile Foundation - to improve health outcomes of the target segment of women and children, who are at a disproportionate disadvantage in receiving primary quality healthcare due to social circumstances.
2. With quality and affordable healthcare services being offered near their households, women living in rural areas can avail healthcare services more easily, improving their care-seeking behaviours.
3. As the services are available in the vicinity, patients can experience financial savings on medical expenditure in the long run and benefit from early treatment and diagnosis. Significant cost and time are saved as patients do not have to travel to cities seeking treatment.

For the study, the data was extracted from the Health Management Information System (HMIS) of Karma Healthcare. The outreach data on the number of households visited per day, number of caregivers, self-help groups, and ASHAs (*Accredited Social Health Activist*) met was provided by Smile Foundation. Apart from the analysis of data received from the partners, qualitative interviews were conducted with the beneficiaries, outreach team and manager, operations managers, nursing staff and senior management of both the partners. A three-day field visit was organized for conducting qualitative interviews. Twenty interviews were conducted on-field and virtually to understand the response of the community, operations, and outreach activities.

The study suggests that the intervention showed an almost equal percentage of men and women seeking consultation from the clinics. As the project progressed, more and more women sought consultation from the clinics suggesting that the project was able to improve their care-seeking behaviour as well as their access to healthcare. The number of women taking consultation was more at those clinics with female nursing staff. A total of 75 screening camps

were organized across the duration of the project and 4,018 patients were screened for various illnesses. The number of footfalls at the camps was more when they were held at village level, especially after the pandemic.

The study finds that better communication mechanisms between the two partners could have led to greater impact of the project. Venturing into a new geography and implementing telemedicine services requires a robust outreach effort considering the tendency of the community to seek informal services. During the data analysis, it was seen that a few e-doctor clinics were performing relatively better in terms of footfall; such islands of excellence should be treated as role models to examine and emulate during the project stage itself. Considering that many women and children are anaemic in the district, the project intervention should be more aggressive towards finding cases, and providing consultation, regular follow-ups, and counselling; the gap in this was felt in the conversion of camp attendance/ outreach to clinic footfall. The qualitative interviews suggested that the patients saved cost and time while taking consultation from e-Doctor clinics compared to travelling to district headquarters for specialist care and diagnostic tests.

1. INTRODUCTION

Smile Foundation is a non-profit organization that came into existence in 2002 in New Delhi, India. It works on grassroots initiatives to bring about a positive change in the lives of disadvantaged children, youth, and women through its various welfare projects on education, livelihood, and healthcare.

Karma Primary Healthcare is an impact-driven healthcare start-up with a mission to provide equitable access to quality primary healthcare in rural and semi-urban parts of India. Since its inception in 2014, Karma has built a comprehensive primary healthcare delivery solution including a full spectrum technology suite to transform healthcare delivery. The organization operates “e-Doctor clinics” in a nurse-led healthcare model.

Karma Healthcare and Smile Foundation, in collaboration with the Department of Foreign Affairs and Trade (DFAT), provided integrated healthcare through digital connectedness and community engagement in the underserved villages of Bhilwara, Rajasthan, India. The project’s vision was to bring about a change in the perception of healthcare-seeking in rural communities, resulting in improved access to healthcare. The partners believed that a combination of intensive community mobilization and social behaviour change communication (SBCC) and technology-enabled solution to address both the awareness gap (beneficiaries) and the service delivery gap (at the healthcare provider’s end) would expand access to formal care, enable early detection of disease, enhance quality of care, and improve nutrition status in women and children in the intervention area. This collaboration named “Navkiran” was initiated in November 2018 in Bhilwara District. The project started operations in March 2019. Smile Foundation was the lead partner with the responsibility of community mobilization and provisioning of referral services using ambulances. Karma Healthcare was responsible for the clinical and operational workload through its telemedicine platform services. Project Navkiran has been supported through the Business Partnerships Platform (BPP), an initiative of the Australian Government’s Department of Foreign Affairs and Trade (DFAT). The BPP has been established as part of Australia’s aid program to engage with the private sector. The platform partners do business with DFAT to deliver both social and commercial returns. It also allows DFAT to contribute to community-level impact.

This study focused on analysing the impact created by the joint effort of Smile Foundation and Karma Healthcare to improve the health outcomes of women and children under the age of 5 years with digital connectivity and use of technology. The second objective of the study was to understand the strategies, incentives and other approaches that were adopted to bring about the expected outcome of the project as well as the gaps/constraints that need to be addressed.

The report consists of details of the background of the project, why Bhilwara district was chosen for the intervention, the analysis of data from Karma Healthcare’s HMIS, and outreach data provided by Smile Foundation. Field investigation and qualitative interviews of the beneficiaries, service providers and the management team of both the organizations provided a lens to better understand the project, especially how things were orchestrated during the pandemic to bring the services back on track. We also provide recommendations for future interventions.

2. BACKGROUND AND CONTEXT

2.1 HEALTHCARE STATISTICS IN RAJASTHAN

Rajasthan, the “land of kings”, is the largest state in India in terms of geographical area. As per Census 2011ⁱ, Rajasthan had a population of 68.6 million, with 75% of them living in rural areas. By the end of 2022, the expected population is 83 million. The state has always been a traditional patriarchal society, with discrimination against women deeply ingrained and widely accepted. According to National Family Health Survey- 5 (NFHS-5) (2019-2021), 21.3% of women in rural Rajasthan have a less than normal body mass index (BMI), and 55.7% of women (15-49 years) are anaemic. Rajasthan ranks second in India, after Madhya Pradesh, in the number of anaemic children despite a marked reduction in the prevalence rate of stunted, wasted, and underweight children below the age of 5 years. Reduction of anaemia is one of the essential objectives of the POSHAN Abhiyaan launched by the government of India in March 2018.ⁱⁱ The “Anaemia Mukht Bharat” strategy was also designed to reduce the prevalence of anaemia by three percentage points per year among children, adolescents, and women in the reproductive age group (15–49 years) between 2018 and 2022.

The density of medical doctors is 7.342 per 10,000 populationⁱⁱⁱ and there is 76% shortage of specialists leading to lack of access to quality healthcare; and hence, women and children are disproportionately impacted. They depend on a male member of their family for seeking care. Delay in care-seeking or not seeking care at all, lack of awareness, and patriarchy contribute to deteriorated health parameters.^{iv} In 2019, 54.78% of current health expenditure (CHE) was borne out-of-pocket on health services.

2.2 HEALTHCARE STATISTICS IN BHILWARA DISTRICT

According to NFHS-5 (2019-21), 16.3% women in Bhilwara have less than normal BMI (24.4% during NFHS-4 survey). Likewise, percentage of anaemic children and women is 62.7% and 50.4%, respectively. There has been a reduction in the percentage of anaemic children and women since NFHS-4. Bhilwara was chosen for this project due to the challenges in healthcare access in this district. The rural areas lack proper public health infrastructure and availability of trained doctors. Community members often travel to the district hospital in Bhilwara, about 40 km away, or rely on private service providers, both formal and informal, within the catchment. Travelling to the district headquarters would result in loss of wage for the entire day for a daily wage worker, in addition to the travel and consultation/diagnostic test costs.

The clinics set up by the Navkiran collaboration were located at a distance of 40 km or more from the district headquarters, with the intention of improving access to healthcare facilities within the community.

