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SWASTHYA SAMPARK EVALUATION

2020-21-22

CONTENT

INTRODUCTION

The world is still reeling from the aftermath of the spread of the coronavirus disease 2019 (COVID-19) caused by the pathogen - acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The pandemic affected millions of people with symptoms associated with the COVID-19 infection impacting different body systems such as respiratory (cough, sore throat, rhinorrhea, dyspnea), musculoskeletal (myalgias), gastrointestinal (diarrhea, vomiting), and neurological (headaches, myopathy, ageusia, anosmia)[1]. The main focus during the prevailing pandemic has been on early recognition and treatment, with the assumption that COVID-19 ends with the resolution of symptoms and the avoidance of mortality[2] . Health systems in the past three years have been focused (and appropriately so) on the immediate management of acute cases using resuscitation and immediate treatment with anti-viral and immune modulators. However, given the current evidence confirming a plethora of symptoms in subjects who recovered from COVID-19; Health providers are concerned that the pandemic will lead to a significant surge of people battling lasting illnesses and disabilities. Although most COVID-19 patients may recover completely, without sequelae, many patients may continue experiencing COVID-19 symptoms after infection recovery and others may even develop new symptoms. Altogether, this clinical spectrum occurring after acute infection is called post-COVID syndrome (PCS)[3]. Months after infection with SARS-CoV-2, some people are still battling prolonged weakness and fatigue, lung damage, and other symptoms of 'long COVID'[4].

Different terms are currently used for describing the presence of post-COVID-19 symptoms for example - post-COVID-19 syndrome, persistent post-COVID, or "Long COVID". These are used to describe illness in people who have recovered from COVID-19 but still exhibit symptoms for far longer than would be expected.[5] The Centers for Disease Control (CDC) has formulated "post-COVID conditions" to describe health issues that persist more than four weeks after being infected with COVID-19.

The following are the "Post-COVID Conditions" defined and listed by the CDC:

- Long COVID (which consists of a wide range of symptoms usually lasting weeks to months) The typical clinical symptoms in "long COVID"are excessive tiredness or easy fatigability, persistent loss of smell or taste, low-grade fevers, shortness of breath/dyspnea, disorders of the nervous system (most commonly autonomicdysfunction), headache, cough, depression, palpitations, dizziness, muscle pains, and joint pains.
- Multiorgan effects of COVID-19 include clinical manifestations pertaining to the cardiovascular, pulmonary, renal, and neuropsychiatric organ systems, although the duration of these multiorgan system effects is unclear.

[1] W.J. Guan, Z.Y. Ni, Y. Hu, W.H. Liang, C.Q. Ou, J.X. He, et al. Clinical characteristics of coronavirus disease N Engl J Med, 382 (2019), pp. 1708-1720
[2] Oronsky, B., Larson, C., Hammond, T.C. et al. A Review of Persistent Post-COVID Syndrome (PPCS). Clinic Rev Allerg Immunol (2021).https://doi.org/10.1007/s12016-021-08848-3
[3] E. Garrigues, P. Janvier, Y. Kherabi, A. Le Bot, A. Hamon, H. Gouze, et al. Post-discharge persistent symptoms and health-related quality of life after hospitalization for COVID-19 J infect, 81 (2020), pp. e4-e6, 10.1016/j.jinf.2020.08.029
[4] M. Marshall The lasting misery of coronavirus long-haulers Nature, 585 (2020), pp. 339-341
[5] N. Nabavi Long covid: how to define it and how to manage it BMJ, 370 (2020), p. m3489

• Effects / consequences of COVID-19 treatment / hospitalization Long-term "effects of COVID-19 treatment or hospitalization" are similar to other severe infections. These long-term effects of COVID-19 treatment or hospitalization include post-intensive care syndrome (PICS) which results in extreme weakness and post-traumatic stress disorder (PTSD). Many of the patients with these complications from COVID-19 are getting better with time. Post-COVID-19 care clinics are being opened at multiple medical centers across different countries to address these specific needs.

The literature surrounding pathophysiology, associated risk factors, and potential treatments present the current understanding of long COVID, as a relatively new and puzzling condition that may affect COVID-19 survivors, regardless of initial disease severity or age. Much remains ambiguous about long COVID, particularly its risk factors with inconsistent data thus far. Some of the reviews suggested that rehabilitation may work for treating certain cases of long COVID, coupled with pharmaceutical treatments aimed at relieving symptoms. According to reviews, in rehabilitation, patients are advised to perform light aerobic exercise paced according to individual capacity. Reviews have also recommended that rehabilitation programs be personalized since long COVID manifestation and pathophysiology may vary in each case. Evidence also suggests that paracetamol and non-steroidal anti-inflammatory drugs may be used to manage specific symptoms such as fever [6] [7]. Evidently, the pandemic has brought us a wave of a new chronic, disabling condition called long COVID that deserves serious attention among the medical communities to resolve as it is estimated that 5 million people are facing long COVID globally[8].

Despite impacting a large number of people; there remains a need for raising awareness about the long-term consequences of COVID[9]. With most of the health resources being utilized for prevention and treatment of the pandemic; there were challenges in addressing the health needs of those who suffered from symptoms persisting for months after recovery. Accessing affordable healthcare was a challenge due to movement restrictions, financial difficulties, and restrictions on in-person doctor consultations during the lockdowns[10]. Perceived risk of transmission of COVID-19 also led to patients postponing or altogether forfeiting to seek care even in case serious, chronic conditions like diabetes, cancers. People living in rural regions of India were impacted further disproportionately owing to prevalent inequities in access to healthcare compared to urban areas[11]. In this context, the use of telecommunication technology offered a way forward in providing healthcare services across regions and socio-economic backgrounds without the need for travel and risking exposure to COVID-19; benefitting governments, health providers, and patients.

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[6] Greenhalgh T, Knight M, A'Court C, et al. Management of post-acute covid-19 in primary care. BMJ. 2020;370:m3026.
[7] Wang TJ, Chau B, Lui M, et al. Physical Medicine and Rehabilitation and Pulmonary Rehabilitation for COVID-19.
[8] Altmann DM, Boyton RJ. Decoding the unknowns in long covid. BMJ. 2021;372:n132.
[9] Iyengar, K. P., Jain, V. K., Vaishya, R., & Ish, P. (2021). Long COVID-19: an emerging pandemic in itself. Advances in respiratory medicine, 89(2), 234-236.
[10] Raman, R., Rajalakshmi, R., Surya, J., Ramakrishnan, R., Sivaprasad, S., Conroy, D., ... & Netuveli, G. (2021). Impact on health and provision of healthcare services during the COVID-19 lockdown in India: a multicentre cross-sectional study. BMJ open, 11(1), e043590.
[11] Hebbar, P. B., Sudha, A., Dsouza, V., Chilgod, L., & Amin, A. (2020). Healthcare delivery in India amid the Covid-19 pandemic: Challenges and opportunities. Indian journal of medical ethics, 1.

TELEMEDICINE & POST COVID-19

Covid-19 pandemic has fast-tracked the adoption of telemedicine in India as both businesses and people adjust to a new normal. A survey on growth in telemedicine consultation in India since Covid shows that digital adoption of medicinal services grew three times during this period. According to the survey, conducted by DrOandA Health in Collaboration with Mankind Pharma 60% of respondents reported high satisfaction with telemedicine consultation and 54% of respondents expressed willingness to continue it in the future too[12].

Several studies have reported the use of Telemedicine to address many areas of the pandemic, such as:

- Triaging and screening COVID-19 symptoms
- Contact tracing
- Monitoring of COVID-19 symptoms, the provision of specialized care for hospitalized COVID-19 patients
- Provision of mental health services and support to COVID-19 patients, their caregivers, and frontline healthcare and frontline health care workers with
- psychological issues
- Monitor recovering COVID-19 patients
  Provision of essential health care services for non-COVID-19 patients such as those with hypertension and diabetes mellitus

[12] https://health.economictimes.indiatimes.com/news/industry/demand-for-telemedicine-to-rise-post-covid-19-survey/78516110

O'Leary also reported the development of various apps to slow the spread of COVID-19. These apps are used to track the spread and symptoms of COVID-19. He also reiterated the fact that there is a strong likelihood that businesses, organizations, culture, and society will forever be changed as information and communication technology (ICT) solutions generated will be used even in future settings and post-COVID-19. All these applications require a smartphone as the app uses information from the user's phone to determine if they have been in contact with any person with the virus. In the same vein, Song et al. reported the efficacy of telemedicine during the COVID-19 pandemic in reducing the spread of coronavirus among health workers, patients, and the community. Quarantined healthcare workers have also used telemedicine options to offer their expertise without being physically present with their patients[13][14].

Another body, the Royal Australian & New Zealand College of Psychiatrists has also issued Practice Standards and Guidelines for telepsychiatry. The College has provided updates for psychiatrists using telehealth for the first time in response to COVID-19 and has links to technification specifications for telepsychiatry. Vidal-Alaball et al. posited that telemedicine is not only capable of providing support to healthcare systems in the midst of the pandemic, but advocates for its continued use even after the pandemic. These authors reported that China, South Korea, Spain, the United States, Japan and many European countries are at different stages of experimenting and implementing telemedicine.[15]

Due to the successful use of various forms of telemedicine options during the present pandemic, it is obvious that this form of medicine may become one of the tools that will be used in the delivery of healthcare services beyond the pandemic. This will be a welcome option to complement the traditional delivery of healthcare and a means of improving access to healthcare in line with the United Nations - Universal health care (UHC) Agenda under the aegis of the Sustainable Development Goals (SDGs)[16][17].

While it has been used for around two decades, primarily to bring healthcare to rural areas, it received a fillip when the government issued guidelines to formalize its mass use in March-2020. Since then, the number of patients using telemedicine consultation platforms has seen a big jump because of restricted mobility amid the lockdown[18], as well as the fear of contracting a Covid-19 infection at hospitals and clinics. As a constituent of the e-health wing of the National Health Portal (NHP), National Digital Health Authority of India (NDHAI)/National e-health authority (NeHA) is set up with a vision of achieving high- quality health services for all Indians through the cost-effective and secure use of ICTs in health and health-related fields[19].

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[12] https://health.economictimes.indiatimes.com/news/industry/demand-for-telemedicine-to-rise-post-covid-19-survey/78516110

[13] Vidal-Alaball J, Acosta-Roja R, Pastor N, Sanchez U, Morrison D, Narejos S, et al. Telemedicine in the face of the COVID-19 pandemic. Aten Primaria. 2020;52(6):418–422.

[14] Hollander JE, Carr BG. Virtually perfect? Telemedicine for Covid-19. N Engl J Med. 2020;328:1679–1681

[15] Monaghesh, E.; Hajizadeh, A. The role of telehealth during COVID-19 outbreak: A systematic review based on current evidence. BMC Public Health 2020, 20, 1193

[16] WHO, author. Telemedicine; opportunities and development in member states. Available from: https://www.who.int/goe/publications/goe_telemedicine_2010.pdf.

[17] Uses of Telehealth during COVID-19 in low resource non-U.S. settings. Available from: https://www.cdc.gov/coronavirus/2019-ncov/global-covid-19/telehealth-covid19-nonUS.html.

[18] https://www.straitstimes.com/asia/south-asia/telemedicine-witnesses-rapid-growth-in-india-amid-coronavirus-pandemic

[19] NeHA. National eHealth Authority (NeHA) | National Health Portal of India [Internet]. Nhp.gov.in. Available from: https://www.nhp.gov.in/national_eHealth_authority_neha_mtl.

The Indian government is actively encouraging the participation of both public and private players to develop digital solutions.

Below are some of the digital healthcare solutions adopted by the Indian government:

- Aarogya Setu: Mobile app developed by the Ministry of Electronics and IT (MeitY) to help citizens identify their risk of contracting COVID-19.
- Telemedicine Practice Guidelines: The Ministry of Health and Family Welfare (MoHFW) has released these guidelines in association with Niti Aayog to regulate the practice of remote clinical consultations. Doctors can now provide consultations through video, audio, email, or text.
- National Health Stack (NHS) and National eHealth Authority (NeHA): Digital framework to support healthcare across India. The Goal is to compile digital health records for all citizens by 2022 to leverage the benefits of telemedicine and e-health for Indians.
- e-Sanjeevani: During the COVID-19 pandemic, practitioners in India have used applications, audio calls and video conferencing to diagnose and treat patients in geographically diverse locations through the government's telemedicine platform - eSanjeevani.[20] The platform currently permits two types of telemedicine services: Doctor to Doctor (eSanjeevani) and Patient-to-Doctor (eSanjeevani OPD).[21]

These services are part of the larger government scheme to connect larger hospitals to smaller health centers in remote areas. India has relied on this model for providing non-COVID essential healthcare. The platform's integrated telemedicine solutions were developed by C-DAC (Centre for Development of Advanced Computing) Mohali in 2019. The doctor-to-doctor teleconsultations have been implemented under the Ayushman Bharat Health and Wellness Centre (AB-HWC). Through a hub and spoke model, state governments have identified dedicated hubs, medical colleges and district hospitals, to provide teleconsultation services to spokes, SHCs, PHCs, and HWCs.

