Dissertation Presentation

Scope of Home Healthcare in Indian Healthcare System Post Pandemic

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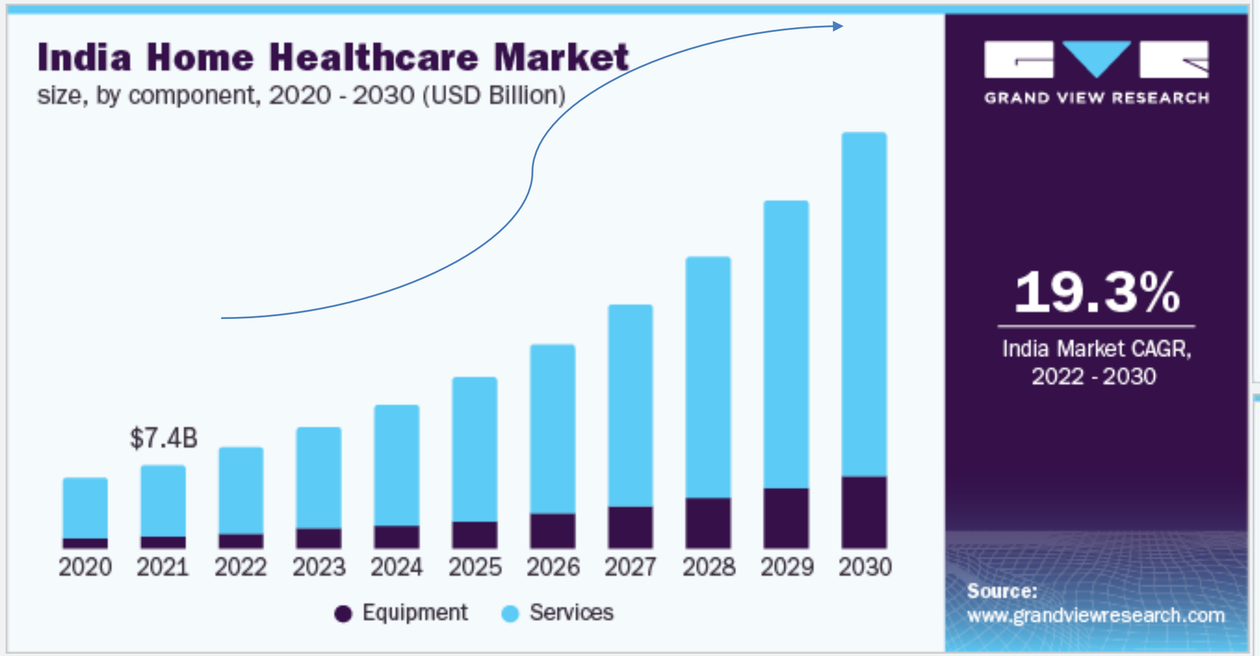
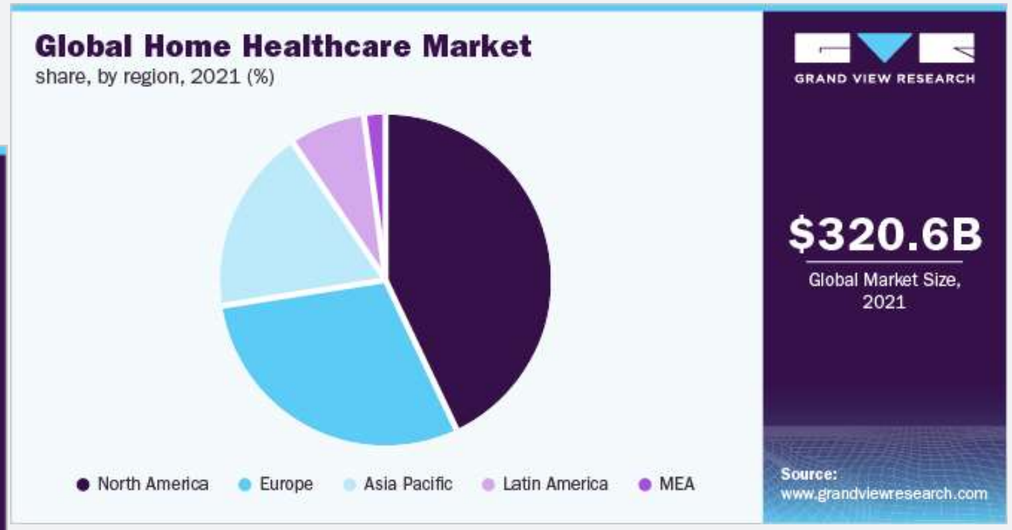
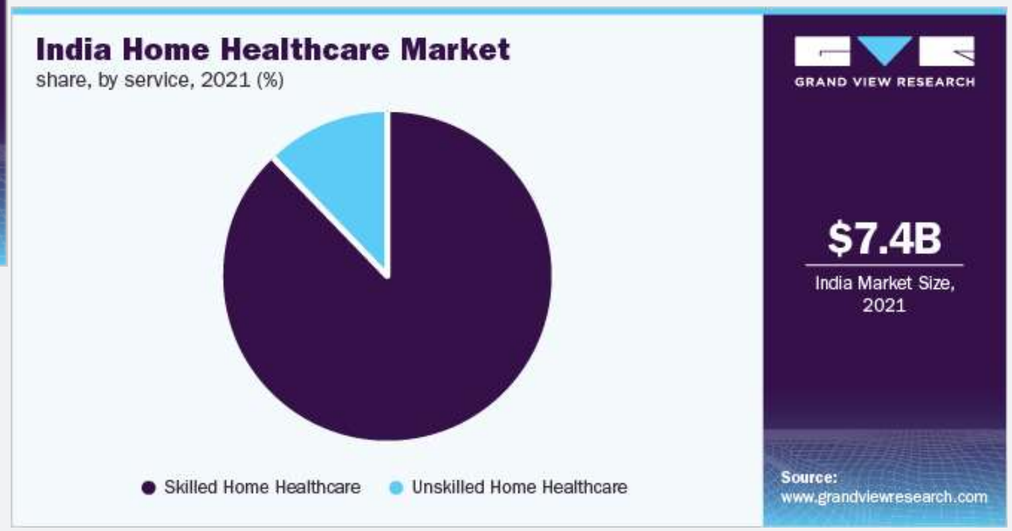
Points for discussion