2.3 KEY OBJECTIVES OF THE REPORT

1. To evaluate the Bhilwara telemedicine model, and its strategies and approaches adopted to bring an expected outcome of the project
2. To evaluate the impact of these approaches on the health outcomes of the community
3. To identify key successes, best practices, and gaps/constraints in the project and share relevant recommendations

With the impact of COVID-19, restrictions on operations, and the uncertainty of another wave of COVID-19 infections looming over the maximum duration of the project, it was difficult to assess the impact of the project on the health outcomes as the entire focus of both the organizations shifted towards creating awareness about the pandemic, evolving a mobile-based contactless consultation model, and later on bringing the operations back on track.

3. PROJECT DETAILS

Before the start of the operations, a feasibility study was carried out in different blocks of Bhilwara district. There was a proposal to open five spokes and one super-spoke (hub) in the region. Initially, four blocks were selected - Sahara, Mandal, Asind, and Raipur and the five spokes and one super spoke were opened in these blocks. Later, when the clinics were relocated, the operations were spread out to two more blocks namely Banera and Mandalgarh. Six physical clinics were opened in these blocks, with the intention of catering to a population of nearly 300,000 during the two-year project. Karma Healthcare provided clinical operations to the community and Smile Foundation took the responsibility of mobilizing the community to seek health-related services from these clinics.

3.1 CONSULTATIONS IN E-DOCTOR CLINICS SET UP BY KARMA HEALTHCARE

Karma Healthcare conducted the feasibility study for identifying the clinic locations, tied up with pharmacy partners, set up the IT system and clinic diagnostics, and recruited clinic and operating staff to provide services to the community. Its panel of doctors consisted of general practitioners as well as specialists for internal medicine, paediatrics, dermatology, and gynaecology. As per the hub and spoke model, patients needing physical examination and in-person consultation from a doctor were to be referred to the hub. The doctor providing consultation at the hub was a resident of Gangapur, where the hub was operational. The hub was meant to have advanced services and diagnostic facilities and would serve a larger catchment population in comparison with the other clinics. The remaining patients were provided consultations and services using the tele-medicine platform of Karma Healthcare, with doctors being remotely present.

The clinics were equipped to provide telemedicine consultation to the patients and any point-of-care diagnostic (POC) tests, other nursing services and medicines prescribed by the treating doctor. The clinics also provided services for sample collection and sending samples to the diagnostic lab for investigation. Most of the clinics had tied up with the local pharmacists to provide shelf-space to the medicines and dispense to the patients seeking consultation at e-Doctor clinics, a lower cost model than having their own pharmacy. The inventory management, removing near expiry or expired medicines, and arranging medicines was the responsibility of the staff nurse of the clinic. The pharmacy partner was a local pharmacist who was remunerated for providing the space.

3.2 CONSULTATION WITH MOBILE APP (DURING COVID-19)

During the first wave of COVID-19, Bhilwara became a hotspot for COVID infections in Rajasthan and there was a stringent lockdown. The clinic operations and outreach were shut for over 45 days. Even after the clinics reopened, patients avoided in-person consultation due to the fear of contracting COVID. Karma Healthcare's IT team quickly modified its digital platform to enable it on Android phones. The nurses and outreach workers shared the web link or the link to the mobile app with the patients who sought consultations from the safety of their homes. Soon Bhilwara clinics saw the highest number of patient consultations using the mobile app. The outreach team provided the facility of doorstep delivery of medicines to the patients. This contactless consultation was especially helpful for patients with chronic diseases, as they were able to continue their treatment even during the lockdown.

3.3 CONSULTATION ON SMILE ON WHEELS

The Smile on Wheels (SoW) was meant to bring patients from the spoke to the hub for further care and management. However, it was not used as proposed. In January 2021, the van was repurposed as a mobile clinic. It had a driver, a nurse, and a lab technician/pharmacist. The van had the IT setup, medicines, and PoC diagnostic test kits. The van was stationed at a particular village on a given day (as per a beat cycle) and provided teleconsultation to the community. The selected villages were catchment villages where the footfall was the least at the clinics, and whose population was one thousand or more.

The outreach person shared information with the community and identified members who wanted consultation, 3-4 days before the van's visit to a specific village. SoW lasted six months resulting in 258 consultations.

3.4. ACTIVITIES CONDUCTED BY SMILE FOUNDATION

The outreach team of Smile Foundation followed different marketing methods to bring footfall to the clinics-

1. *Door-to-door marketing* - When the clinics were set up, the outreach team did door-to-door marketing with flyers and pamphlets to spread awareness about the services including specialist services offered at the clinics.
2. *Village-level camps in the clinics' catchment* - To spread awareness about the clinics as well as to identify anaemic or malnourished children (MAM/SAM) and patients from the community with non-communicable diseases or low BMI, screening camps were organized in the clinics' catchment. Identified patients were referred to the clinic for further management.
3. *Quarterly screening drive camps at the clinics* - A screening drive was organized every quarter at the clinic. The outreach team marketed the drive 3-4 days prior to the camp. Many PoC and diagnostic tests were conducted for free, and patients were provided free consultation. These camps served two purposes - identifying patients for the clinics and increasing the footfall at the clinic.
4. *Screening of women and children on the field*- The project had a focus on improving the health outcomes for women and children. Karma Healthcare devised a field campaign for screening women of reproductive age and children below the age of five years. The outreach worker would go door-to-door and screen children to identify any signs of illness. Children were screened for their height to weight growth ratio and mapped on a WHO growth chart, MUAC, chest indrawing, respiratory rate, and so on. A child found with any abnormal vitals was issued a coupon for free consultation with a paediatrician at the clinic. The caregivers were counselled to bring the child to the clinic for consultation. Similarly, women of reproductive age were screened for BMI, anaemia, blood pressure, blood sugar, and symptoms related to reproductive tract infections. Coupons were issued to women with any abnormal vitals. Any MAM/SAM child was also provided medicines for free.
5. *Community meetings*- The outreach team held community meetings using pictorial booklets in the catchment area to discuss the health problems in the village and spread awareness about the operations of the clinics. The team also met the influential people in the community, SHGs, and government community health workers to seek their support in spreading awareness.

4. EVALUATION METHODOLOGY

The data shared by Smile Foundation from the Karma Healthcare's HMIS and Smile Foundation's outreach data were analysed. The secondary data received from Karma Healthcare's HMIS contained the demographic, clinical, and diagnostic information of patients who took consultations or were screened during the duration of the project. Similarly, the secondary data received from Smile Foundation collated information about the outreach activities conducted, number of households visited in a month, number of camps organized, footfalls received in the camps, conversion of footfall into consultation, number of on-field screenings conducted for women and under-5 children, number of community meetings held and so on.

Primary data was collected by conducting qualitative interviews of beneficiaries and service providers. A three-day field visit was conducted to meet and interact with the beneficiaries and staff nurses and the outreach team to understand their perspectives. Interviews with the management team were conducted online. Overall, 20 interviews were conducted.