- After releasing the guidelines, the telescreening of the public for COVID-19 symptoms is being advocated by the government of India. COVID-19 National Teleconsultation Centre (CoNTeC) has been initiated, which connects doctors across India to All India Institute of Medical Sciences (AIIMS) in real-time for accessing expert guidance on the treatment of the COVID-19 patients.[22]

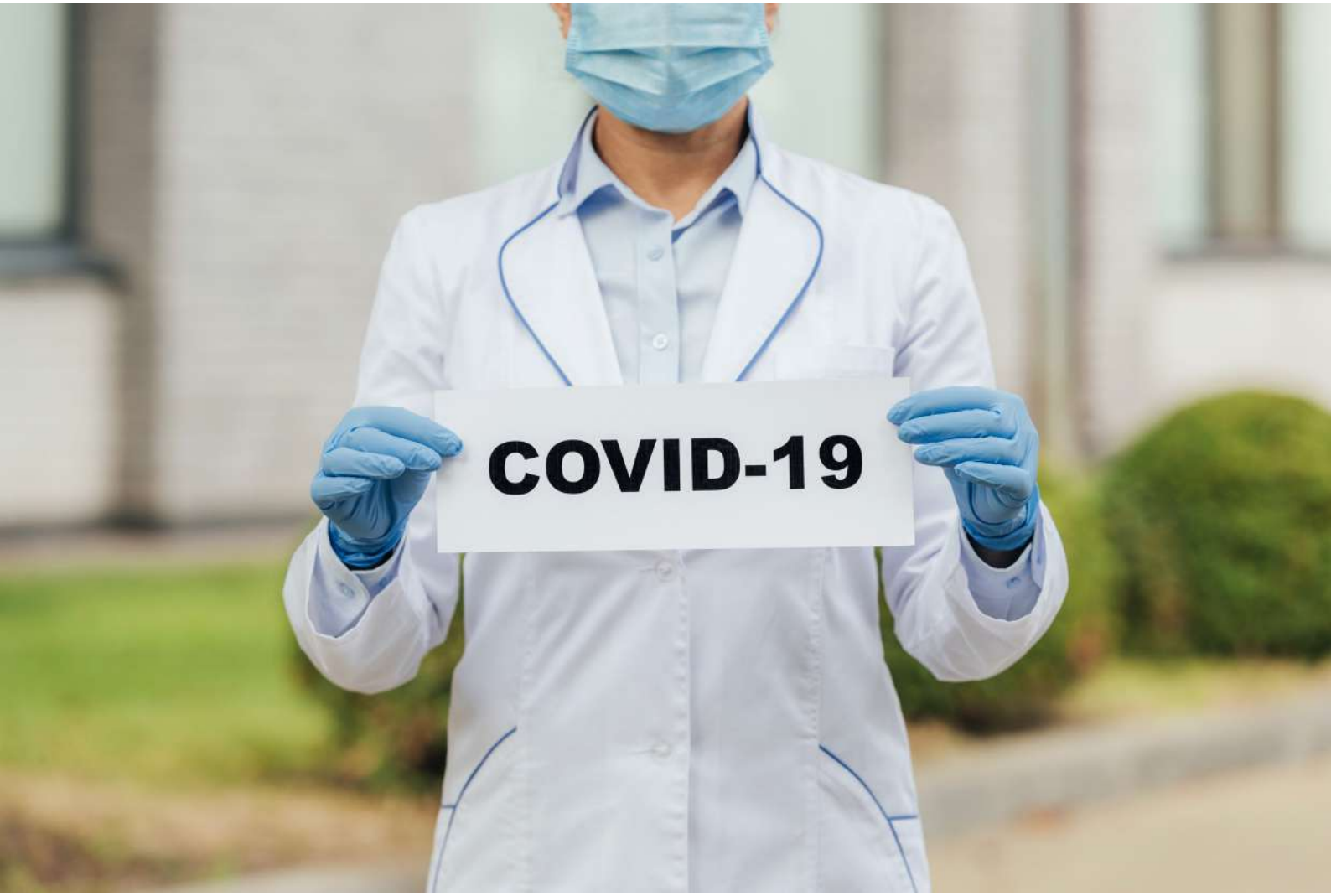
[20] Press Information Bureau, New Delhi. A big win for Digital India: Health Ministry's 'eSanjeevani' telemedicine service records 2 lakh teleconsultations. 2020. https://pib.gov.in/PressReleasePage.aspx?PRID=1646913.

[21] Porecha M, Singh PV. eSanjeevani—The government-owned dark horse in India's telemedicine race. The Ken. 2021. https://the-ken.com/story/esanjeevani-the-government-owned-dark-horse-in-indias-telemedicine-race/?utm_source=daily_story&utm_medium=email&utm_campaign=daily_newsletter.

https://www.india-briefing.com/news/healthtech-telemedicine-india-investment-opportunities-after-covid-19-20578.html/

[22] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9111269/

- Telemedicine practices in India are also extended to the fields of traditional medicine. The National Rural AYUSH Telemedicine Network aims to promote the benefit of traditional methods of healing to a larger population through telemedicine.[23]
- The VRC concept has been developed by ISRO to provide a variety of services such as tele-education, telemedicine, online-decision support, interactive farmers' advisory services, etc. The VRCs not only act as learning centers but also provide connectivity to specialty hospitals, thus bringing the services of expert doctors to the villages. Nearly 500 such VRCs have been established in the country.[24]
- AROGYASREE is another internet-based mobile telemedicine conglomerate that integrates multiple hospitals, mobile medical specialists and rural mobile units/clinics. The project is an initiative of Indian Council of Medical Research (ICMR). They have collaborated with a team of scientists from University of Karlsruhe, Germany who are working on the design of an ECG jacket which can be used for the continuous monitoring of a patient's ECG without hospitalization.



[23]AYUSH. AYUSH Telemedicine report [Internet]. Ayush.gov. in. 2018. Available from: http://ayush.gov.in/sites/default/files/report%20on%20TeleMedicine_1.pdf .
[24]Mishra SK, Singh IP, Chand RD. Current Status of Telemedicine Network in India and Future Perspective. Proceedings of the Asia-Pacific Advanced Network. 2012 32:151–63. Available from: http://journals.sfu.ca/apan/index.php/apan/article/view/54

PROJECT BACKGROUND

The USAID-funded NISHTHA project, implemented by Jhpiego, aims to transform, redesign and re-engineer primary healthcare in India for the provision of equitable, comprehensive and client-centered primary healthcare that contributes to improved health outcomes for India's marginalized and vulnerable populations, including women and girls. NISHTHA's goal is to create a strong, responsive, accessible, sustainable and affordable primary healthcare system that ensures effective delivery of primary health services. NISHTHA's work around COVID-19 includes strengthening disease surveillance mechanisms at primary healthcare level for early detection of diseases and building resilient health systems that are better prepared to face future public health threats.

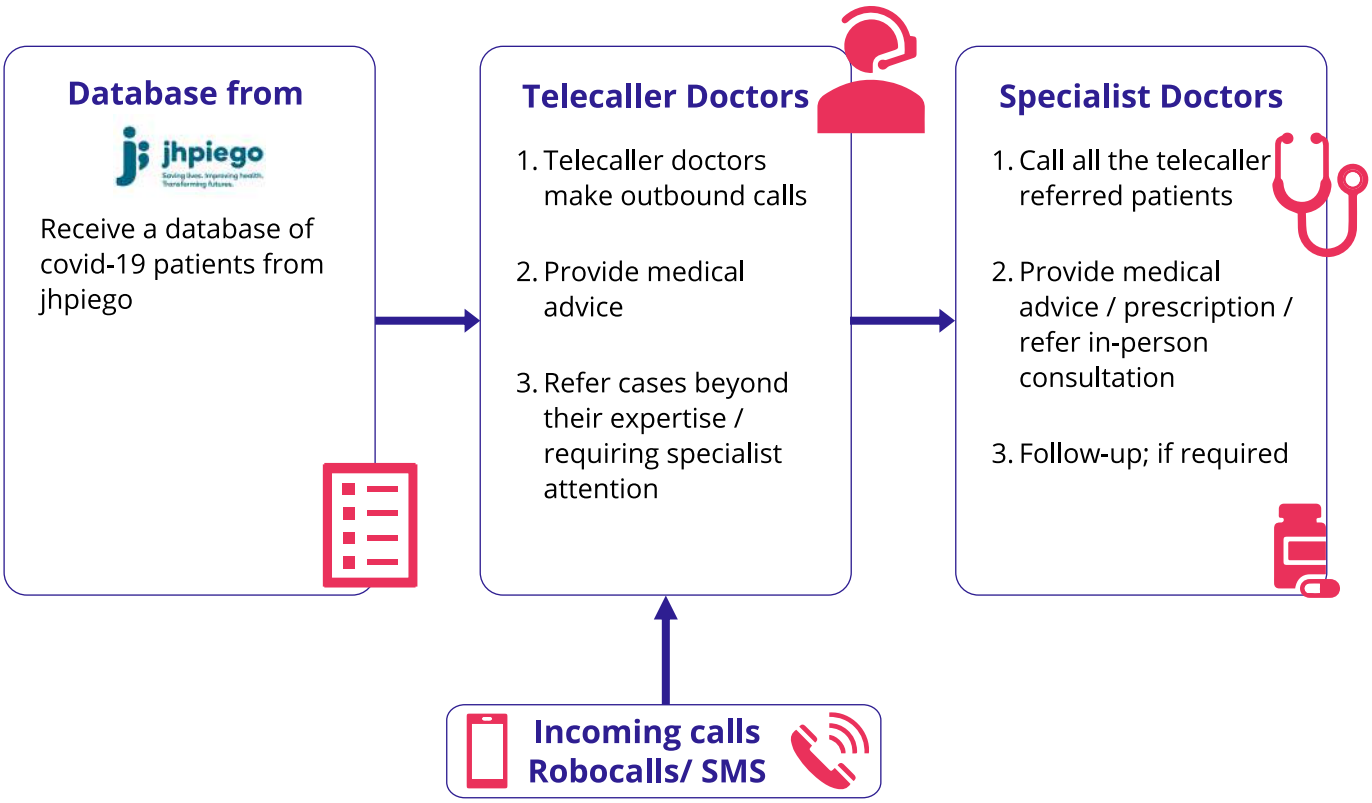
While there has been a rapid development of tests, treatments, and vaccines against COVID19; post-COVID-19 complications in patients remained a neglected area. The patients who recovered from COVID-19 reported respiratory symptoms, mental health symptoms, neurological symptoms, and other morbidities such as fungal infections due to lowered immunity. There was an overall lack of understanding among the patients on post-COVID-19 care and rehabilitation. The state governments too were grappling with providing services for post-COVID-19 morbidities due to resource and infrastructural constraints within the health system. Apart from this, there was a gap in knowledge and information among the patients recovering from COVID-19 especially queries related to vaccines such as uptake/side effects, etc., respiratory problems, and precautions to be taken to prevent COVID-19 and/or ensure uneventful convalescence, which remained either unanswered or partially answered.

Given the need expressed by state governments in NISHTHA states to provide rapid response to the most vulnerable affected by COVID-19 and post- COVID-19 disorders, the Swasthya Sampark (SS) helpline was set up to provide a post-COVID-19 healthcare platform for patients to receive counseling knowledge, access to specialist doctors, and follow-up care in the state of Sikkim, Jharkhand, and Madhya Pradesh.

After acute **COVID-19** illness, recovered patients continued to report a wide variety of symptoms including:

1. Physical deconditioning and muscle weakness, fatigue, pair
2. Impaired lung function, breathlessness
3. Voice change, cough, dysphagia
4. Delirium and other cognitive impairments,
5. Mental health disorders like anxiety, depression, and problems with concentration, memory, and self-confidence.
6. Several complications in different clinical domains, resulting from a thrombotic event (such as ischemic heart disease), or an immune-mediated reaction (such as Guillain-Barré syndrome) etc.

POST COVID CARE MODEL



The service delivery model for the helpline engages telecaller doctors and specialists to serve as the focal person consulting with clients seeking medical advice, information, or counseling regarding post-COVID problems. The main service provisions under the helpline included:

1. To provide information about post-COVID-19 recovery to patients discharged from civil hospitals and home quarantine in select districts within one month of discharge
2. To provide post-COVID-19 patients with information about symptoms to look out for and prompt their health-seeking behavior
3. To provide telemedicine-based health services to patients needing post-COVID-19 recovery services for a wide range of physiological and psychological issues from a pool of telemedicine specialists
4. To direct patients to the right referral center as needed
5. To provide post-COVID-19 patients with evidence-based information
6. To address mental health issues and create a positive mindset on their road to recovery.

THEORY OF CHANGE AND PROJECT OBJECTIVES

NEED	People in rural areas neglect post COVID-19 (Corona Virus Disease -19) recovery health issues due to lack of awareness and inadequate health resources.
PROGRAM OBJECTIVE	To provide free health services, referrals, and information relevant to post-COVID-19 recovery through telemedicine in resource-constrained rural settings.
GAPS AND PAIN POINTS IDENTIFIED (PRE-INTERVENTION)	**Context** 1.Peri Urban and Rural settings are resource - constrained 2. People are unaware and neglect post COVID-19 complications 3. Health system capacities and infrastructure are inadequate **Access** 1. Many times, patients have to go from one doctor to another which costs them more and is time-consuming. 2. People in post COVID-19 recovery period may not seek or may have inadequate treatment which may lead to morbidity and mortality. 3. Do not have the right information on post COVID-19 care 4. Do not have access (As health care system busy with covid-19 patient) **KAP** 1. Patients are apprehensive to seek health care 2. Unaware of post-COVID-19 complications **Clinical/Health Outcomes** 1. Physical deconditioning and muscle weakness, fatigue, pain 2. Impaired lung function, breathlessness, Voice change, cough, dysphagia, 3. Delirium and other cognitive impairments, 4. Mental health disorders like anxiety, depression, and problems with concentration, memory and confidence 5. Several complications in different clinical domains, resulting from a thrombotic event (such as ischemic heart disease), or an immune-mediated reaction (such as Guillain-Barré syndrome) etc.
PROGRAM FOCUS / THEMATIC AREA	Post-COVID-19 Recovery (Platform development Capacity Building of Healthcare Workers (HCW) + Implementation support)

PRIMARY OUTCOMES	1. Post-COVID-19 recovery care information provided to patients discharged from civil hospitals in select districts of Jharkhand and Madhya Pradesh within 1 month of discharge. 2. Patients are provided with information about symptoms that they need to look out for which prompts their health-seeking behavior. 3. Telemedicine-based health services are provided to patients needing post-COVID-19 recovery services for a wide range of physiological and psychological issues from a pool of telemedicine specialists. 4. Improved referral for patients diagnosed with post-COVID-19 complications. 5. Post-COVID-19 patients are provided with current evidence-based information. 6. Mental health issues are addressed in a timely manner and a positive mindset is created
PROGRAM GEOGRAPHIES	**Jharkhand** - Bokaro, Dhanbad, East Singhbhum, Ranchi **Madhya Pradesh** - Khandwa, Rajgarh **Sikkim** - North, South, East, West
TARGET POPULATION	COVID-19 recovered individuals / patients* discharged from civil hospitals or home quarantined (*Henceforth individuals/patients will be referred to as clients)
PROJECT DURATION	Phase 1 of the project was between June 2021 - Dec 2021 when the Delta variant of COVID-19 was wildly spread. Phase 2 continued to deliver the services when the Omicron variant was active, that is between Jan 2022 and May 2022.
HEALTHCARE PROVIDERS	The project had two levels. At the first level, telecaller doctors, who were MBBS graduates, attended to all cases and triaged the cases based on severity and need. Majority of the cases requiring medical advice and not requiring specialist attention were resolved by the telecaller doctors. Cases are assigned to respective specialists such as General Physician, Gynecologist, Cardiologist, Pulmonologist, Psychologist, Physiotherapist etc as diagnosed by the telecaller doctors. The specialist doctors further consulted the patients assigned to them and resolved the health issues by providing medical prescription, medical advice, lab investigation or referring in-person consultation.