Current HHC Market Scenario

HYPER GROWTH



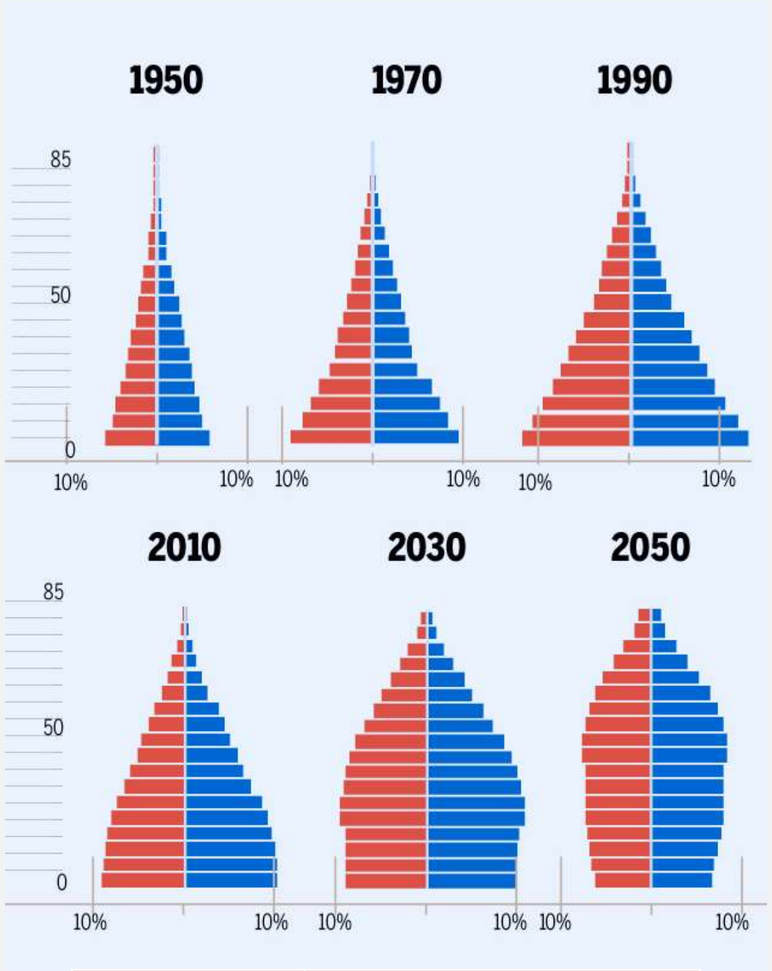




It has an expected growth of 66 % over the next 10 years with over 7 million patients served each year

Source: Grand View Report

Situational Analysis – Aging Population



Time Period	India Pop Growth
2011-2021	12.4%
2021-2031	8.4%

	1981	1991	2001	2011
Population size (millions)	683	846	1028	1210
Decadal growth of population	24.7	23.7	21.54	17.7
Elderly population (age 60 and above) (millions)	44	57	77	103
Infant mortality rate per 1000	110	80	66	47*
Crude birth rate per 1000	33.9	29.5	25.4	22.1*
Crude death rate per 1000	12.5	9.8	8.4	7.2*

*refers to the year 2010

Source: Office of Registrar General of India, Census of India 2011, Office of the Registrar General of India, Sample Registration System (2009, 2011, 2012-16, 2017), Office of Registrar General of India, New Delhi

	1950	1975	2000	2025	2050
Child population in age 0-14 (%)	37.5	40.1	34.7	24.2	18.5
Working-age population in age 15-59 (%)	57.1	54.3	58.4	64.4	62.0
Elderly population in age 60 and above (%)	5.4	5.7	6.9	11.4	19.5
Older adult population in age 45 and above (%)	16.2	16.3	18.4	28.6	40.0
Oldest old population in age 75 and above (%)	0.9	0.9	1.3	2.3	5.2
Median age (in years)	21.3	19.7	22.7	30.0	38.1
Ageing index[1]	8.4	8.7	12.6	31.2	74.5
Child dependency ratio[2]	65.6	73.9	59.4	37.5	29.8
Old-age dependency ratio[3]	9.4	10.4	11.7	17.6	31.5
Total dependency ratio[4] (CDR + ODR)	75.1	84.3	71.2	55.2	61.2
Sex ratio of elderly population[5] (age 60 years)	98.1	104.1	94.2	96.7	95.1
Life expectancy at birth (in years)	35.8	51.0	62.5	71.0	75.0
Total fertility rate (TFR)	5.9	5.2	3.3	2.1	1.8