Sr. no.	Indicators for objective/sample	Data source
Objective 1: To analyse the impact of the project on the health outcomes of the community		
1	Average monthly footfall in the e-Doctor clinic	HMIS
2	Gender-wise bifurcation of footfall	HMIS
3	% of under-5 patients in the e-Doctor clinic	HMIS
4	% of women patients in the e-Doctor clinic	HMIS
5	No. of screening camps conducted	Smile Foundation data
6	No. of screening attendees	HMIS/Smile Foundation data
7	No. of community meetings organized	Smile Foundation data
8	No. of community meeting attendees	Smile Foundation data
9	Improvement in BMI and Hb levels	HMIS
10	No. of patients taking consultations from specialists	HMIS
11	No. of patients identified with NCDs	HMIS
Objective 2: To identify key successes, best practices and gaps/constraints		
12	Gap/constraints (screening process, outreach activities, IEC services, quality of services)	process evaluation

Table 1: Data sources

5. PROCESS EVALUATION

The process evaluation added to our understanding and provided context to the data. A three-day field visit was conducted at the e-doctor clinics and observational field research was done with reference to various aspects of project implementation. The study focused on understanding the awareness about the clinics, the perception of the community about the services being provided at the clinics, the benefits of having such clinics in their vicinity, and so on. The team also interviewed the staff to understand the clinical operations, the challenges they face and their suggestions for improving the services. Similarly, the outreach team was also interviewed to understand various marketing approaches used in increasing the awareness and the footfalls at the clinics.

6. PROJECT DATA ANALYSIS AND FINDINGS

6.1 SERVICE DELIVERY THROUGH CLINICS

The data collected from HMIS of Karma Healthcare was analysed to examine the performance of the clinics and probable reasons for some clinics faring better than the others.

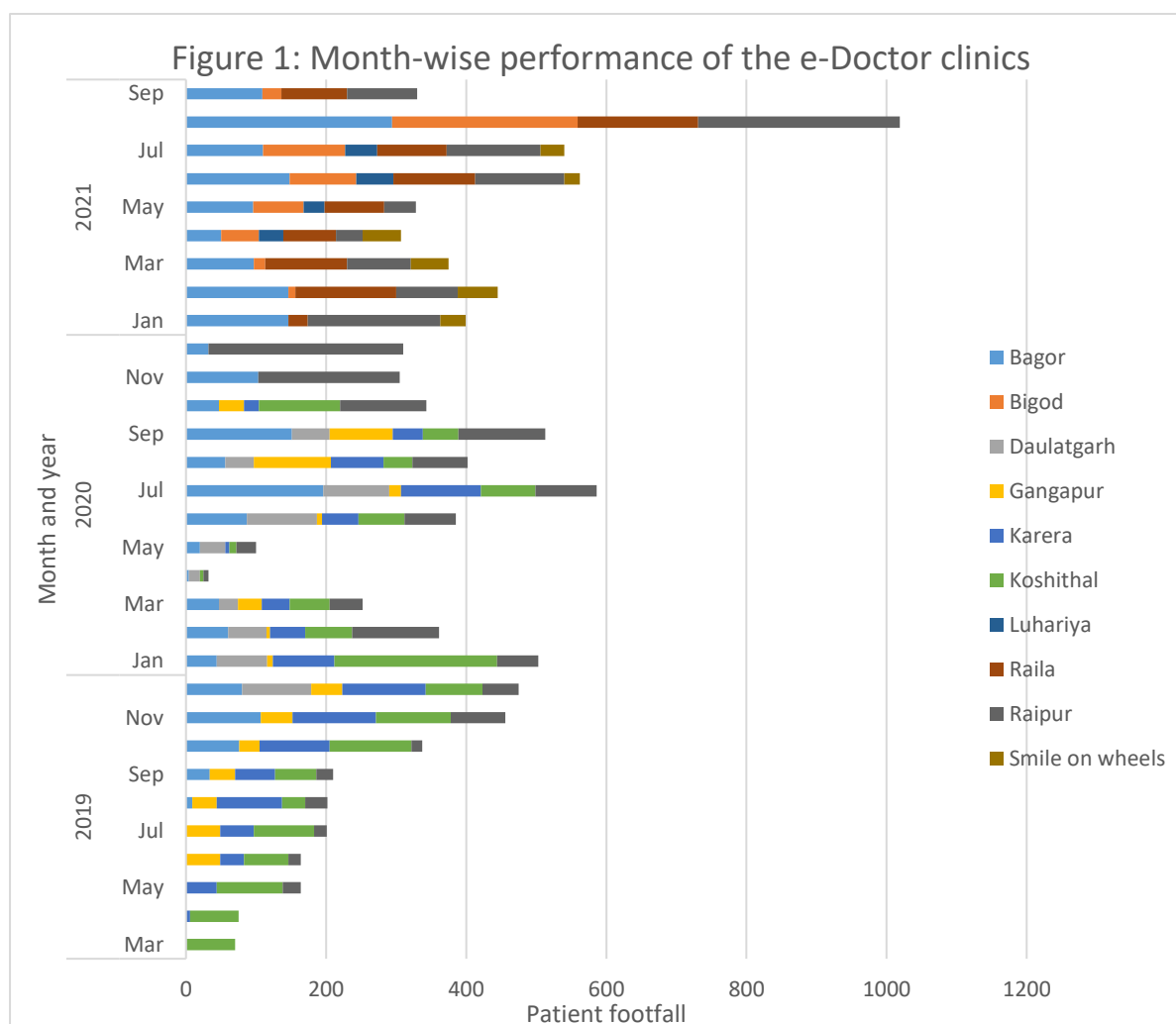
6.1.1 CLINIC-WISE FOOTFALL ANALYSIS

- *Koshithal* was the first clinic to be opened under Navkiran, in March 2019. The footfall increased gradually but fluctuated from month to month. The highest footfall was in January 2020, but the clinic did not pick up in the post-COVID period. It was shut down in October 2020.
- *Karera* was the second clinic that became operational, in March 2019. This clinic could not achieve the set targets. Though the ratio of female to male patients was higher at this clinic due to the availability of a female nurse initially, subsequently when the nurse changed, the performance of the clinic declined.
- *Raipur* was the third clinic to open, in May 2019. The female to male patient ratio was again very high. There was a female nurse at this centre throughout its operational tenure. This clinic had the highest number of footfalls among the project clinics.
- *Gangapur*, the fourth clinic to open, was a Super Spoke. A doctor was present at the centre. However, there was no significant difference in footfall or performance at this clinic compared to the other clinics.
- *Bagor* was the fifth clinic to become functional, in August 2019. This clinic had a female nurse, which resulted in a better female patient footfall. This clinic fared better than other clinics and its footfall was close to that of the Raipur clinic.
- *Daulatgarh* clinic became operational in December 2019. There was a deviation in the timeline and this clinic was the last to open. This was also the first clinic to be relocated due to low footfall and the unavailability of a local nurse.

Four clinics were closed and moved to other locations - Koshithal, Karera, Gangapur and Daulatgarh in September and October 2020. Relocation meant reconducting the feasibility study, finding a shop for rent, pharmacy partnership, and the logistics of shifting. The new three clinics opened in January, February and April 2021 in Raila, Bigod and Luhariya, respectively.

As the Figure 1 shows, Bagor and Raipur had consistent performance except during the set-up period. There was a significant drop in the number of patients due to the COVID-19 related lockdown during April and May 2020. Since its opening, the clinic in Raila performed well as it had a female nurse who was actively involved in the performance of the clinic. She took references of community members from existing patients and informed them about the clinic's services. Before the camp day, she informed existing NCD patients about free screening at the clinics. In this way, she brought NCD patients to her clinic. These patients became regular patients at her clinic. One of our interview respondents, Bhima ji, aged 65 years, from the Raila community explained his satisfaction with the functioning of the nurse.