RATIONALE FOR STUDY

As telemedicine becomes a routine part of healthcare delivery, it is essential to understand the users' (HCW) and receivers' (clients) perceptions of around this model of healthcare delivery, utilization of services, the tools and techniques used, and the challenges faced when delivering or accessing healthcare over telemedicine platform/channel. Being used to a particular type of healthcare delivery model, there could be initial apprehensions about accepting telemedicine as a newer platform of delivery. The motivating factor for this research is to study the impact of the Swasthya Sampark helpline in providing healthcare services for post-COVID-19 problems and its performance in relation to current healthcare delivery models, especially when health access is difficult. In the early stages of the implementation of such an intervention, preliminary data about the effectiveness of this approach would set the stage for more robust research studies. It will also enable us to learn the potential health impact of this approach and provide insights to improve telemedicine-based healthcare delivery.

OBJECTIVES FOR THE STUDY

The goal of the study is to assess the suitability and usefulness of the telemedicine helpline in providing health services to clients with post-COVID-19 complications. The helpline's ultimate goal is to reduce delays and improve access to post COVID - 19 recovery health services.

1) **Objective 1:** To assess the acceptability and perceptions of utilization among intermediaries and clients
    i. To identify intermediaries' (health workers) and providers' (remote doctors) acceptability of telemedicine as a healthcare service model.
    ii. To document perspectives of clients

2) **Objective 2:** To assess the perceived impact of this model on,
    i. Geographic accessibility (Distance traveled & time taken to access care)
    ii. Financial accessibility (Money spent to access care)
    iii. Availability of medical expertise, drugs, and devices at the point of care
    iv. Patient acceptability
    v. Quality of care
    vi. Health-seeking behavior
    vii. Unmet need for health services

3) **Objective 3:** To identify key insights on the quality of implementation for teleconsultations

APPROACH AND METHODS

The study adopted a mixed methodology – combining qualitative and quantitative measures. Quantitative data from routine internal monitoring data and Medical Record System (MRS) was used to assess client-consultation outcomes and other key indicators related to implementation. The study used a quantitative primary survey to document client profiles and assess feedback and patient-reported outcomes.

The qualitative study used in-depth interviews with health providers and clients to assess their satisfaction, perception of usefulness, and key challenges in accessing health services through the helpline platform. There were three groups of participants in the primary survey – Clients (who had used the helpline to seek advice on post-COVID-19 recovery issues), individuals (who did not use the helpline to seek advice on post-COVID-19 recovery issues), and the providers (who diagnosed clients and provided medical advice).

The providers answered a structured questionnaire with responses on a 10 point Likert scale. The questions were adopted from the Technological Acceptability Model, with each of the questions classified under one of the 8 constructs. The mean scores for the 8 constructs were calculated based on responses provided to the questions

The findings were used to understand the needs of the individuals seeking care on post-COVID-19 complications, as well as the provider's perception of the health service model. The findings of these studies would help Jhpeigo and Intelehealth customize the program activities to better address the community's local health needs and consolidate the usage of telemedicine/helpline platforms as a valid medium to provide healthcare services to last-mile populations that are often excluded from accessing healthcare services.

SAMPLE COVERED

Secondary Data: The analysis of consultation outcomes from routine monitoring and MRS was conducted for all clients who had used the helpline at least once, and received a consultation. A total of 4,940 records were analyzed from all three states – i.e. Jharkhand, Madhya Pradesh, and Sikkim.

Quantitative Survey: The quantitative survey used a convenient sampling approach. For the feasibility of the study, we reached out to clients telephonically from a list of consultations conducted by the helpline. The quantitative survey was restricted to clients from Jharkhand, and was conducted among the 259 clients who received service from Swasthya Sampark Helpline.

Qualitative Survey: The survey team conducted in depth interviews with 11 health providers and 29 clients. The respondents were chosen purposively, and interviews were conducted on the basis of their availability, after taking prior consent. Among the providers, we interviewed 6 specialist doctors, and 5 non-specialist doctors. From the consultation data we identified 5 individuals who were contacted by the helpline but declined the services, 12 clients were interviewed from Jharkhand, and 12 clients were interviewed from Madhya Pradesh. The sample was equally divided between individuals who received a specialist or non-specialist consultation.

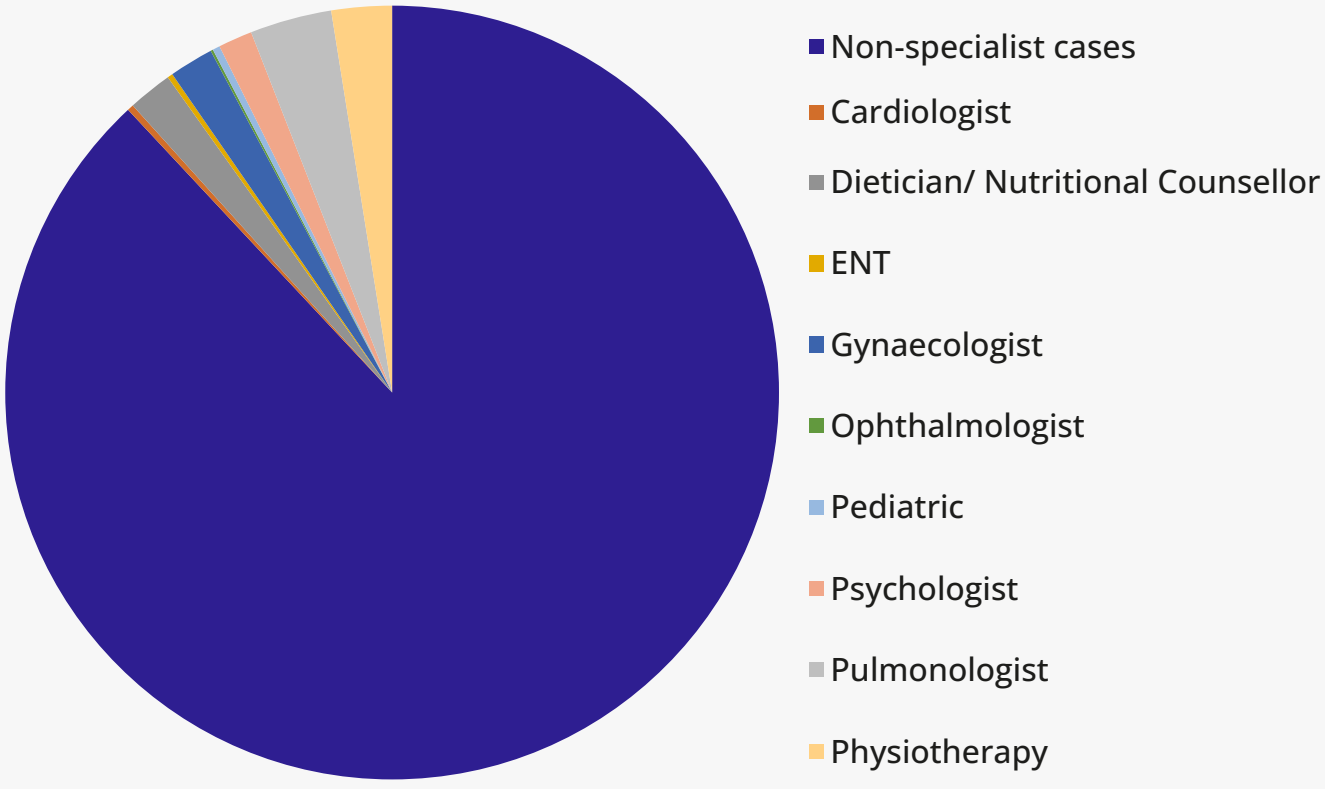
FINDINGS

HELPLINE PERFORMANCE

HEALTHCARE PROVIDERS

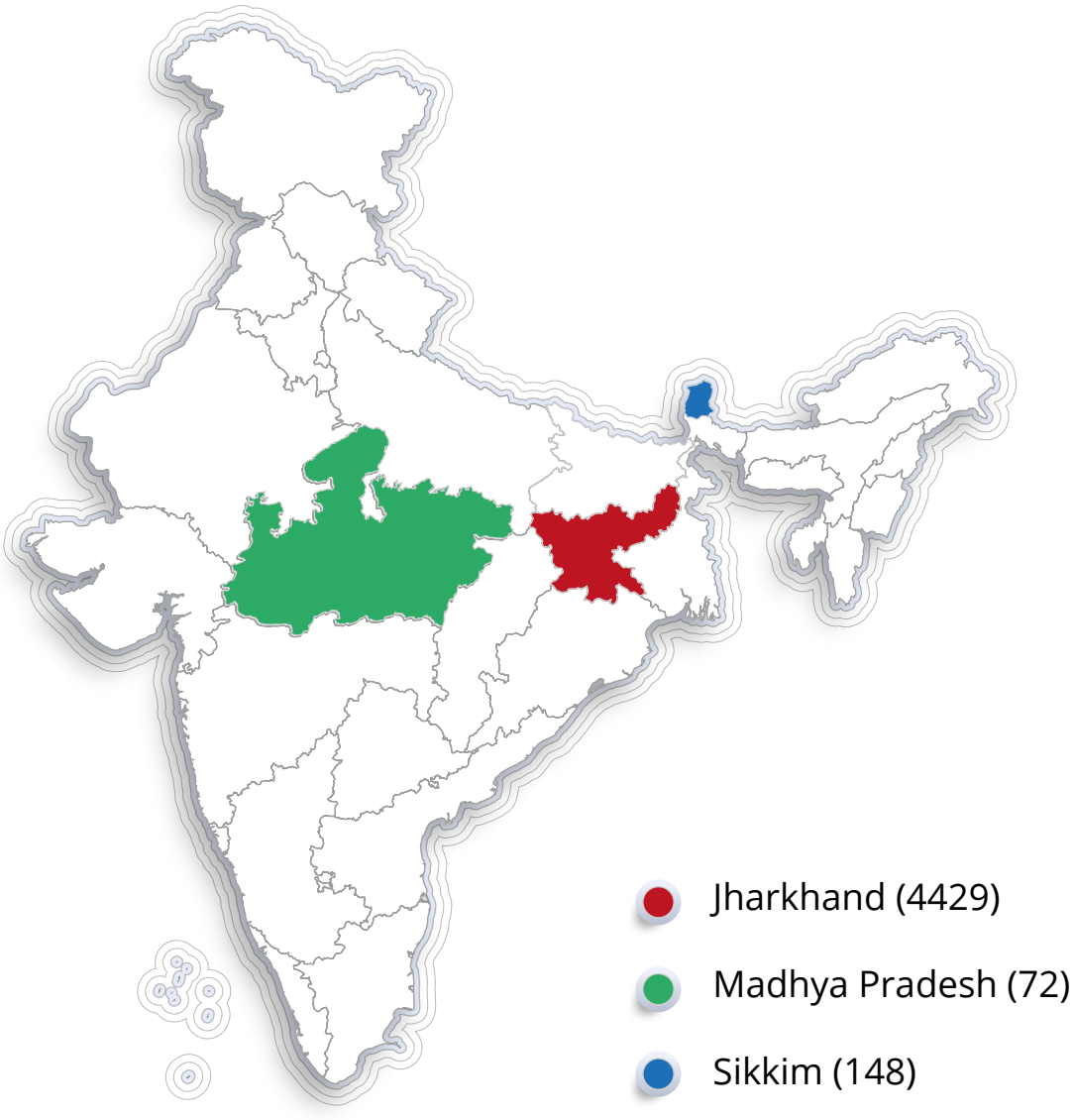
The helpline had a gynecologist, psychologist, dietician / nutritional counselor, rehabilitative physiotherapist, pulmonologist, and general Physician/s on board. While most health issues included primary health complaints and were handled by non-specialist doctors; some of the patients were referred to specialists depending upon the severity of their symptoms and medical need.