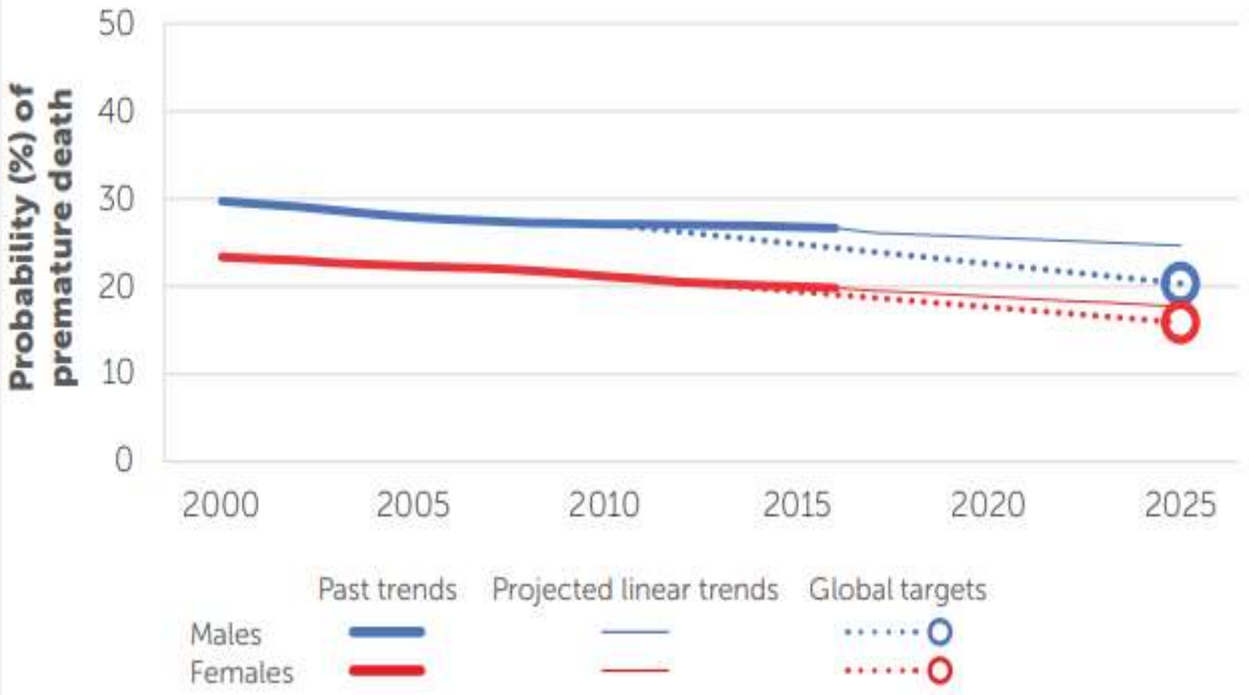
Note:
1. Ageing index refers to the number of persons aged 65 years and above for every 100 children.
2. The child dependency ratio refers to the number of children aged 0-14 years per 100 persons in the age range of 15-59 years
3. The old-age dependency ratio is defined as the number of persons aged 60 and above per 100 persons in the age range of 15-59 years
4. The total dependency ratio refers to persons age 0-14 and 60 and above per 100 persons in the age range of 15-59 years
5. Sex ratio refers to the number of females per 100 males.

Source: United Nation (2019), World Population Prospects, The 2019 Revision, United Nations, New York

Source: WHO – NCD data , Population Median Age Pyramid – UN Population 2018, LASI report 2020 - Harvard

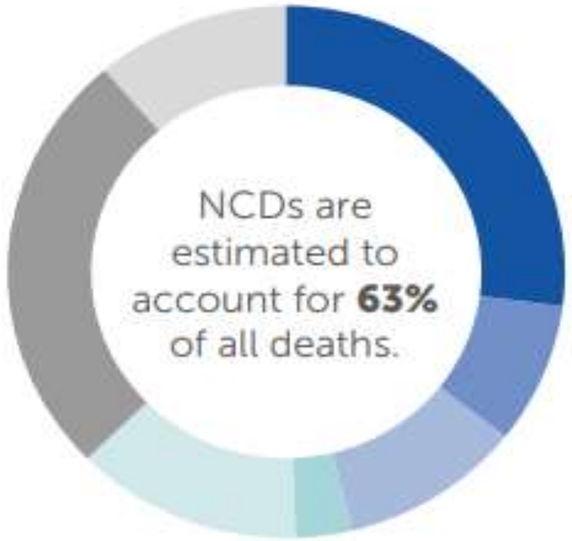
Situational Analysis – Growing NCDs

RISK OF PREMATURE DEATH DUE TO NCDS (%)*



PROPORTIONAL MORTALITY*

- 27% Cardiovascular diseases
- 13% Other NCDs
- 9% Cancers
- 26% Communicable, maternal, perinatal and nutritional conditions
- 11% Chronic respiratory diseases
- 11% Injuries
- 3% Diabetes