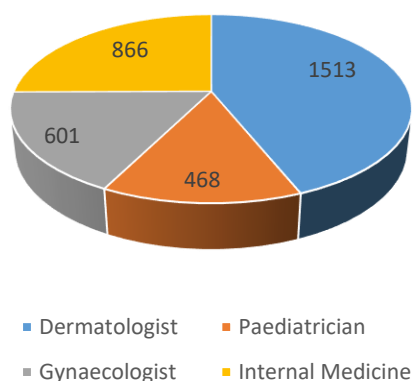
"The lady working there used to work with a lot of interest. She used to call patients for camps, she got my number from another diabetic patient who was taking treatment from the clinic. She called me on the day of the camp to get myself tested for sugar and then I started taking treatment from Dr. Anand Mahawar at the clinic. Now my sugar is under control, earlier it was more than 500."



6.1.2 IMPACT: ACCESS TO SPECIALIZED CARE

The project focused on improving the health parameters of women and children. As the project progressed, the number of consultations taken by women gradually increased. To diagnose and treat anaemia in women and children, haemoglobin testing was made mandatory at all the project clinics. Any walk-in woman, or child up to the age of 14 years, were mandatorily screened for anaemia; 171 women and 63 girls (under 5 and 6-19 years) were found to have Hb levels less than 9 gm/dL during consultation. The project identified 130 men with low BMI at the clinics and 6 during the camps.

Figure 2:
Specialist Consultations



The project also had a goal of providing specialist care to communities in the rural areas. Karma Healthcare empanelled dermatologists, paediatricians, gynaecologists, and internal medicine specialists, who provided telemedicine services to these communities. A total of 3,448 consultations were provided by these specialists. As the data suggests, the maximum consultations were done by dermatologists and the least by paediatricians. Given that dermatologists are difficult to find even in semi-urban or urban areas, providing dermatologists through telemedicine platform has proved helpful to the rural communities. One of the patient, Mitha Lal, seeking treatment

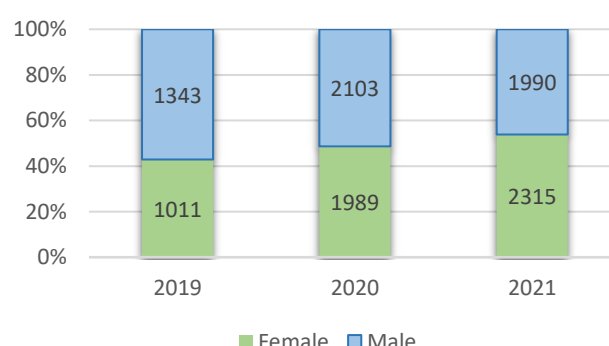
from a dermatologist at Bagor clinic explains about his satisfaction with dermatology services at the clinic and the cost saved in the treatment from the clinic.

“Taking treatment here at Bagor clinic costs me 30 paise [1/3rd the cost] as compared to taking it from Bhilwara. My son had some problem on his scalp, and he had hair fall. I took him to Bhilwara, the problem aggravated. Then I came to know about e-Doctor clinic, my friend referred me here. The doctor gave treatment for 3-4 months, and it is completely cured now. His hair has started growing now. Then I also took treatment from here and I refer my relatives and friends to the clinic.”

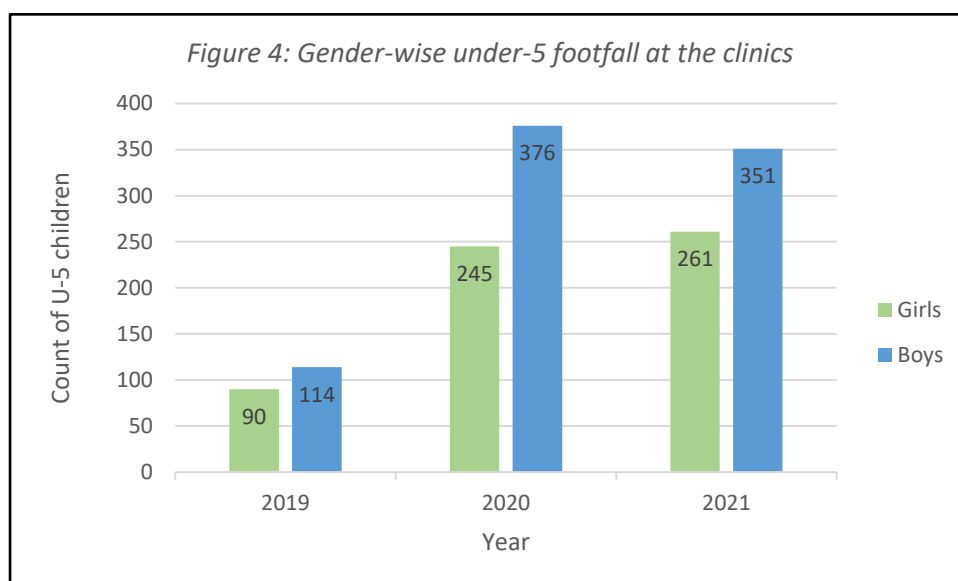
6.1.3 IMPACT BY GENDER AND AGE

Figure 3 depicts the gradual increase in female footfall as the project progressed. In the age range of 20-40 years, 1,967 women sought consultations. Further, 16% of the women in the age group of 20-40 years who took consultation returned for a follow-up and 24% came for repeat consultations to the clinic.

Figure 3: Improvement in footfall of women



As seen in Figure 4, the number of children aged under-5 years increased over the project duration due to the screening program being implemented in the clinics and in the field. Every child coming to the clinic was mandatorily screened for danger signs related to childhood illness. Similar screenings were conducted in the field by the outreach team, resulting in 739 children being screened. This joint effort led to an increase in the under-5 footfall at the clinics. However, as seen in the figure, the number of footfalls for girl-children remains low. The number of screenings was on the lower side due to COVID-19 and allied restrictions.



6.1.4 IMPACT ON NCDS

Totally, 180 patients were identified for hypertension, diabetes mellitus, and chronic obstructive pulmonary disease. Of these 180 patients, 100 were male and 80 were female. Further, 119 patients continued their treatment through follow-up and repeat visits.

Age group	Male	Female
20-40 years	19	12
40-60 years	41	49
Above 60 years	40	19

Table 2: Gender-wise and age-wise bifurcation of NCD patients

As the table 2 depicts, women in the age group of 40-60 years have the maximum number of first-time patients who were diagnosed with non-communicable disease. These were primarily cases of hypertension.

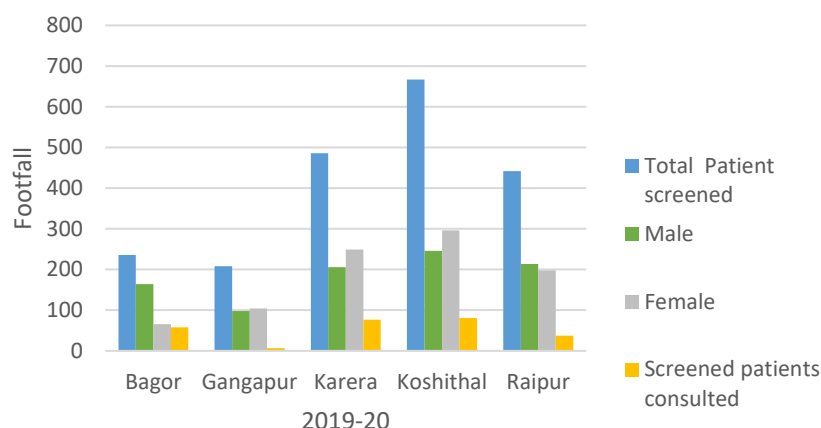
6.2 SERVICE DELIVERY THROUGH OUTREACH

We conducted an analysis of data shared by Smile Foundation for its outreach activities.