Graph vs. Type of Consultation

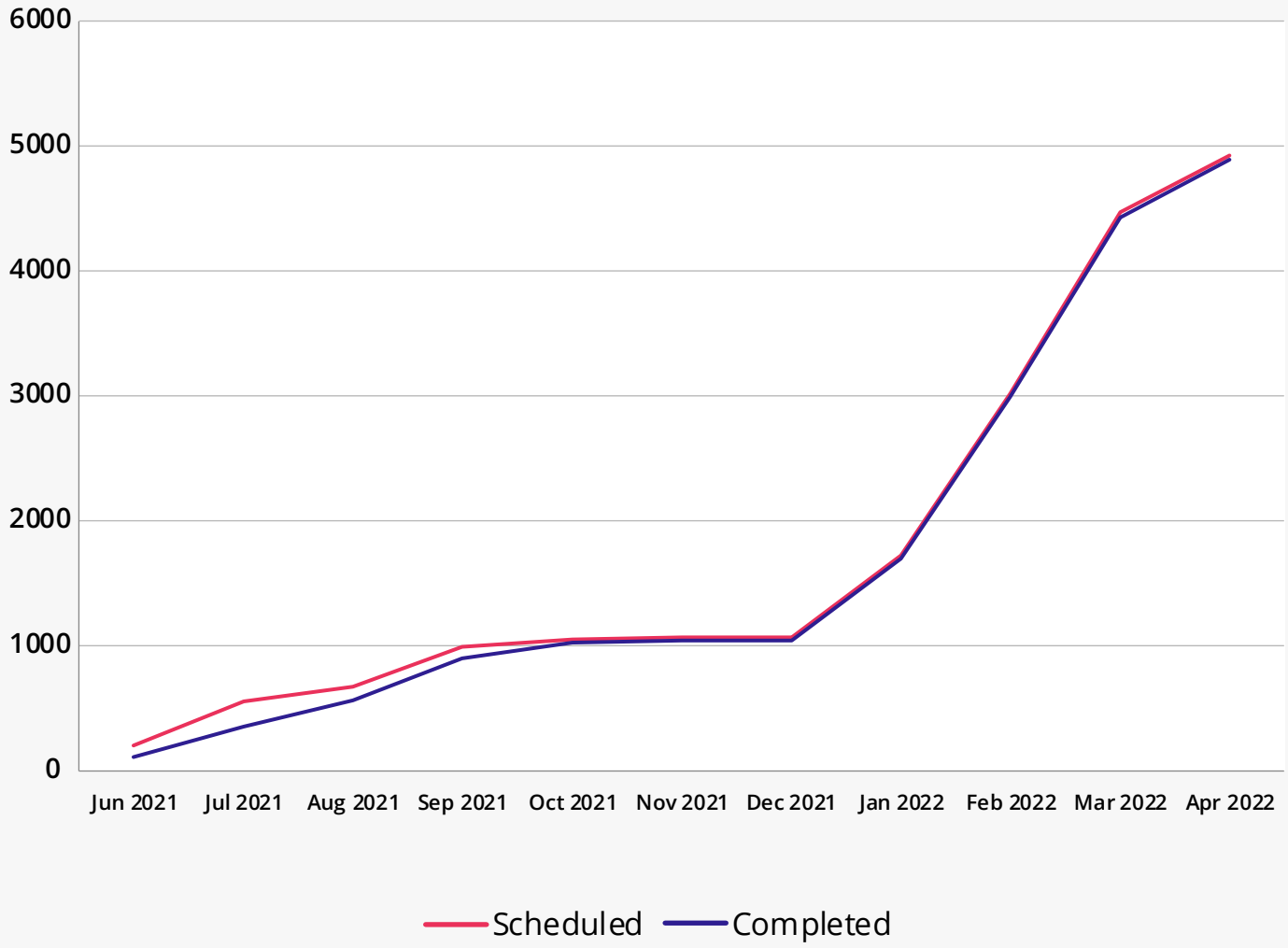


Teleconsultations scheduled vs completed

- The helpline supported a total of 18 doctors, and made calls to 13,136 patients between June 2021 and May 2022.
- In total 4,921 teleconsultations visits were scheduled via the helpline; of which 4,898 (99.5%) were completed.
- 4620 unique patients were registered which includes 1538 (33.3%) were female patients and 3082 (66.7%) were male patients.
- We found the highest number of teleconsultations were from Jharkhand (4,429) followed by Sikkim (148), and Madhya Pradesh (72); while the client location could not be identified for 272 cases.
- It was observed that over time, with improved monitoring, better familiarity of health providers with the platform, capacity building, and an increase in the number of doctors consulting - the teleconsultation ratio (completed vs scheduled) improved from 56% in June 2021 to 99.86% in March 2022.



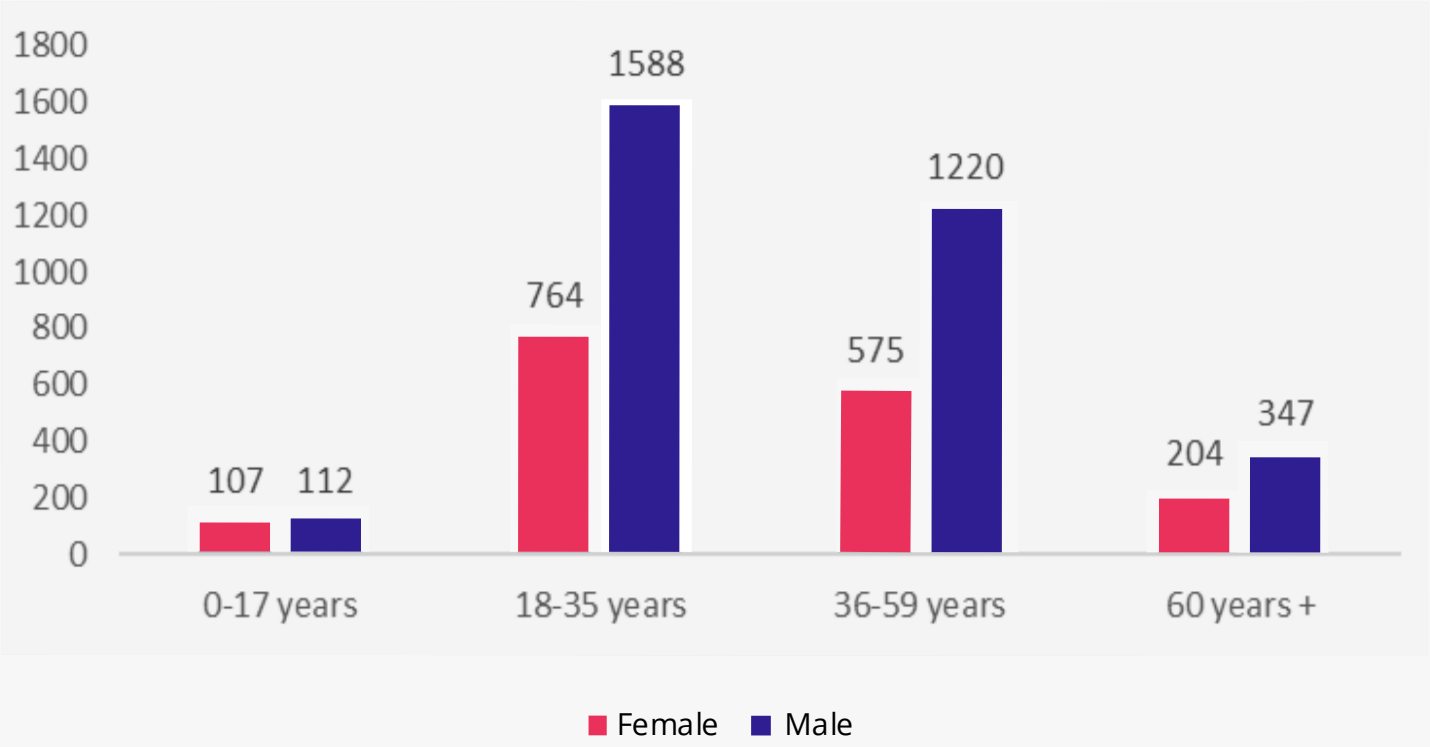
Scheduled and Completed



CLIENT PROFILE

The client profile showed that the maximum number of clients were aged between 18-35 years (n=2352, 47.8%), least number of cases (n=219, ~4.5%) were for children and adolescents (age 0-17 years) followed by clients aged 60 years and above (n=551, 11.2%). Patients shared multiple types of health issues/ complaints faced by them and their family members.

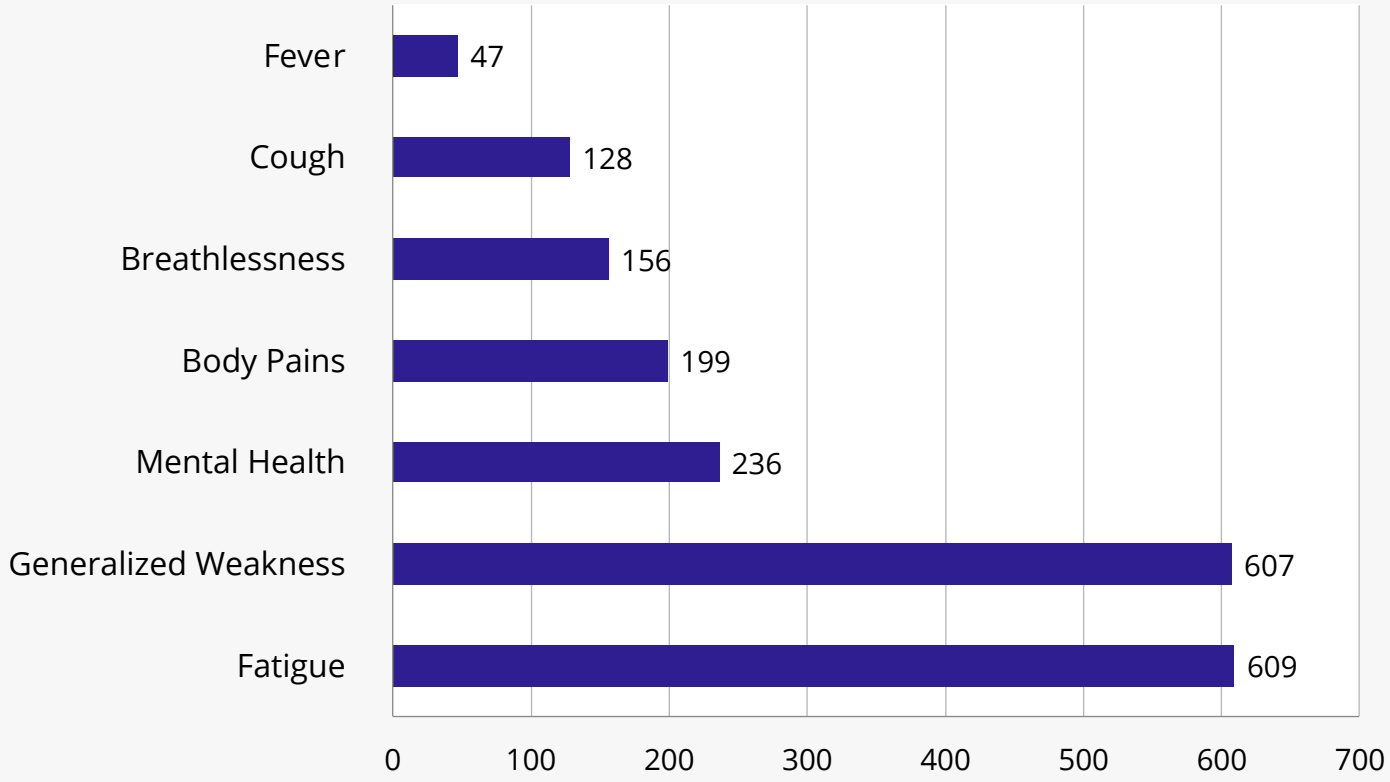
Patient Profile - Age Group and Gender (n=4917)



HEALTH ISSUES REPORTED

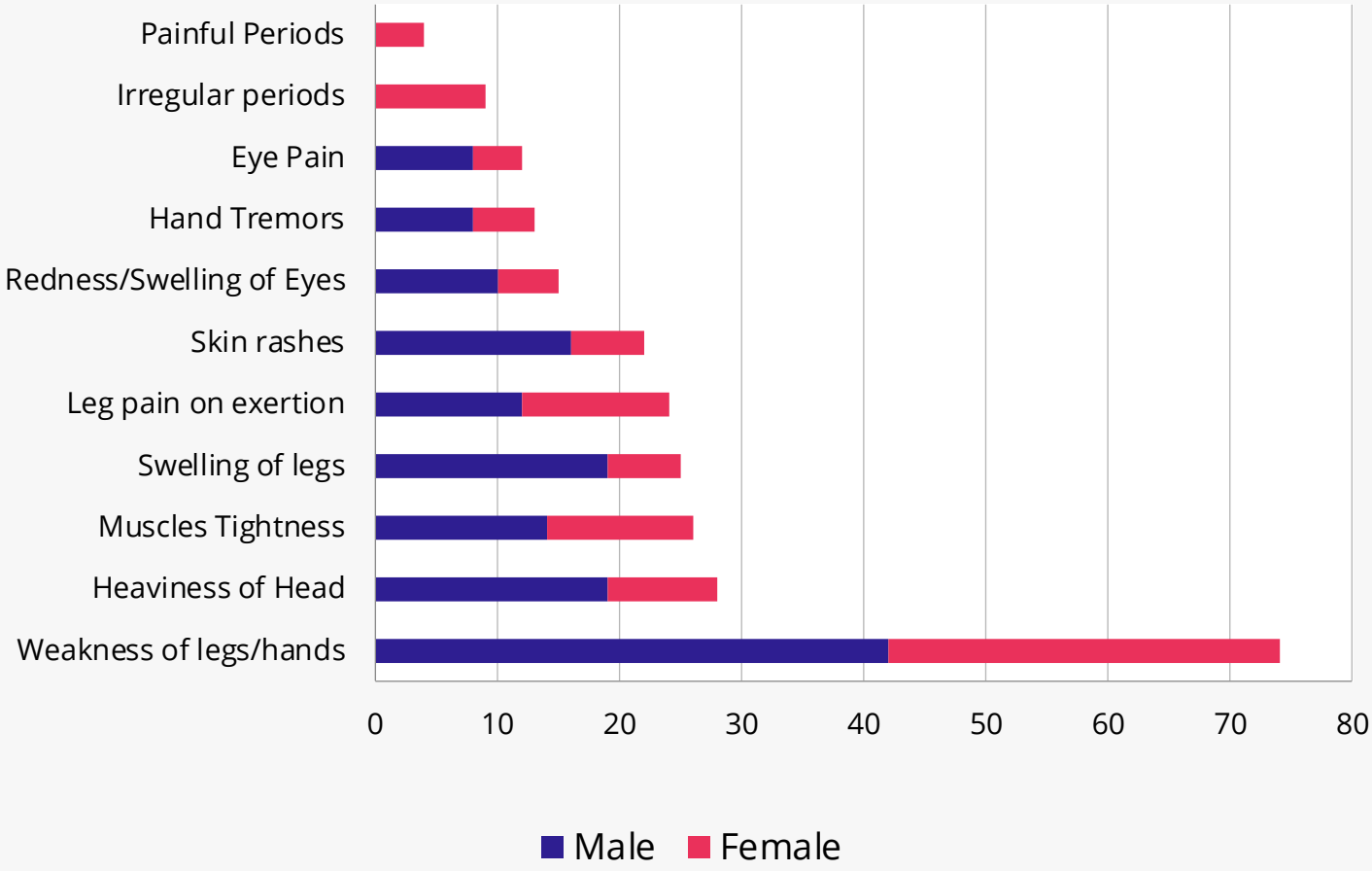
The most common post covid symptoms include Fatigue (30.7%), Generalized Weakness (30.6%), Mental Health Issues (11.9%), Body pains (10.04%), Breathlessness (7.8 %), Cough (6.4%) and Fever (2.3%).