Source: WHO – NCD data , Population Median Age Pyramid – UN Population 2018

Situational Analysis – Burdened Health System

As per the latest reports from Niti Ayog, NRHM and NHM: Our healthcare delivery system and infrastructure needs strengthening

We have a shortfall of:
1. **Doctors 1.20/1000**
2. **HCW 1.96/1000**
3. **1.58 Lac SC, 31K PHC, 5.6K CHC, 1.2 SDH, 810 DH**

WHO standards suggest minimum should be 3 per thousand and recommended is 8 per thousand to meet global standard.

We would need 2 million for minimum and 4 million HCW by 2024-25 to start nearing the recommended criterion.

Needing 46140 SCs (24%), 9231 PHCs (29%) and 3002 CHCs (38%) across the country

	Health care spending (%) on monthly household income		
	Any morbidity	Short term	Long term
All India	6.02	4.43	1.59
Place of residence			
Metro	1.13	0.67	0.46
Other urban	3.57	2.42	1.15
More developed village	7.73	5.72	2.01
Less developed village	6.87	5.18	1.69
Income			
Lowest quintile	14.53	11.15	3.38
Second quintile	4.53	3.27	1.26
Thirrd quintile	2.44	1.74	0.7
Fourth quintile	1.44	1.02	0.42
Top quintile	0.65	0.37	0.28
Social groups			
High caste Hindu	5.13	3.65	1.48
OBC	7.59	5.66	1.93
Dalit	5.32	4.06	1.26
Adivasi	3.88	2.78	1.1
Muslim	4.84	3.88	0.96
Other religion	9.19	4.36	4.83

Barik and Desai (8), p. 57.

Preliminary Literature Review (10)

Author , Title , Year	Location	Source	Methodology	Discussion Points
HealthCare System in India: An Overview (march 2020) by Seilan Anbu	Scott Christian College Nagercoil India	International issues on Health Economics and Management - Research Gate (/publication/340085233)	Systematic Literature Review Limitations: Selection Bias	There is imbalance in India healthcare system. While we have facilities that are elite and medical tourism is on rise there are large section of Indian citizen deprived of proper healthcare as per the definition given in Article 21 of constitution. There is a huge scope in public health where NRHM has lot to achieve.
We Tie Up the Loose Ends": Homecare Nursing in a Changing Health Care Landscape (nov 2018) by Line Melby , Aud Obstfelder, and Ragnhild Hellesø	ONLINE	Global Qualitative Nursing Research Volume 5: 1–11 (sage publications)	This article is based on data collected for two of our previous research studies (first one via home visit observing studied the interaction between homecare nurses, GPs, and hospital staff, as well as how homecare nurses used an electronic messaging system) Limitation: Information Bias	The article highlights three key areas of homecare that are most in demand and performed which can be improved to ensure more organized and better care is given. It also remains its biggest strength that the care at home can be made flexible and adaptive to the need of patient. It also highlights the role of education and training to help prepare nurses for such situations and newer technologies.
Home Health Care in India: In Search of the Right Business Model by Wharton Staff (2021)	Online	Wharton School of Hospital Management	Research Article (Observational learning) Limitation: Information Selection Bias	According to this insightful article global home health care market, which includes devices, products and services, was worth almost $215 billion in 2013 and is projected to grow at 8% per annum until 2020. Considering that pandemic disrupted everything in the middle since 2020 onwards the growth of this homecare services seeing the gaps in the hospital system has just gone beyond double to 18% in India. Other major reason is that India has the second largest geriatric population in the world.
Clinical Outcomes and Quality of Life of Home Health Care Patients (2013) by Suk Jung Han, Hyun Kyung Kim, Judith Storfjell, Mi Ja Kim	United States	Asian Nursing Research Journal 7th Edition	Prospective Descriptive Study , Sample size of 100	ADLs and instrumental ADLs of participants significantly improved between start of care an discharge or 60 days. Overall QOL, general health, and three of four QOL domains (physical, psychological, and environmental, but not social domain) were significantly improved at discharge or 60 days. Therefore, Home health care nurses should maintain and improve the functional ability of patients, as this could improve the QOL of these patients.