6.2.1 SCREENING THROUGH CAMPS

Smile Foundation organized free screening drives at the clinics and in the catchment villages. Haemoglobin, blood pressure, blood sugar level, and BMI were checked in the village-level camps. During monsoons, malaria and typhoid card tests were also conducted for free. At the clinic level, various other diagnostic tests such as Serum Urea, S. Creatinine, TSH, SGOT/SGPT, and TLC were also conducted.

Figure 5: Male and female patients screened and consulted

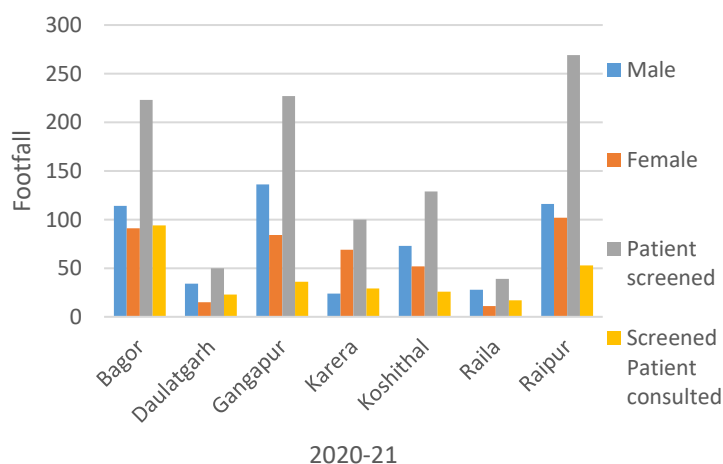


The purpose of organizing camps was to spread awareness about the services of the clinic and to screen the community for NCDs. During April 2019 to March 2020, 32 camps were organized, and 2039 patients were screened. In these camps, 928 males, 913 females and 198 under-5 children were screened, and 260 consultations were done. Only 12.75% of patients screened in the camps took consultation in 2019-20. More females were

screened in the Koshithal clinic as compared to any other centre (Figure 5).

Due to COVID-19 and the attendant restrictions on movement and gatherings, no camps were organized in April and May 2020. Two camps were held in June 2020. The outreach team modified the strategy and held village-level camps; instead of organizing camps at the clinic, the outreach team went to the villages for screening with all the equipment and IT setup. Eight such camps were held every alternate month till October 2020. In such camps, 444 patients were screened; of these, 216 were males,

Figure 6: Male and female patients screened and consulted



198 were females and 30 were under-5 children. Despite going to their doorstep to make consultation accessible to women, we see that the number of females was relatively low compared to males. Only 39 consultations were done in these camps, resulting in just 9% conversion rate from screenings to consultations. There was a limitation in organizing such camps at village level as there was an issue with the internet bandwidth. This resulted in the data not being uploaded in real-time, which meant that consultations could not be done.

At the clinic level, 17 camps were organized, and 593 community members were screened; of these, 309 were males, 226 were females and 58 were children below the age of 5 years. Totally, 239 consultations took place leading to a 40% conversion rate.

In 2019-20, 12.75% of the screened patients took consultation, whereas in 2020-21, the conversion ratio increased to 26.81%. The maximum conversions were in Raipur and Bagor clinics. This indicates that as the clinic had existed for a longer time and provided consistent service, the patients

related to the clinic. The number of females screened in Raipur was more than at any other clinic. The reasons could be the availability of female nursing staff at the clinic (Fig 6).

Figure 7 shows that the conversion ratio in the 6-month duration of 2021-22 (first half) was 21.13%. Ten camps were organized at clinics and eight at village level. Further, 291 screenings were done at the clinic level. In the village level, 651 patients were screened. However, none of these patients could be converted to consultation. The reason could be targeting an incorrect population or the lack of proper counselling for patients to seek consultation for early diagnosis, which could reduce severity of disease and its associated cost. Screening camps were designed to identify conditions, which could, in the future, turn into a disease. The intention was to enable earlier intervention and management in the hope of reducing suffering from a disease. These camps helped spread awareness. With proper counselling, more patients could have been converted for consultation, leading to greater footfalls at the clinics.

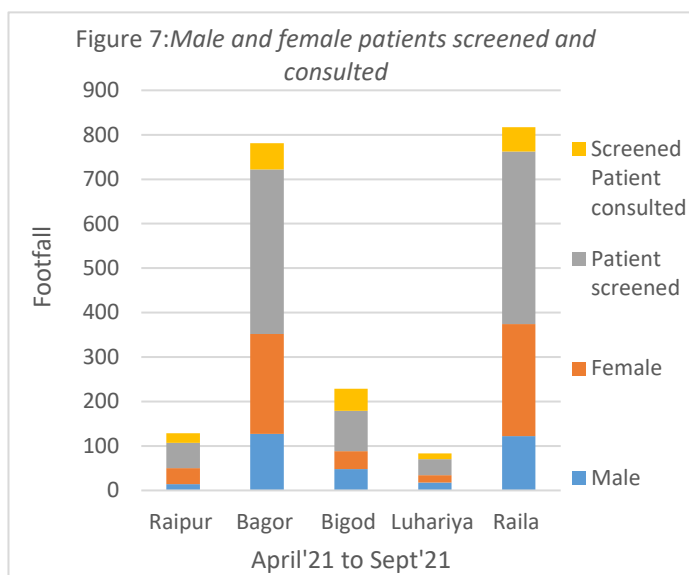
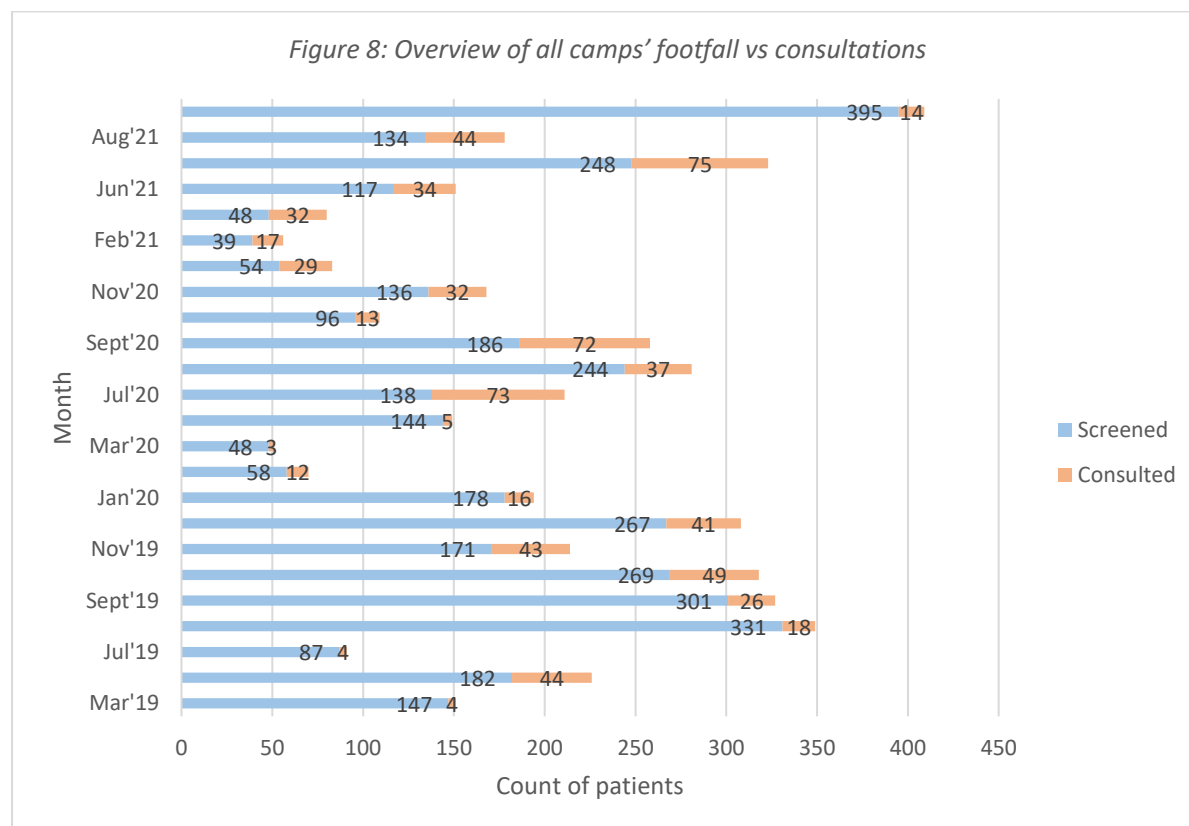