Most Common Post Covid-19 Symptoms



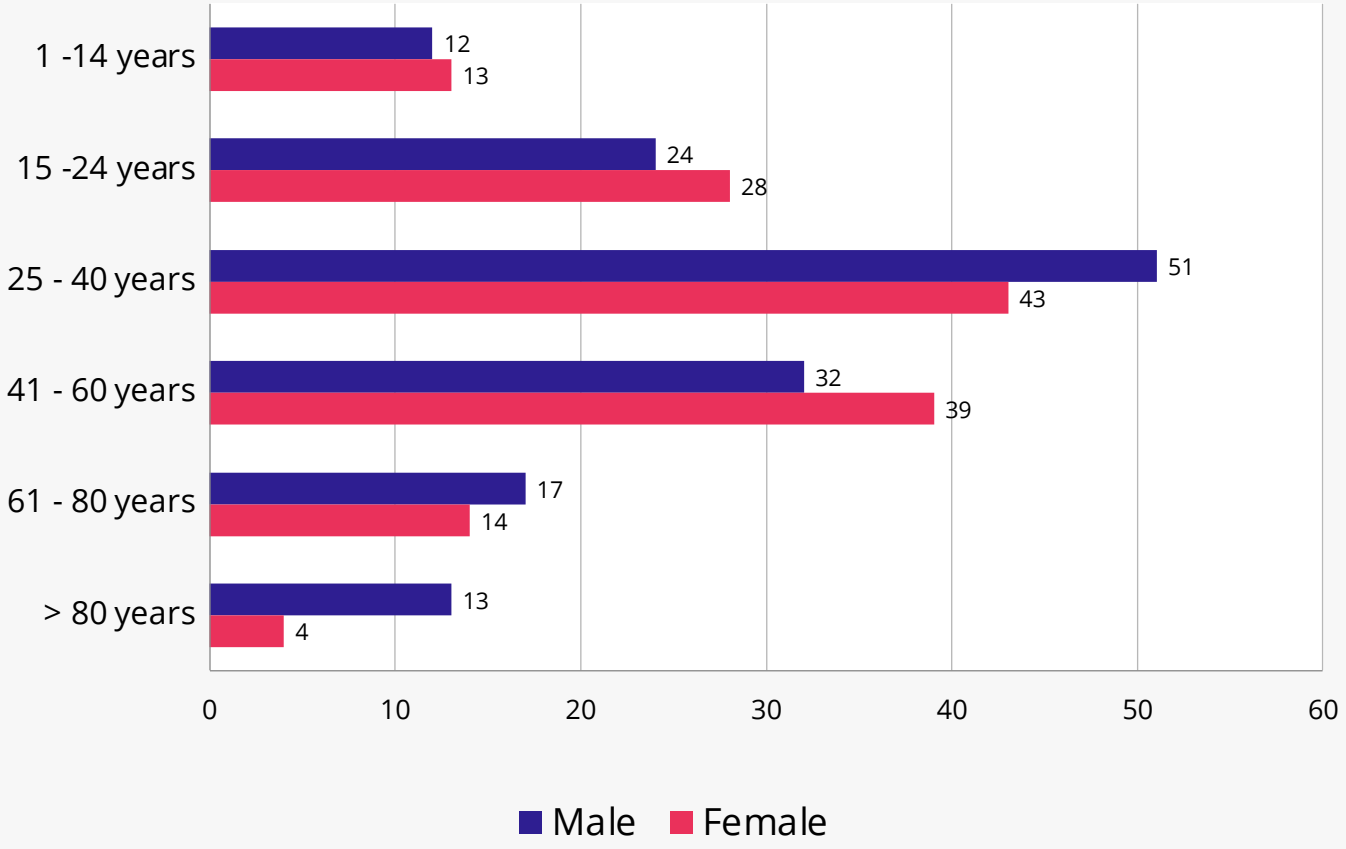
It was also observed that clients developed post-covid-19 symptoms such as weakness of the legs/hands, leg pains on exertion, painful and irregular periods, tremors in the hands, heaviness of head, muscles tightness/spasm, swelling of legs, pain in the eyes, redness or swelling of eyes, skin rashes. Of those who consulted, only 76 reported to have had a history of diabetes, and 81 reported to have a history of hypertension.

Newly Experienced Symptoms



The analysis shows that the severity of Post Covid-19 symptoms was higher between the age group of 25- 40 years in both the genders and the least below 14 years and above 80 years.

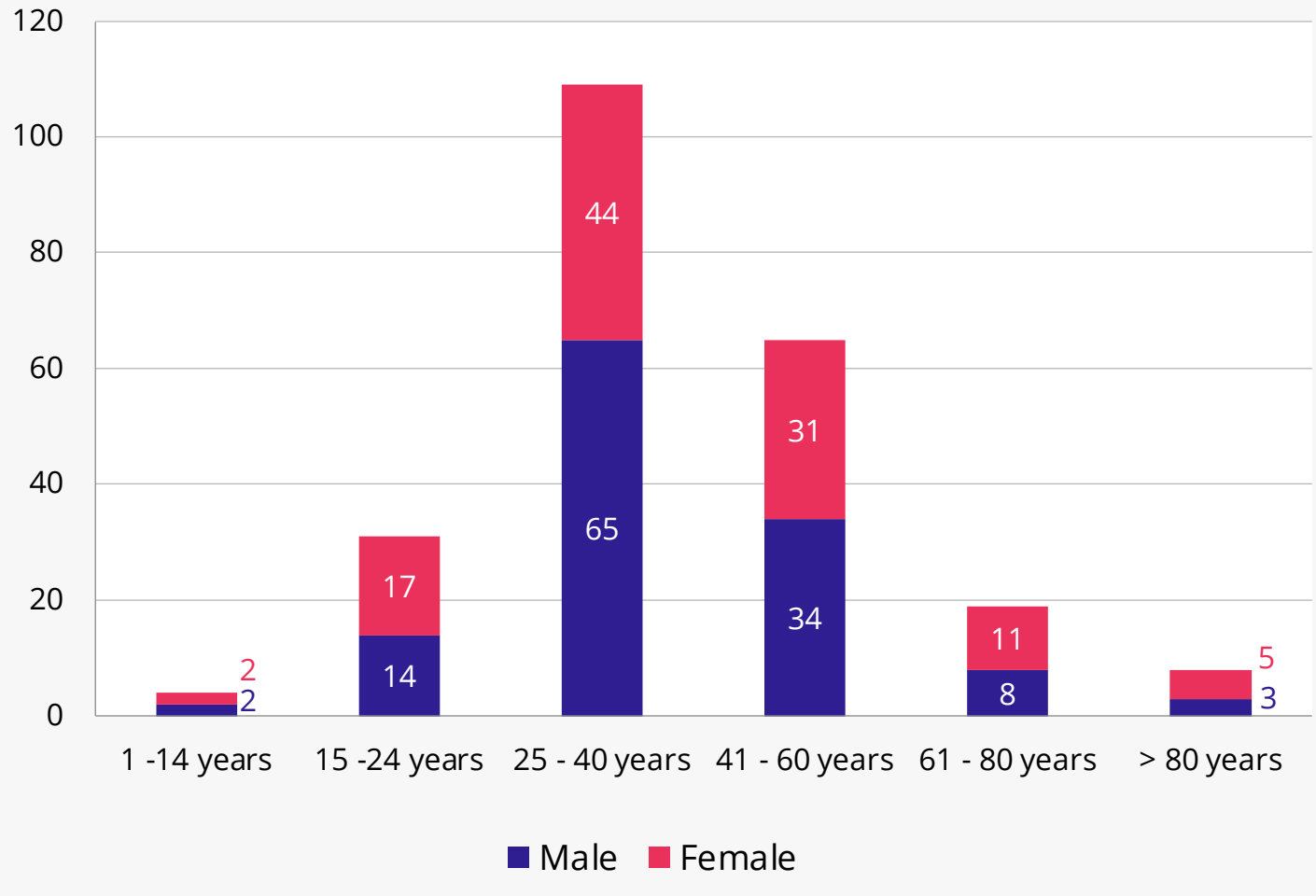
Post Covid-19 Symptoms Severity, Gender & Age Groups



Post COVID-19 Mental Health Issues

- Mental Health Disorders were observed to be highly prevalent post covid in the age group of 15 to 40 years.
- The symptoms related to mental health presented by the patient's post covid include feeling stressed / anxiety / fearfulness-fear of losing loved ones / Withdrawn / Not taking interest / Feeling helpless / worthless / Suicidal ideas - Fearfulness - Fear of covid.
- About 40 % of the female patients suffering from these post covid symptoms related to mental health were between the age group of 25 to 40 years. 28.2 % of the patients were within the age group of 41 to 60 years, and 15.5 % were in the age group of 15 to 24 years.
- 51.6 % of the male patients suffering from these post covid symptoms related to mental health were between the age group of 25 to 40 years,
- 27 % were within the age group of 41 to 60 years, and 11.1 % were in the age group of 15 to 24 years.
- The incidence of post covid psychiatric symptoms was greater in male population (%) of age group 25 to 40 years than the female population (%) of the similar age group.

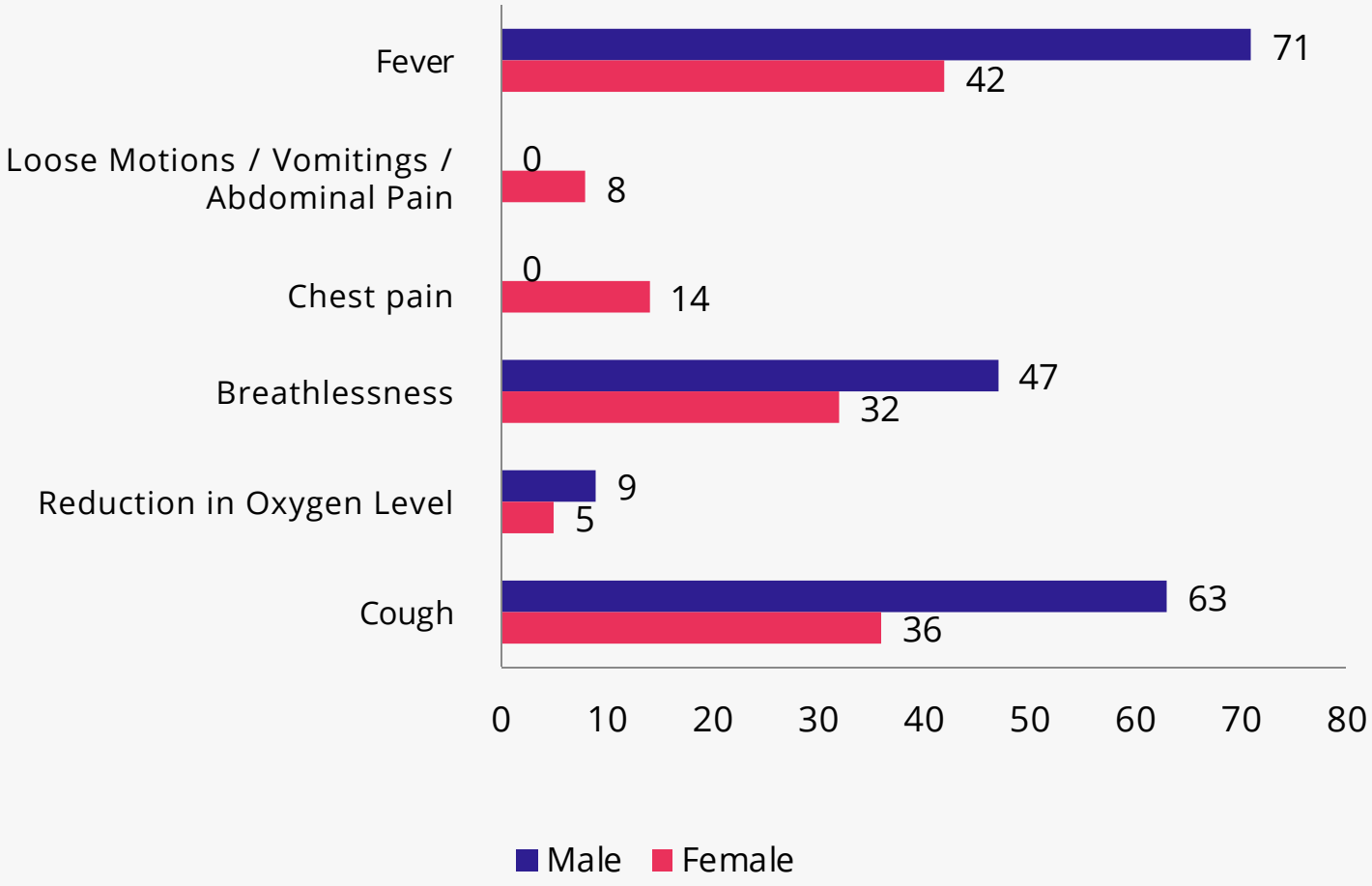
Post Covid-19 Mental Health Issues



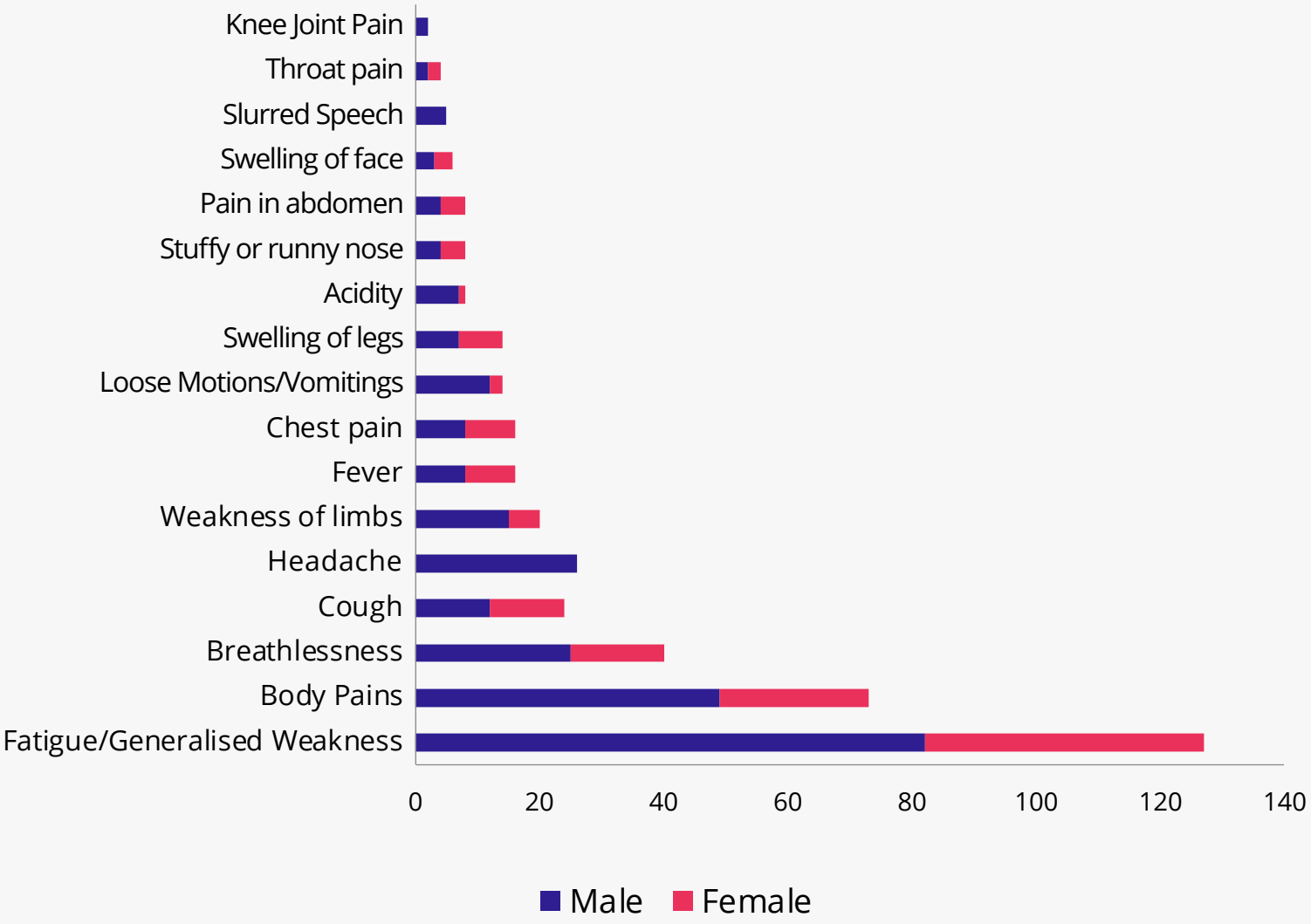
Before and after COVID-19 hospitalization

- The rates of hospitalization were 3.51 % (n=115) and 3.93 % (n=65) in males and females respectively.
- 47.6 % and 41.7 % of the hospitalized females and males respectively were between the age group of 41 – 60 years.
- The most common post covid symptoms post hospitalization in these 180 cases were Fatigue/Generalized weakness, body pains, cough, fever, chest pain, and breathlessness.