Preliminary Literature Review (contd.)

Author , Title , Year	Location	Source	Methodology	Discussion Points
Delivering digital enabled home health care (2020) EnY	India	EnY research website	Market research report complied data	The report has looked at the effects of COVID-19 on healthcare systems. Economic, social, technological, and environmental effects and how these current crises will change as a result the way we access healthcare in India. It suggest drivers that can help us deliver digitally enabled healthcare and match the growth and demand with quality
Crisis as a catalyst : accelerating transformation" (2021) by deloitte	India	Deloitte Indian	Market Research reporting compiled data	More than two thirds of respondents expressed strong confidence in their company's success over the course of the next year, according to the survey, which reveals that most respondents think their businesses would recover from the crisis. They also think that most important company KPIs will rise. With 52% of highly resilient firms expressing extreme confidence in their prognosis for the next three years, compared to just 20% of those in the bottom tier, highly resilient organizations are even more upbeat about their prospects for long-term success.
The Elder Special report "Universal Health Coverage (UHC) in India" (2018)	India	The Elderly	Market Research	India desperately requires UHC since 63 million Indians live in poverty and 600 million people are unable to obtain the healthcare they require. India thus has the second-lowest life expectancy in South Asia, which is over eight years less than China. In accordance with the Millennium Development Goals, India also fell short of both its child and maternal mortality goals (MDGs).

Government and Official websites that were reviewed and included in Scoping LR: Niti Ayog , NRHM , RMNCH+A reports, WHO, UNICEF

Research Question

Points for discussion

Research Objective

Focus Areas

Observational Hypothesis

Research Question

Scope of Home Healthcare services in Indian Healthcare system Post Pandemic

Research Objectives

a) **To study the perception of the home healthcare seekers towards the HHC services provided**

b) **To understand the perception of the home healthcare service provider towards HHC industry**

c) **To examine the holisitic factors contributing to the scope of HHC services**

Focus Areas


Preception
Training & Leadership
Levels of Healthcare delivery
Sectorial Growth
Staffing and Scheduling
Technolog & Digitalization
Insurance & UHC
Public Policy & Financing
Quality and Certifications

Research (Observational) Hypothesis

Perception of HHC services has taken a positive upswing in demand

Additional Hypothesis

a) There are challenges that staff and providers are facing to meet the deman

b) People are ready to accept remote technology due to experience with telemedicine