Figure 8 below shows that a total of 4,018 community members were screened (both in clinics and in catchment villages) and 737 consultations took place during the project.



6.2.2 COMMUNITY MEETINGS, DOOR-TO-DOOR VISITS, AND MEETING WITH SELF-HELP GROUP

As Table 3 suggests, a greater number of women were contacted during the door-to-door visits when the outreach worker was female. It can also be seen that the number of outreach workers increased during the second year of the project. Though there was high attrition among these workers, the second year saw correspondingly more recruitments. The number of door-to-door visit counts was low in the second year because of the COVID-19-related restrictions. The focus of door-to-door outreach moved to digital outreach, where mass messaging was done to patients registered in the database, and phone calls (telemarketing) were made to spread awareness about precautions regarding COVID and the promotion of mobile app developed by Karma Healthcare.

	2019-20	2020-21	2021-22
Male Outreach Workers	5	7	7
Female Outreach Workers	1	10	7
Male members met by male outreach	8754	7570	4872
Female members met by male outreach	5181	2808	1662
Male members met by female outreach	2740	1611	3337
Female members met by female outreach	3299	3975	8265

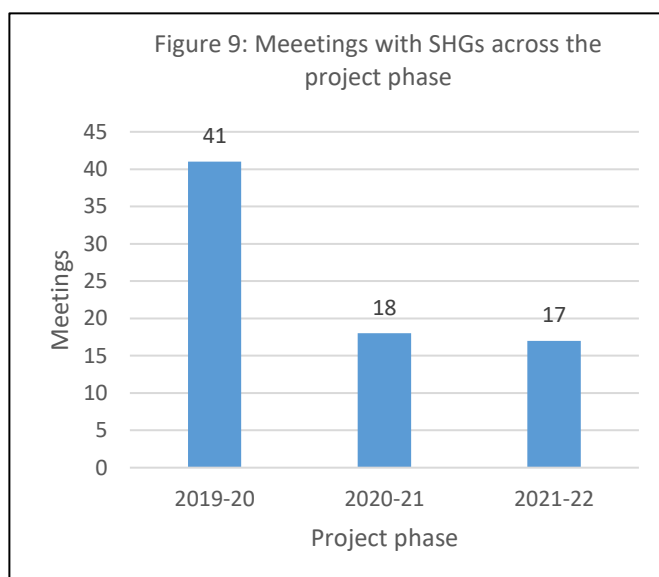
Table 3: Door knocks and number of community members met

Self-help groups are self-organized informal groups of individuals, especially women from similar socio-economic background. They come together to solve their difficulties through mutual assistance. These groups help empower members by encouraging them to save money, provide them

loans and provide them vocational training to set up micro enterprises. These groups also discuss many health-related issues with women. As it is difficult to meet women in their homes when they are busy with their daily chores, it is better to approach them when they gather for SHG meetings.

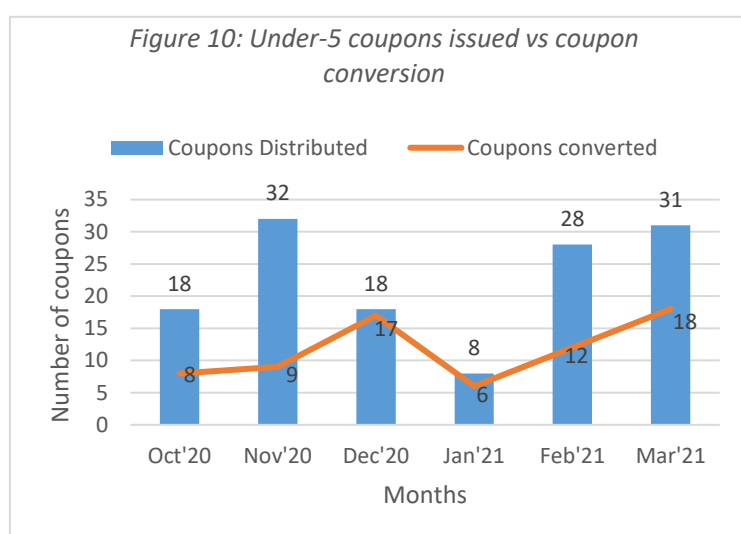
During April 2019 - March 2020 and April 2020 - March 2021, 88 and 18 SHGs were identified, respectively.

Figure 9 shows that during the initial few months of the project, many SHGs were identified, and meetings were conducted.



6.2.3 DOOR-TO-DOOR SCREENINGS FOR WOMEN OF REPRODUCTIVE AGE AND UNDER-5 CHILDREN

The main objective of the project was to improve the health outcomes of women and children. Karma Healthcare had created screening forms for women and children. The forms listed various danger signs related to childhood illnesses and likewise symptoms of anaemia, reproductive tract illness and symptoms related to uterine health. The same form was incorporated into its software platform. When any woman of reproductive age or under-5 child walked into the clinic, after entering the patient's details and vitals, the screening form would pop-up and the staff nurse had to fill it mandatorily. All the clinics were equipped with the required devices to screen them. Similar devices were provided to the outreach staff conducting the screenings on field. The outreach staff was provided training for the screening process before venturing into the field. The under-5 screening process commenced in October 2020 and the screening of women started in December 2020.



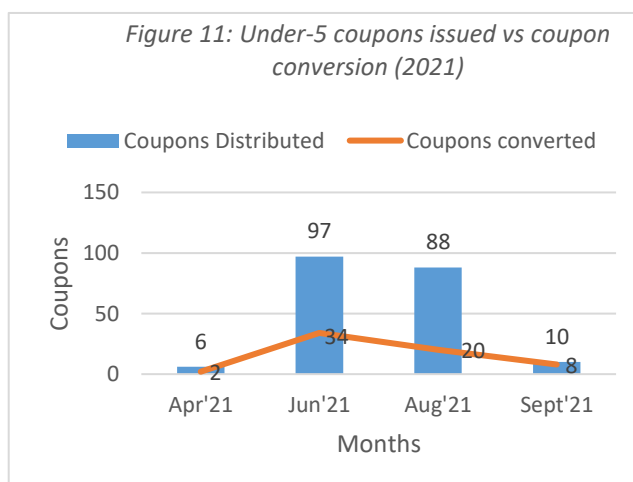
Screening of under-5 children - The outreach staff would go door-to-door or to Anganwadis during MCHN sessions and screen children. Any child found with any abnormal symptoms was issued coupons for free consultations at the e-Doctor clinics.