Covid-19 symptoms before hospitalization



Post Covid-19 symptoms after Hospitalization



FINDINGS FROM PRIMARY SURVEY

QUANTITATIVE STUDY

The quantitative survey was conducted among the 312 clients who received service from Swasthya Sampark Helpline; and were randomly selected and interviewed telephonically. Out of 312, 53 cases contacted did not recall a call from the helpline and were excluded from the analysis. The remaining 259 cases were either resolved by telecaller (non-specialist) doctors or Specialist doctors. Non specialist doctors were the first level doctors and provided with basic healthcare information such as about vaccination, exercises, dietary requirements, breathing and lifestyle management. During the call, it would then be decided if the patient requires specialist consultation. Clients requiring a consultation from specialists were referred for audio consultation with psychologist, physiotherapist, pediatrician, or gynecologist.

Demographics

Table 1: Gender- Age group

Gender-Age Group (Telecaller and Specialist)	18-34 years old	35-59 years old	60+ years old	Total	Total %
Female	34	29	14	**77**	**29.73**
Male	76	78	28	**182**	**70.27**
Total	**110**	**107**	**42**	**259**	**100**
Total %	**42.47**	**41.31**	**16.22**	**100**	

The majority (83.7%; n=217) of the clients were between the ages 18 to 59 years.

Table 2: Household Income

Household Annual Income	Total	Total %
INR 0 - 50,000	12	4.63
INR 50,001 - 1,00,000	39	15.06
INR 1,00,001 - 2,00,000	41	15.83
INR 2,00,001 - 5,00,000	41	15.83
INR 5,00,001 +	20	7.72
Not Available	106	40.93
Total	**259**	**100**
Total %	**100**	

Out of the total respondents (N=259), 60.6% (n=157) received non-specialist consultations, and 39.4% (n=102) received specialist consultations. Most (36.6%; n=95) of clients belonged to the General category and about (25.8%, n=59) did not provide any response. Maximum clients (15.8% each) reported income between Rs.1,00,001 to Rs. 2,00,000 pa & between 2,00,001 to Rs. 5,00,000 pa; while 40.9% (n=106) did not provide a response.

PATIENT REPORTED OUTCOMES

Out of the total respondents (N=259), 60.6% (n=157) received non-specialist consultations, and 39.4% (n=102) received specialist consultations. The table below describes the type of consultations provided.

Table 3: Consultation outcomes recalled by patients who consulted with non-specialist doctors

Row Labels	Count of Respondents	Percentage
Reported no post covid 19 problems	71	45.22
Medical advice by non-specialist doctors	56	35.67
Referred to specialist / Provided prescription	15	9.55
Referred for an in-person consultation	3	1.91
No resolution provided	2	1.27
Do not remember	10	6.37
Grand Total	**157**	**100**

The above table describes the outcome of consultation recalled by the patients attended by non-specialist doctors. 45.2% of people reported to have not suffered from any post-COVID-19 problem and recall receiving generic health related advice from non-specialist doctors regarding vaccination, COVID-19 protocol etc.. 35.6% received medical advice related to post-COVID-19 heath problems (such as managing mental health, diet and lifestyle modifications etc. related to post-COVID-19 problem) 9.5% remember being either referred to a specialist doctor or receiving a prescription. Two clients stated that they did not receive any resolution from the doctors, and 10 clients do not remember the exact outcome of consultation.

Table 4: Consultation outcomes recalled by patients who consulted with specialist doctors

Row Labels	Count of Respondents	Percentage
Specialist provided diagnosis and/or prescription	45	44.12
Medical advice (specialist consultation)	20	19.61
Referred for an in-person consultation	2	1.96
Referred to Specialist but never received the call	9	8.82
No resolution	9	8.82
Do not remember	17	16.67
Grand Total	**102**	**100**

The above table describes the outcome of consultation recalled by the patients attended by non-specialist doctors. 45.2% of people reported to have not suffered from any post-COVID-19 problem and recall receiving generic health related advice from non-specialist doctors regarding vaccination, COVID-19 protocol etc.. 35.6% received medical advice related to post-COVID-19 heath problems (such as managing mental health, diet and lifestyle modifications etc. related to post-COVID-19 problem) 9.5% remember being either referred to a specialist doctor or receiving a prescription. Two clients stated that they did not receive any resolution from the doctors, and 10 clients do not remember the exact outcome of consultation.

Table 5: Follow-up status

Follow -up provided	Non-specialist	Non-specialist %	Specialist	Specialist %	Total	Total %
Yes	56	35.67	45	44.12	101	38.9
No	94	59.87	53	51.96	147	56.8
Patient doesn't remember	7	4.46	3	2.94	10	3.9
No response	0	0.00	1	0.98	1	0.4
Grand Total	**157**	**100.00**	**102**	**100.00**	**259**	**100**

Clients were provided an option for follow-up during their consultation. Approximately 39% of the individuals reported to have received a follow up, however the majority (n=147) were not able to receive any follow up

Table 6: Recovery status

Recovery Status	Non-specialist	Non-specialist %	Specialist	Specialist %	Total	Total %
Completely recovered	98	62.42	68	66.67	166	64.10
Medical Advice helped	3	1.91	4	3.92	7	2.70
Somewhat recovered – certain issues are still persisting	13	8.28	28	27.45	41	15.80
Not recovered	0	0	2	1.96	2	0.80
Not Applicable - Only information was sought	43	27.39	0	0.00	43	16.6

Table 7: Symptoms experienced during COVID-19 infection

Symptoms experienced during COVID-19	Non- Specialist Consultation	Non- Specialist consultations (%) (N=157)	Specialist Consultations	Specialist Consultations (%) (N=102)
Respiratory Issues/Breathlessness	5	3.18	14	13.73
Fever	11	7.01	7	6.86
Cough/Sore throat	9	5.73	21	20.59
Cold	8	5.10	7	6.86
Weakness/Fatigue	23	14.65	27	26.47
Body ache/head ache/Joint pain	6	3.82	14	13.73
Stomach/GI issues	3	1.91	3	2.94
Chest pain	-	-	6	5.88
Menstrual problems	-	-	2	1.96
Anxiety/psych issues	-	-	4	3.92
Cardiac issues/Blood pressure PC	-	-	2	1.96
Other COVID-19 problems	3	1.91	6	5.88

Respondents that received non-specialist consultations, reported to have experienced respiratory issues, fever, cough/sore throat, cold, weakness and fatigue, body ache/headache, and stomach/gastrointestinal issues, among others during the course of the COVID-19 infection. In addition to these symptoms, respondents that received specialist consultation reported to have suffered from chest plain, menstrual problems, anxiety and other psychological issues, and cardiac and high blood pressure. The table below describes the no. of respondents and symptoms experienced during COVID-19.

Table 8: Post COVID-19 symptoms persisting after recovery from COVID-19 infection

Symptoms persisting after recovery from COVID-19	Non-Specialist consultation (N=157)	Non-Specialist consultation (%)	Specialist Consultations	Specialist Consultations (%)
Respiratory Issues/Breathlessness	0	0	6	42.86
Fever	0	0	1	14.29
Cough/Sore throat	0	0	5	23.81
Weakness/Fatigue	2	8.70	4	57.14
Body ache/head ache/joint pain	3	50	2	7.41
Stomach/GI issues	0	0	1	33.33
Chest pain	0	0	2	33.33
Other post COVID-19 problems	0	0	2	33.33

We find that certain symptoms continued to persist even after recovery. For some respondents, respirator issues and weakness/fatigue continued into the post-COVID-19 phase as well. The table below describes the proportion of individuals who reported the following symptoms during COVID-19 and they persisted after recovery.

Table 9: Client reported new post COVID-19 symptoms developed after COVID-19 infection

New symptoms developed after recovery	No. of clients
Respiratory Issues/Breathlessness	2
Fever	2
Cough/Sore throat	4
Cold	1
Body ache/headache/Joint pain	2
Stomach/GI issues	3
Other post COVID-19 problems	4

Some individuals out of these also reported to develop new symptoms after recovery from COVID-19 that they did not experience while suffering from COVID-19.

Table 10: Post-COVID-19 symptoms experienced by clients who reported partial or no recovery during follow-up survey

S. No.	Symptoms	(N=43)	
		Partially recovered/Not Recovered	Partially recovered/Not Recovered (%)
1	Respiratory Issues/Breathlessness	8	18.60
2	Fever	3	6.98
3	Cough/Sore throat	8	18.60
4	Weakness/Fatigue	16	37.21
5	Body ache/head ache/Joint pain	6	13.95
6	Stomach/GI issues	3	6.98
7	Chest pain	2	4.65
8	Menstrual problems	2	4.65
9	Anxiety/psych issues	1	2.33
10	Cardiac issues/Blood pressure	1	2.33
12	Other Symptoms	3	6.98

A total of 43 (~16.6%, N=259) clients reported to have partially recovered or not have recovered after consulting with a doctor on the helpline. Among the clients who reported parietal/no recovery a majority (~37%) had weakness or fatigue, followed by cough(18.6%) and respiratory issues (18.6%).

Table 11: Telemedicine – consultation satisfaction reported by clients

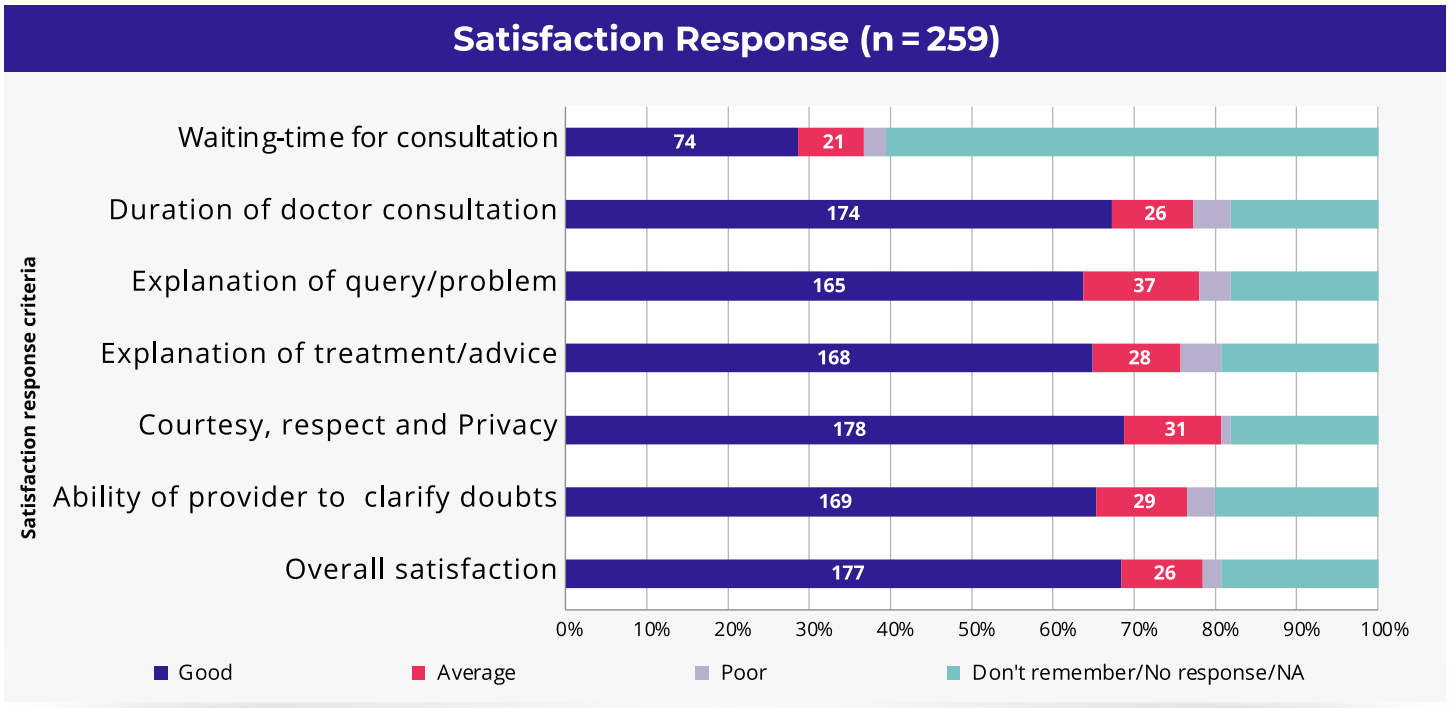


Table 12: Overall satisfaction with the helpline versus using the telemedicine services in future

Satisfaction response	Likely	Maybe	Unlikely	Didn't understand my question	No response	Total	Total %
Good	139	24	13	1	0	**177**	**68.34**
Average	17	7	2	0	0	**26**	**26.00**
Poor	2	1	3	0	0	**6**	**2.32**
Don't remember	0	45	0	0	0	**45**	**45.00**
No response	1	2	0	0	2	**5**	**5.00**
Total	**159**	**79**	**18**	**1**	**2**	**259**	**100**
Total %	**61.39**	**30.50**	**6.95**	**0.39**	**0.77**	**100**	

Cross-ratio of likelihood of person with good experience re-using telemedicine under specialist resolved cases 4.85 Times; whereas under non-specialist cases are 1.23 times.

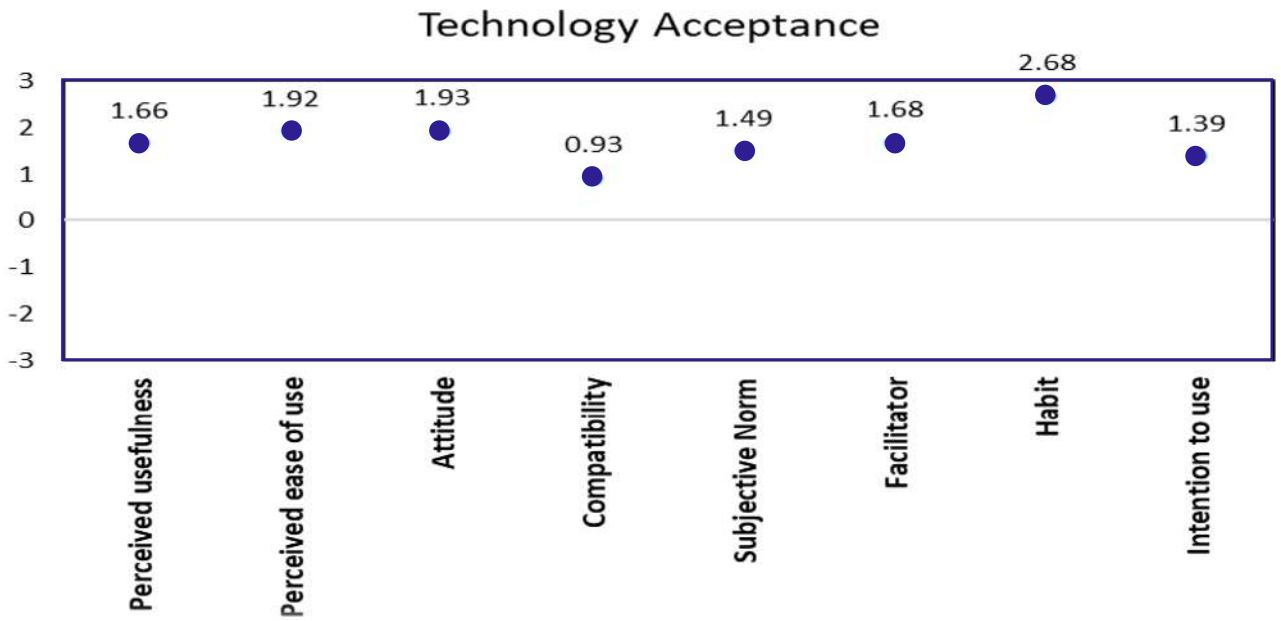
Table 13: Overall satisfaction with the helpline versus recommending telemedicine to others

Satisfaction response	Likely	Maybe	Unlikely	No response	Total	Total %
No response	0	3	0	2	5	**1.93**
Good	140	26	11	0	177	**68.34**
Average	13	10	3	0	26	**10.04**
Poor	2	1	3	0	6	**2.32**
Don't remember	0	45	0	0	45	**17.37**
Total	**155**	**85**	**17**	**2**	**259**	**100**
Total %	**59.85**	**32.82**	**6.56**	**0.77**	**100**	

This shows the patients who were happy with the overall treatment experience are likely to recommend telemedicine to friends and family.

TECHNOLOGY ACCEPTANCE

Our study showed that telemonitoring acceptance was relatively high among healthcare professionals. We found that the providers reported high acceptability in each of the constructs of perceived usefulness (PU), perceived ease of use (PEU), attitude, compatibility, subjective norm, facilitator, habit, and intention of use.



	PU	PEU	ATTITUDE	COMPATIBILITY	SUBJECTIVE NORM	FACILITATOR	HABIT	INTENTION TO USE
Mean	1.66	1.92	1.93	0.93	1.49	1.68	2.68	1.39
SD	0.25	0.47	0.32	0.69	0.25	0.63	0.42	1.58

QUALITATIVE FINDINGS

In-depth Interviews with clients

Three primary themes emerged from the interviews with clients that describe the client profile – i.e., user of the helpline, perceptions on telemedicine service delivery, and perceived advantage of the helpline relative to the available alternatives in the health system.

Client Profile

Client profile discusses the symptoms experienced by clients during COVID-19, post COVID-19 symptoms, and their severity. It also describes the primary sources of information regarding COVID-19 and post COVID-19 symptoms.

COVID-19 SYMPTOMS

COVID-19 Symptoms

Among the respondents, we find that the helpline was used by individuals with a variety of **COVID-19** symptoms. Individuals that had used the helpline have shown mild symptoms during **COVID-19** such as cough, cold and light fever. There were many respondents who shared that they had severe symptoms such as high fever, body pain, breathing issues, and low oxygen levels. However, the severity of their **COVID-19** symptoms did not have a bearing on the intensity or type of post-COVID symptoms. Only a few of the respondents were hospitalized due to the severity of their condition during COVID. We also found that many of the respondents during **COVID-19** were using home remedies or using antibiotics, paracetamol, or medicines advertised in the media.

"I had body pain throughout the time and in the end, for a few days, I was going through a fever."

"I was having trouble breathing, I was getting restless and nervous... my lungs and heart got affected, my oxygen level dropped. I immediately was referred to Jirapur, so I stayed there for a day and then left for Rajgarh."

Post-COVID -19 symptoms

The respondents reported a milieu of post-COVID symptoms. Primarily we find that respondents suffered from weakness, fatigue, chest pain, prolonged headaches, and some developed respiratory problems such as breathlessness, asthma, and breathing difficulties. Some of the respondents also shared that after **COVID-19** they experienced elevated levels of stress, anxiety and sleeplessness, along with other mental health issues.

"...if I walk at a normal speed for a long distance then there is no problem but when I move fast or climb the stairs then a problem (breathing) occurs."

"After **COVID-19** I feel weak and tired even if I don't work or do anything. I feel tired after getting up. Sometimes after waking up early in the morning my body feels tired. I am not able to understand the reason."

COVID-19 INFORMATION

Most of the respondents received information and awareness regarding **COVID-19** and related problems through media. Public service announcements on radio/television, WhatsApp, news/newspaper and YouTube were cited as the primary source of information. Other sources of information included information from frontline health workers, doctors, health facilities, and local administration (Panchayat, Nagar Nigam, and other government officials.) However, none of the respondents mentioned about receiving any information or awareness about post-COVID.

"We got information from Asha Worker, health service center announcement, WhatsApp, and news. Sometimes there was also an awareness camp in our village"

"All the knowledge that we got is through mobile phones, televisions, and radios...the helpline workers also provided knowledge."

CLIENT EXPERIENCE OF TELEMEDICINE

The client experience of telemedicine describes the types of services received by them and their engagement with providers. This theme also highlights the clients' suggestions for improvements in service delivery.

TELEMEDICINE SERVICES RECEIVED

Respondents shared having received a variety of consultations when they approached the helpline. Primarily consultations included a detailed inquiry about their well-being, symptoms, and patient status. Consultations were supplemented with information regarding their health issues and treatment suggested. A majority of clients reported having received medical advice or referral for recovery, along with lifestyle management advice such as exercises and diet to follow to aid their recovery. A few patients also shared that they received a prescription for medicines to use. However, some of the patients shared that those consultations did not last very long, and there was very little information to be discussed. The respondents were able to receive consultation from pulmonologists, gynaecologist, and psychologists

"He took full details of the problem then he referred me to admit hospital, doctor was very knowledgeable, he told us all the symptoms we have then he suggested medicine to take and to do exercise."

"She gave the medicine and told us not to worry and continue the medicine you [sic] will be fine."

PROVIDER ENGAGEMENT

We find that individuals that used the helpline also claimed that their interaction with the doctor over the helpline was good. Respondents shared that the

interaction was comfortable, and the telecaller doctor was perceived to be respectful and polite. The doctors were appreciated for taking detailed enquiry about their health conditions, resolve their queries, clear doubts related to the health problems and treatment, and spending sufficient time on call.

"The experience was good as the doctor attended in a good manner and also he explained everything well..."

IMPROVEMENT IN SERVICE DELIVERY

Based on their experience respondents discussed suggestions to make the helpline more useful and effective. One of the most pressing suggestions was to expand the scope of such helplines to cover consultations for more health issues. While helplines were perceived to be suitable for consultation on mild diseases such as cough, cold and fever; some of the health issues that respondents wanted to be added were consultations for skin diseases, mental health, waterborne and vector-borne disease such as malaria and jaundice. Further some of the respondents also desired that helplines should provide more awareness and information regarding health problems (not just limited to COVID and Post COVID), diseases, and information about where services would be readily available.

Lastly, many respondents shared that helplines should be able to provide quick turnaround for immediate tangible benefits such as initiating home visits, relaying information for emergency services, assisting other members of the family during the consultation, and quicker resolution.

"...services for mental health problems will be very beneficial..."

"There are a lot of people who are uneducated if you reach out to them. For instance, if you appoint a representative in interior areas as part of teleconferencing, if anyone has any problem, they can get contact them and get consulted..."

PERCEIVED ADVANTAGE

This theme explores clients' perceptions on the advantage of telemedicine, especially in comparison to in-person consultation. The theme describes perceived advantages of telemedicine, concerns with the current health system and receiving in person care during the pandemic, and reasons some individuals did not take up services from the helpline.

TELEMEDICINE ADVANTAGE

The helpline was perceived to be useful by the majority of the users due to the treatment, advice, and information provided by the doctors. Particularly, the respondents found that the ease of access, and availability of services during the pandemic made it convenient to receive health services regarding their problems. Respondents mentioned that due to the helpline, they could receive the

consultation from their home which prevented travel and exposure to the risk of getting infected. Furthermore, respondents also shared that consultations from Swasthya Sampark were affordable, as patients saved on the consultation fees and costs of transportation to visit a doctor. Also, they could avoid the long queues at the hospital and save on waiting time.

"It[helpline] was very much helpful for me and I felt very good after the consultation and medicines that he [the doctor] recommended..."

"For face-to-face consultation, there is unnecessary travel and waiting which are a waste of time. In that case, teleconsultation is far better."

"The advantage is that our transportation cost will be saved, our fees can be saved. Our time will also be saved. We can get the results quickly on our phone..."

HEALTH SYSTEM CONCERNS

Respondents shared multiple concerns with the health system that deterred them from receiving health services in person. Broadly, the concerns with the current health system can be categorized as barriers to physical access, high cost, and poor quality of services.

Physical access to facilities was constrained due to facilities being far away from the respondents' place of residence. The unavailability of transport made it difficult to commute. As many of the respondents were living in rural areas, facilities with specialist services were not available locally. Therefore, to seek proper guidance, in-person consultations would require clients to visit facilities in urban areas. For post-COVID-19 issues, diagnostic tests such as blood-work, ultrasound, or x-ray would be needed, along with medicines prescribed by specialists. As the availability of these services was concentrated in urban areas, most respondents found that the current health system was not well-equipped to provide these services readily in their vicinity.

Secondly, health services were perceived to be expensive. Direct costs of treatment such as consultations fees, treatment expense and cost of medicines were perceived to be high. While public health facilities were free, but the quality of services were poor or absent. Hence, many clients had to visit private facilities where the cost of admission and treatment was regarded unaffordable. Seeking care also had indirect costs associated such as transportation, forgoing wages for a day, cost of stay and food.

Lastly, with regard to the quality of services, the availability of specialist doctors and services was the foremost limiting factor. Most health facilities near the respondents did not have qualified specialist doctors to attend to complications. The quality of services provided at local health facilities were considered to be sub-par, due to lacking infrastructure, over-crowding and long waiting time. Respondents also shared experience of poor provider engagement such as doctors not spending enough time with them during consultations, rude or disrespectful behavior and not providing clear information regarding their health problems or treatment plan.

"Local doctors that are appointed in the government hospitals are not knowledgeable and specialists very rare in the government hospital...If there is a case of critical then we have to go to Ranchi."

"In the government hospital, one has to wait for the doctor. When they go for lunch then we use to stand for numbers."

"I having fear of going outside to show doctor because I don't how much money they will charge"

PERCEIVED CONCERNS

The respondents also discussed some concerns regarding the usage of helplines. One of the primary concerns was the availability of doctors, in the event there are many users for the helpline. Some of the respondents believed it would be challenging for helpline workers to attend to a large number of calls - there by affecting the number of cases that would receive a complete resolution. They were also concerned if in such cases doctors would be able to provide enough time. Clients also shared that frequent call drops due to poor connectivity interrupted the consultation in a few cases. There is also a possibility of miscommunication due to language barriers as patients and doctors could not understand each other clearly. A few patients discussed that helplines do not provide an avenue for conducting physical check ups which may affect the accuracy of the diagnosis. Some clients also highlighted the importance of conducting regular follow-ups to improve treatment compliance and guidance for further treatment or care.

"till the patient is unwell he keeps on following the doctor but as he finds himself to be okay he does nto feel the need to follow the doctor."

"Since there are massive calls on the helpline numbers due to which doctors are unable to take the call or give the suggestions or prescription in a short time which is one of the drawbacks."

PERCEPTIONS OF NON ENROLLED INDIVIDUALS

Individuals who did not use the helpline were able to access health services easily. They lived in areas where good quality health services was readily available and affordable. We also find that these individuals presented a lower acceptability towards telemedicine and were somewhat lacking trust in a telephonic consultation.

"Some advice can be sought however treatment is not possible because diagnosis/ physical health check up is possible only in person."

"Personally, I feel that talking over the phone might not be comfortable but when you meet the doctor people it helps you in trusting the doctor and a physical examination is important too."

IN-DEPTH INTERVIEWS WITH PROVIDERS

From the in-depth interviews with the providers, three main themes emerged – provider experience, service delivery through telemedicine, and improving the use case for telemedicine.