As shown in Figure 10, since the start of under-5 screening in October 2020, 135 coupons were distributed in the field, and of those, 70 children came for consultation at the clinics, resulting in 51.85% conversion ratio. As per the data, 661 children were screened on-field and 135 coupons were distributed,

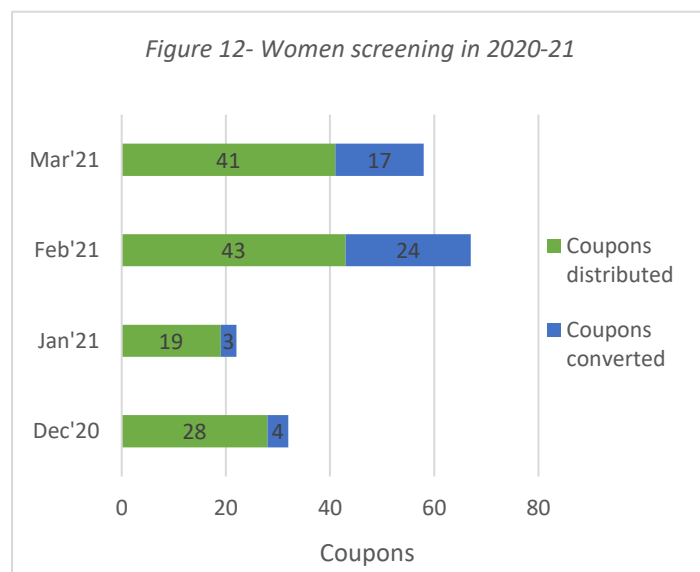
indicating 20% of the screening children were found to have signs of childhood illnesses.

As shown in fig 11, the conversion ratio dipped to 31.8% as compared to the previous year. Totally, 431 children were screened, 201 coupons were issued, and 64 coupons were converted into consultations.

Merely issuing coupons to the caregivers for free consultations would not motivate them to use it. The outreach workers must strongly counsel the caregivers to bring their child to the paediatrician for consultation. The caregivers are not aware that deficiencies in children at this age could lead to long-term health issues that affect work productivity, economic condition of the family and financial burden of healthcare expenditure. As the new outreach workers were hired during this phase, there could have been a gap in their outreach skills.



Women's screening process-



Similar to the under-5 screening process, women of reproductive age were also screened on-field for any issues related to their health. The primary focus was to identify women with anaemia, low BMI or any other general gynaecological illnesses related to menstruation or the reproductive tract. As depicted in fig 12, during December 2020 to March 2021, 719 women were screened on-field and 131 coupons were distributed, but only 48 women came for consultations, resulting in 36.6% conversion. Similarly, from April 2021 to September 2021, 589 women were screened, 109 women were issued coupons and only 34 came for consultations, resulting in 31.19% conversion. This yet again shows that

women do not focus on their health. Despite providing coupons for free consultations, only 31-37% women came for consultations. We do not have specific data for the abnormal vitals that were present in these women for which they were allotted coupons and the reason for not availing the benefit.



7 PRIMARY DATA COLLECTION AND ANALYSIS

A three-day field visit was conducted for qualitative interviews with the community, outreach staff, and nursing staff at the existing clinics. Twenty interviews were conducted on-field and virtually to understand the response of the community, operations, and outreach activities. The members of management of both the teams were interviewed online. The names of the respondents have been changed to protect their identity.

Respondent pseudonym	Age	Gender	Role
Zeenat	28	Female	Patient
Simran	34	Female	Patient
Bheema ji	65	Male	Patient
Laxmi ji	70	Female	Patient
Lakha ji	40	Male	Smile Team
Hariram	34	Male	Smile Team
Ashu	19	Male	Patient
Laxman	65	Male	Patient
Mahesh	25	Male	Smile Team
Gopal	24	Male	Karma team
Yamunadas	25	Male	Karma team
Neha	24	Female	Patient
Meetha Lal	31	Male	Patient
Naresh	29	Male	Smile Team
Ravindra	51	Male	Smile Team
Mahendra	39	Male	Karma team
Rais	21	Male	Smile Team
Nanalal	32	Male	Karma team
Savita	34	Female	Patient
Mahika	28	Female	Patient

Table 4: Respondent details

7.1 FINDINGS FROM THE INTERVIEWS

a) Perceived benefits from the clinical services: The general perception about the clinic services was that the clinics were close to their homes; patients did not have to spend the entire day to travel to Bhilwara, get the diagnostic tests done, wait for the report and then visit the doctor, take treatment, and return home. The time and money spent in travelling along with 1-2 family members was saved. The medicines prescribed by the doctors were easily available in the nearby pharmacy. The patients felt that the treatment cost was less compared to other clinics. Zeenat and Simran, two patients from Raila, talk about the accessibility of the clinic and the cost saved in accessing the services.

“Earlier we had to spend the entire day going to Bhilwara to get our thyroid test and treatment done. Bhilwara is 34 km away from our village. We take a public/private vehicle to reach the bus stand in Bhilwara and hire a rickshaw to reach the hospital. It costs us Rs 45-60 for one person to reach Bhilwara. At the e-Doctor clinic, we can get our test done, it is nearby so we can go walking to the clinic or my husband takes me on the bike.”

Ashu, a young collegian from Bigod talked about the availability of affordable diagnostic services at the clinic.

“Some years ago, I had typhoid, so I went to Mandalgarh for the diagnostic tests and even there one test could not be done so I had to go to Bhilwara. Now, most of the tests are available at the clinic, so I get them done from here and get the report the next day, online”

One of the other patients Laxman ji, aged 65 years told us about the affordable treatment at the clinic.

“There is a lot of treatment cost at other places, treatment at e-clinic is less expensive”

b) Perceived benefits from the specialist services available at the clinics: The rural communities benefit from the availability of specialists at the clinics and do not have to travel to nearby town/city to avail these services. The clinics provided more than 1500 consultations to the dermatologists, more than 450 consultations to under-5 children and more than 800 consultations to patients with NCDs or other chronic illnesses. Laxman Ji explained about the availability of effective specialist services.

“Before e-clinic, I used to take treatment from an Ayurvedic doctor in Bigod, He does “desi ilaaj” but doesn’t give much relief to skin problems. I go to a local govt hospital, the tubes provided by the hospital are not effective. Here I took treatment for 15 days, and I got relief.”

c) Patient-centric behaviour of the doctors: The general perception about the doctors and the consultation was that the doctors talk politely and explain about the medicines and the precautions well.

Ashu said, *“The doctor speaks for 5-7 mins and explains everything. If I have confusion, then I come back again and ask.”*

Bheema ji said, *“Your Dr Anand takes my name and asks, how is your sugar level now, how are you feeling today.”*

d) Waiting time for the patients at the clinics: There was a mixed opinion about the waiting time. Some of the patients said they had to wait for quite a long time for the consultation, while according to others, the waiting time is about 10-15 minutes. One of the smart patients like Ashu, a youngster taking treatment from a dermatologist says, *“I call and ask the nurse before coming to the clinic.”*

One of the patient who was earlier taking treatment at Bhilwara mentioned,

“Waiting time in Bhilwara is very high, if we miss the appointment by 5 mins, then we must wait for a very long time. Despite the appointment, we must wait.”