PROVIDER EXPERIENCE

Provider experience describes the type of cases consulted and the diagnosis and management of post-COVID-19 problems over the helpline. It also looks at the overall engagement of doctors on the project, and elaborates on the capacity-building initiatives and their perceptions around it.

DIAGNOSIS AND MANAGEMENT

According to the providers' experience telemedicine was found to be suitable for managing moderate health issues, where clients reported mild post-COVID symptoms. The application was considered to be well-equipped and user-friendly. This helped providers save time in conducting consultations – and give more attention to the patients. Thereby improving the quality of consultation, they could offer. Some cases of acute health issues, such as body pain, breathlessness, headache, and prolonged fever were also easily managed. Providers were able to easily advice on problems associated with diabetes and hypertension as well. However, telemedicine was not useful in providing an effective treatment plan for many cases where the clients reported having developed some complications. This was also true for emergency cases, that required immediate hospitalization and individuals with multiple comorbidities. In such cases, telemedicine was seen as a means of providing referral advice. Certain cases required additional bloodwork or diagnostic tests – and the lack of such information (either due to loss to follow-up or patients lacking information) could not be resolved. We learned from some providers, that ability to manage patients with comorbidities varied from case to case, and without an in-person checkup, it would be difficult to diagnose and provide treatment. Furthermore, many patients who were suffering from mental health problems could not receive adequate support, since none of the providers had expertise. It is recommended in the future that such helplines should necessarily employ a psychologist or counselor.

"...if there is an emergency the patient needs to be spontaneously checked and they should be taken to emergency or in-person consultation and they should not wait for the teleconsultation."

"If someone is having a suspicion of a big disease and we have to conduct many tests and need diagnostics and we are not confirmed that there may be some other problem also it can be prolonged asthma or undiagnosed asthma so in that case in person consultation is must."

PROVIDER CAPACITY BUILDING

Providers shared that during their experience of consulting over the helpline, their knowledge and skills improved. The training was also considered to have improved their technical capacity in terms of using clinical protocols on the application, along with taking a detailed medical history. Despite the initial challenges of working through the application, consistent training was regarded as helpful in familiarizing providers with the application. For some of the providers the training was also viewed as a vital input for improving the self-efficacy of the providers, as they saw their own confidence increase over time. Providers also discussed that conducting teleconsultation contributed to their own knowledge building, and exposure to so many cases helped improve their understanding of **post-COVID-19** problems. Lastly, providers appreciated the soft skills training that helped improve their interaction with clients.

"First, they trained us on how to speak and then they showed us their application and gave us instructions on how to use it. We received training for all that in the beginning".

"In one month I had a great experience of understanding how to communicate with patients and gained knowledge regarding all the different kinds of problems that patients have to deal with. It was an enriching and knowledgeable experience for me."

IMPROVING SERVICE DELIVERY THROUGH TELECONSULTATIONS

This theme highlights the challenges and barriers faced by providers while using the helpline. It also suggests improvements in technology to make the user experience for providers better.

CHALLENGES

Providers identified four key areas of challenges and barriers experienced while providing consultations through the helpline. These have been discussed in detail below:

- Diagnostic sensitivity and accuracy

According to the providers, the helpline is best suited to assess moderate health problems such as cough, fever, body pain, breathlessness etc. However, for certain chronic conditions and complications, they found it difficult to confidently suggest the diagnosis and treatment plan. Since over telephonic calls, providers cannot carry out tests, nor inspect the clients physically, further investigation is stalled. Many patients also cannot clearly communicate the intensity and nature of their health issues. In the absence of non-verbal clues, lack of clarity, and no reports – the diagnosis provided by the doctors may not be accurate.

“We were lacking because we could not conduct investigations and there were no reports.”

“In terms of quality of care, I can say that the only thing lacking is the physical examination, we cannot do a physical examination of the patient, and we might miss something”

- Patient hesitancy

According to the providers we interviewed, many clients were hesitant in using telemedicine services. This hesitancy stemmed out of low awareness about telemedicine helplines, low trust and acceptability, and/or general disinterest in availing services. As many individuals were unfamiliar with telemedicine services, the providers felt clients could not gauge the use of such a platform and felt it would be a waste of their time. Many clients were confused why they were being contacted in the first place, and whether it would lead to any benefits. Some clients were not sure whether the helpline would have qualified doctors since it was a free service, some did not want to share their information over a call, or felt that a helpline could not solve their problems. Overall, low acceptability of the helpline among these clients was also due to reliance on in-person consultations. The providers shared that often people would be irritated since they were already getting calls from multiple platforms during COVID-19 pandemic. Lastly, many clients were already consulting with a doctor and did not feel the need to use the helpline.

“Since telemedicine is a new concept, people think it is better to just visit a doctor in person. They think it is better than a phone call and telemedicine.”

“I don't think until or unless this kind of common in use. The mentality of the people won't be attracted until the platform is more common.”

- Patient-provider communication gap

In many instances, the communication gap between providers and patients made it difficult to diagnose the health issue or prescribe treatment. Firstly, due to network problems calls were disrupted, due to which the details of the patient could not be recorded. Secondly, it was difficult to send prescriptions to the clients. Many people did not have access to a smart phone, so prescriptions had to be sent via SMS. Many clients could not articulate their problems properly, nor answer follow-up questions. Additionally, clients did not have reports from their COVID-19 treatment, test reports, or adequate information about their medical history. Many clients did not remember the details of in-person consultations either. In many instances, patients did not comply with further diagnostic tests to be conducted, or communicate effectively the results of said diagnostic tests. Another challenge was that patients were not regular with follow-up with helplines, and there were many instances of patients dropping out. In such a scenario, the information available to the doctors was incomplete which further affected their ability to provide diagnoses and the providers had to refer many individuals for an in-person consultation.

“There is a huge communication gap. The connection you have with the patient gets broken. The villagers would think it's pointless to get in touch again.”

“Actually, the biggest challenge that we were facing was sending the prescription to the patient.”

- Operational challenges

Providers faced a few operational challenges during the time the helpline was active. Many people had marked the helpline number as a spam call on truecaller, due to which calls were not getting accepted. Clients did not respond to follow-up calls, and their recovery status could not be monitored. In the initial stages, there would be duplication of cases, as two different doctors would register the same patient, while this problem was solved – but the same client would receive follow-up consultation from a different doctor. In some cases, clients complained about not having received their prescriptions. For the individuals that were provided with prescriptions on WhatsApp there was no way to confirm it receipt.

“For example, if I have contacted someone today, another person should not be contacting him again...Technical issues that existed were also fixed immediately so there were no problems on that front either.”

TECHNOLOGY IMPROVEMENTS

Improvements in current technology was considered as the most important factor for improving the service delivery of telemedicine. Firstly, the available digital infrastructure in communities needs to be improved – particularly network issues. Some of the providers also shared that consultations were interrupted or incomplete due to network issues. Providers also identified glitches in the application from time to time, however these were overcome by the technology support provided. Providers suggested that these problems should be minimized at the time of testing, as during the consultation such problems may lead to loss of data. A strong technical support team was identified as a crucial factor in maintaining consistent and good quality of service delivery. Lastly, many providers suggested incorporating a video calling feature wherever possible to improve the sensitivity and accuracy of diagnosis – so that non-verbal cues can be observed.

“I can give you a recommendation for video calls. I would like to have a face-to-face conversation with my patient over a video call. ... During a face-to-face conversation, we can ascertain through their face if they are having any trouble or not”

IMPROVING THE USE CASE FOR TELEMEDICINE

This theme describes the advantages of telemedicine that can be used to increase uptake of similar services. It also discusses how acceptability of telemedicine can be improved.

ADVANTAGES OF TELEMEDICINE

Interviews with providers revealed that the use case for telemedicine as a medium was strengthened due to its perceived usefulness for providers in tackling the majority of the post-COVID issues due to the clinical protocols, ability to provide considerably accurate diagnosis remotely, viewing clients' medical history, and its usefulness to patients. Providers also believed it was a great medium to increase the reach of their services, enabling improved access for patients- especially in rural and remote locations. As per the providers, these advantages made the platform suitable to provide medical advice and treatment in a more efficient manner for the various health issues they observed.

"Telemedicine was a great experience because it mostly consisted of patients belonging to areas where proper government healthcare was not available"

"...through the telemedicine channel without much effort we (providers) and they (patients) can save our own time and evaluate post covid symptoms..."

IMPROVING ACCEPTABILITY

Providers pointed out that an important factor in improving the use case for telemedicine is to improve acceptability among patients and providers both. The acceptability of telemedicine could be improved by increasing the engagement of providers on such platforms, where the use of telemedicine as a means of service delivery is normalized. Through increased engagement, providers will be able to successfully provide resolutions to clients in real-time, which will help further motivated and encouraged providers. Providers shared that this experience of connecting directly with patients increased their satisfaction through positive interactions with clients – which in turn motivated them to keep using the platform. Since providers on the helpline were able to provide services to clients living in remote regions, they felt that this experience helped them realize and act on the responsibility of providing care to as many people as possible. Increasing provider engagement is also viewed as a means to increase patient familiarity with such platforms and increase their trust in telemedicine services.

"If people openly get to know about these efforts through the government, and the government confirms that these people are from the government itself and are working for the government, slowly it can be normalized."

"It was actually very great. There was a feeling of self-satisfaction in the first place. I had a great sense of self-satisfaction. We were personally interested to see patients."

RECOMMENDATIONS

RECOMMENDATIONS FOR THE TELEMEDICINE ECOSYSTEM

1. Capacity building of health providers to improve self-efficacy in using telemedicine platforms, with a focus on soft-skill training and detailed history taking to improve the quality of consultation.
2. Increasing the number of available telemedicine protocols to cover a wide range of health issues, with increased provider engagement encompassing multiple specialities.
3. Strengthening patient tracking and referral linkages between telemedicine application and health facilities for patients. This would include referring for in-person consultations, increasing the intensity of follow-up with patients over call, and maintaining a roster of diagnostic and health facilities for referral. Other health services (government or private) can be linked to the helpline to streamline availability and access to health service for clients.
4. Increase advocacy for use of telemedicine, along with IEC activities that nudge providers and clients to increase uptake of telemedicine service. This would also include investing in increasing awareness about the helpline through mediums such as radio, television, social media, and newspapers. Additionally, advocacy should be done with government stakeholders to improve the political will in remote and rural regions to increase uptake.

RECOMMENDATIONS FOR MANAGEMENT OF HELPLINES

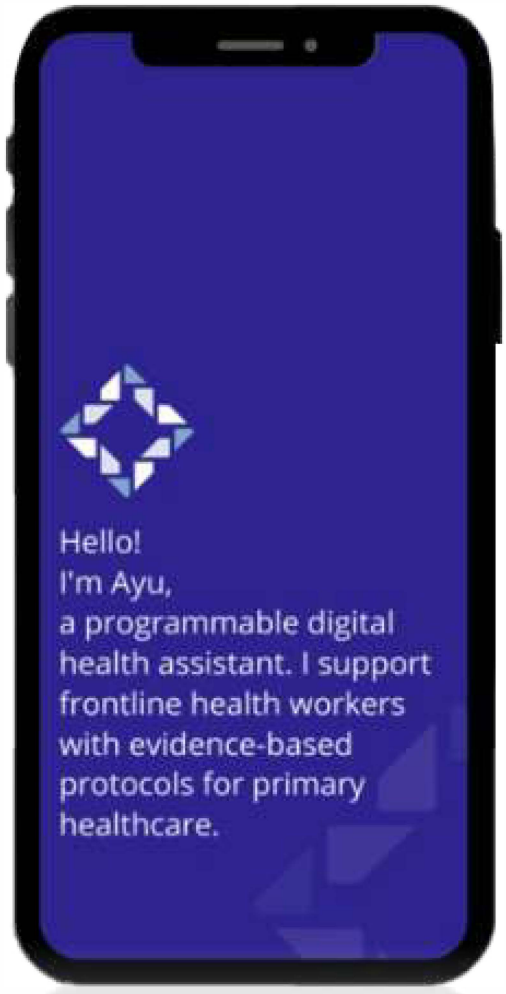
1. Incorporating standard operating protocols for troubleshooting so that providers can resolve minor technical issues. These SOPs can include program support from implementers, improved call tracking, steps for troubleshooting the application, recording missed numbers, setting up call-failure alerts etc.
2. Quality assurance mechanisms should be instituted, such as clinical audits, and alerts to monitor call drops and server downtime, review of recordings to assess provider-patient interaction, and provider feedback. Helplines should also seek to institute some form of patient feedback during operations to improve the workflow.
3. Use of dashboards, reminders and regular feedback from audits can help providers improve efficiency and constantly improve the workflow of the helpline in real time. An emphasis on analytics will enable programs to track performance of providers and identify gaps in implementation in real time.
4. Enabling sharing of prescriptions through multiple channels, such as SMS and WhatsApp (with encryption or provision to connect with prelinked diagnostic / pharmacies directly) to ensure that recommendations from health providers are accessible regardless of the type of device the client possesses.

RECOMMENDATION FOR POST COVID-19 MANAGEMENT

1. Health providers should highlight warning signs such as chest pain, dizziness, high grade fever, oxygen saturation< 93%, syncope or palpitations for patients, and encourage self monitoring and follow-up as a part of standard operating protocol. They should also aim to address any misinformation that may be prevalent during this time.
2. Advice related to lifestyle management should limit exercise to slow walking and stress on increasing rest period for patients with mild Post COVID-19 symptoms. For patients with persistent symptoms (such as fatigue, cough, breathlessness, fever), limiting activity to 60% maximum heart rate (220 minus the clients' age in years) until 2-3 weeks after symptoms resolve.
3. Health providers engaged in telemedicine services should provide information related to self-assessment, preventive care, need for continuous follow-up, and steps to be followed for rehabilitative care.
4. Health providers should be encouraged to ask and report on psychological health such as psychiatric and cognitive symptoms.

RECOMMENDATIONS FOR THE APPLICATION

1. Collating consultation history of the same client under one case, rather than viewing each consultation as a separate case to improve patient tracking. This may further help set up reminders for health providers, and ensure that clients are followed up till they report to have recovered or are no longer in need of the service.
2. Planning for a simplified user-interface with exhaustive options to avoid gaps in data. A simplified user-interface will also enable providers to pay more attention to the patient, while simultaneously entering required information.
3. Allowing to set up an appointment interface to avoid patients from waiting on the call and allow doctors to track pending consultations.
4. Provide notifications to the patient and doctor about the scheduled consultation data and time.



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