Zeenat mentioned, *“Sometimes we have to wait for an hour or half an hour for the consultation at the clinic.”*

e) Strengthening outreach efforts: During the initial phase of the project, only one outreach worker was hired for each clinic, which was not sufficient. However, in view of the large catchment population, and to cover more catchment in less time, during the later stages of the project, more workers were hired for each clinic to increase the outreach effort leading to increased footfalls. One of the well-wishers of this intervention, Bhima ji, mentioned his views on the outreach efforts.

“Increase the strength of the outreach team to get good results. One staff will not be able to share the information about the clinic with the whole community. I also talk to the community about the services at the clinic.”

7.2 Findings for interviews conducted with management of both organizations

- a) There were a few issues in the feasibility study. The feasibility study examined the geographical location and availability of pre-existing health services, finding skilled nursing staff to run the clinic and the outreach staff to do the marketing.

At some places, either the existing health services were not considered, or the survey conducted during the feasibility was not analysed properly and the clinics were opened at inconvenient locations. At some places, though the location was ideal, finding skilled nursing staff became a challenge. This led to project delay and relocation of a few clinics. Mahendra, the ADM of Bhilwara division explained about the difficulty in finding a skilled nurse for the clinic.

“Main reason for relocation was the unavailability of skilled nurses such as in <Karera>, it was a very feasible location, but the local nurse was not competent enough. He was not sincere and didn't sit at the clinic but used to roam around and did not do proper patient counselling after consultation. After firing this nurse, we couldn't find another nurse.”

- b) Almost all the clinics saw changes in the nursing staff during the project phase. Similarly, the outreach staff were also replaced frequently. This disrupted the smooth operations, and the clinics had to be closed for some time due to the unavailability of extra (rotator) staff. The reason for high attrition of staff (be it nursing or outreach staff) was mentioned in one of the interviews. Mahendra, the ADM, again shared his experience about nurses working in other divisions.

“Work culture in Bhilwara is very different, it doesn't matter to the nurses whether they have a job or not. They do not have the mindset to work for a long duration at a place. The clinics in other geographies have nursing staff working for more than 3-4 years.”

- c) There was a coordination gap between the two teams working on the project. They worked independently instead of working together towards a common goal. Both the teams were managed by individuals belonging to two different organizations. This led to some miscommunication and improper coordination.

“Communication between the partners should be strong. The message shared in the community should be consistent. Confusion was caused due to inappropriate information shared about the usage of coupons consultation during the camp and fee structure was also changed from Rs 150 to Rs 100 to Rs 50. This miscommunication regarding the fee structure led to development of mistrust within the community. Confusion was also created by the outreach workers as they did not clearly state the benefits of camps, coupons also. The clinic staff was not aware about outreach activities.”

- d) The strength of the outreach team was increased in the later stages of the project. Initially, each clinic had one outreach staff member, which was increased to 3-4 per clinic later, although more marketing efforts were needed in the initial stages.

“Initial phase had 6 ORWs and later there was a team of 17-18 ORWs with us. Initially, each clinic had one outreach worker, but later, almost after a year of the project, we thought that one outreach person will not be able to cover a population of 25000, so 2-3 outreach workers were employed for one clinic. The coverage increased and hence the footfalls improved.”

- e) The pandemic and the resultant lockdown critically hindered the growth of the clinics. Suddenly, the operations were at a standstill. New initiatives were devised both in clinic operations and outreach, but the clinics could not become self-sustainable.

- f) There was no team to locally manage the clinics. The managers were not posted locally, and this affected the monitoring of the clinics.

“The ADM who was hired during the beginning of the project was a local person, but once he resigned, there was no local ADM to do proper monitoring and supportive supervision. The nurses should have the fear that ADM can visit anytime.”

- g) Lucrative incentive structure for the outreach led some staff to use unfair means to gain benefits.

“Incentives are given to motivate the ORW for target achievement, x amount for more than target patients (given per patient after the target is achieved), U-5 and W50 screening form conversion incentive.”

“The base number of the footfall was very low. Each outreach staff was paid Rs 90 as an incentive per patient. Some of the outreach tended to unfair/fake consultations to gain more incentive amount. One of the outreach staff was terminated as he was caught doing fake consultation.”

8 RECOMMENDATIONS AND THE WAY FORWARD

Strong coordination between the teams

Partnership requires better coordination between the teams. Multiple slips were observed between work by one organization and the other. For example, camp attendance was not converted in a focused manner into clinic footfall. One overall coordinator can be appointed to manage clinical and outreach operations and report to both organizations, keeping each other in the loop. Organizational-level meetings could be held frequently for better monitoring of the project.

Paying capacity analysis of the community

An analysis of the paying capacity of the beneficiaries should be performed to establish a fee structure that does not burden the pockets of the community. This may also lead to choosing an appropriate financial model. In instances where the beneficiaries have the capability to pay, the model can be a paid one. The user pays for the services and the clinic may become self-sustainable after a certain period. In other places where the population has a low-paying capacity, the model can be subsidized. The gap can be funded by donors.

Deep and extensive feasibility study with in-depth surveys to understand the geography

Before opening the clinics, a deep onsite and online feasibility study needs to be conducted to understand the geography, available health services, and the consumption of those services, both formal and informal. When venturing into a telemedicine setup, the literacy levels of the community also need to be considered. Usually, informal service providers are the first point of contact for the less literate population.

Extensive training for outreach and clinical staff

Key determinants of any intervention's success include training of personnel and ensuring the availability of equipment and consumables, and continuity of services. The observations during field visit revealed that regular refresher training and close monitoring of field activities may be required to improve the delivery of the program. Modules on soft-skill development, clinical counselling to the patients and marketing strategies could be developed and frequently discussed during the sessions.

Cross-learning between the e-Doctor clinics

Cross-learning sessions amongst the management can ensure that best practices of the clinics faring better in footfalls are transmitted across the network. There could be various external and internal factors that may contribute to the performance of the clinics. While one cannot do much about external factors such as a strong hold of the informal service provider in the community, but internal factors can be replicated across the clinics. These internal factors maybe well-trained and motivated staff, strong outreach, strong cohesion between the clinic and outreach staff, and good connect of the outreach with the community.

Manpower management

The project suffered from high turnover of staff as well as incorrect staffing planning. In addition, the incentive structure was vulnerable to manipulation. In general, it has been observed that enough importance is not given upfront to HR planning and management in such projects. Clear HR strategy, planning, monitoring metrics, and implementation approach should be followed at the project planning stage itself.

LIST OF ABBREVIATIONS

BMI- Body Mass Index

BPP- Business Partnerships Platform

DFAT- Department of Foreign Affairs and Trade

HMIS- Health Management Information System

MAM- Moderate Acute Malnutrition

MCHN- Mother Child Health and Nutrition

MUAC- Mid Upper Arm Circumference

NCD- Non-communicable Diseases

NFHS- National Family Health Survey

SAM- Severe Acute Malnutrition

SBCC- Social Behaviour Change Communication

SHG- Self-help Group

SoW- Smile on Wheels

Footnotes

ⁱ <https://www.census2011.co.in/census/state/rajasthan.html>

ⁱⁱ <https://anemiamuktbharat.info/> [Internet]

ⁱⁱⁱ <https://www.who.int/data/gho/data/themes/topics/health-workforce> [Internet]

^{iv} <https://data.worldbank.org/indicator/SH.XPD.OOPC.CH.ZS> [Internet]