Methodology

With HHC Seeker

With HHC Provider and Staff

Literature Review

Points for discussion

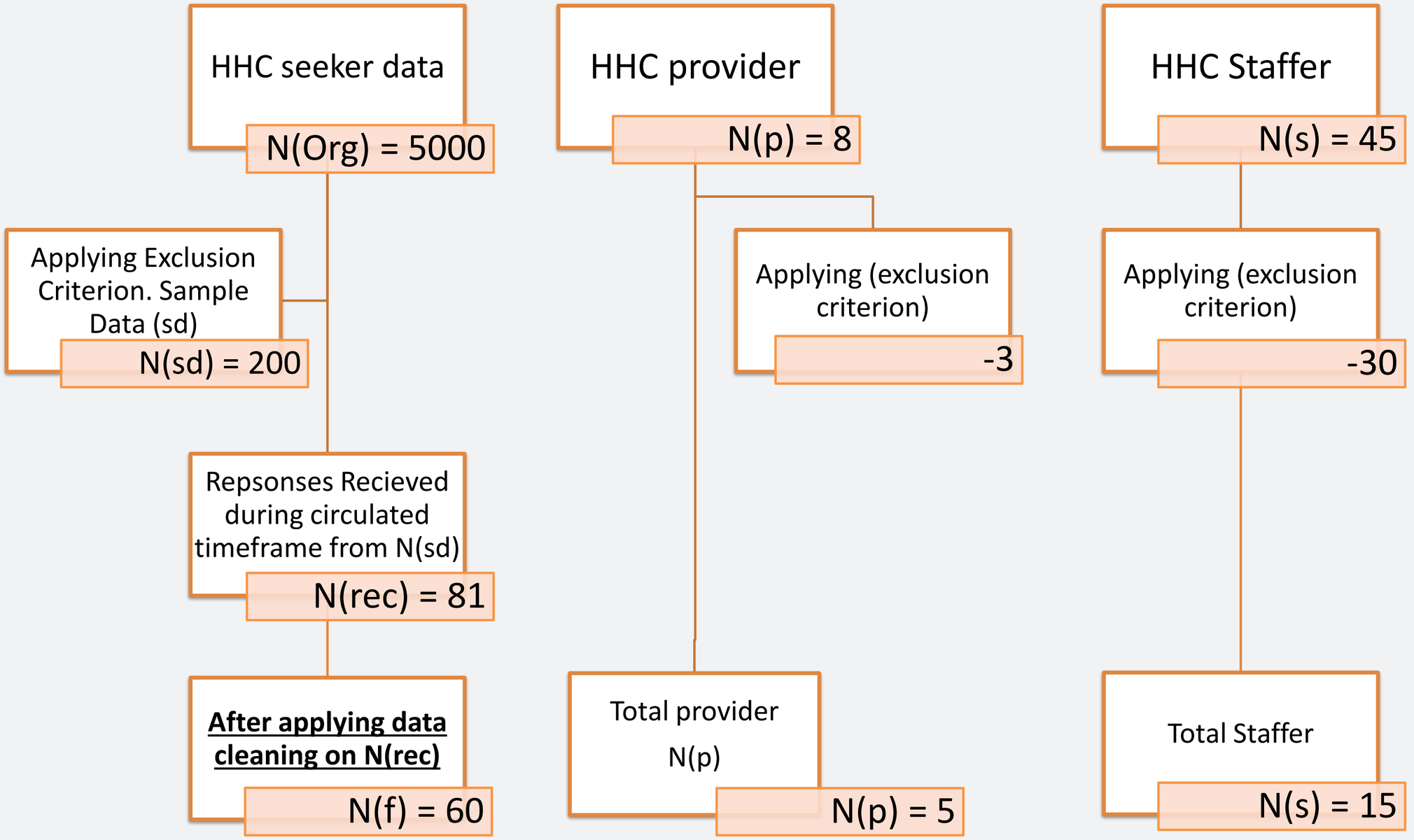
HHC Seeker

- **Perception Study (primary data) – Using Digital Survey on google**
- **ONLY to clients and leads (not publicly circulated)**
- **Convenience Sampling Method**
  - 60
  - Confidence interval of 75% (based on Hypothesis)
  - Margin of Error – 5%
  - Population size – 80%
  - Population size – 200
- **List was created**
  - Decision makers and working professionals from the age of 18-70.
  - From city of Jaipur
  - Taken Services since 2019
- **Data filled by non decision makers (minors) as well as outside Jaipur was excluded during data cleaning and list preparation**

- **Limitation: Sample size could have been more as health belief system and lifestyle may have driven answers and we only covered Jaipur**

HHC Provider and Staff

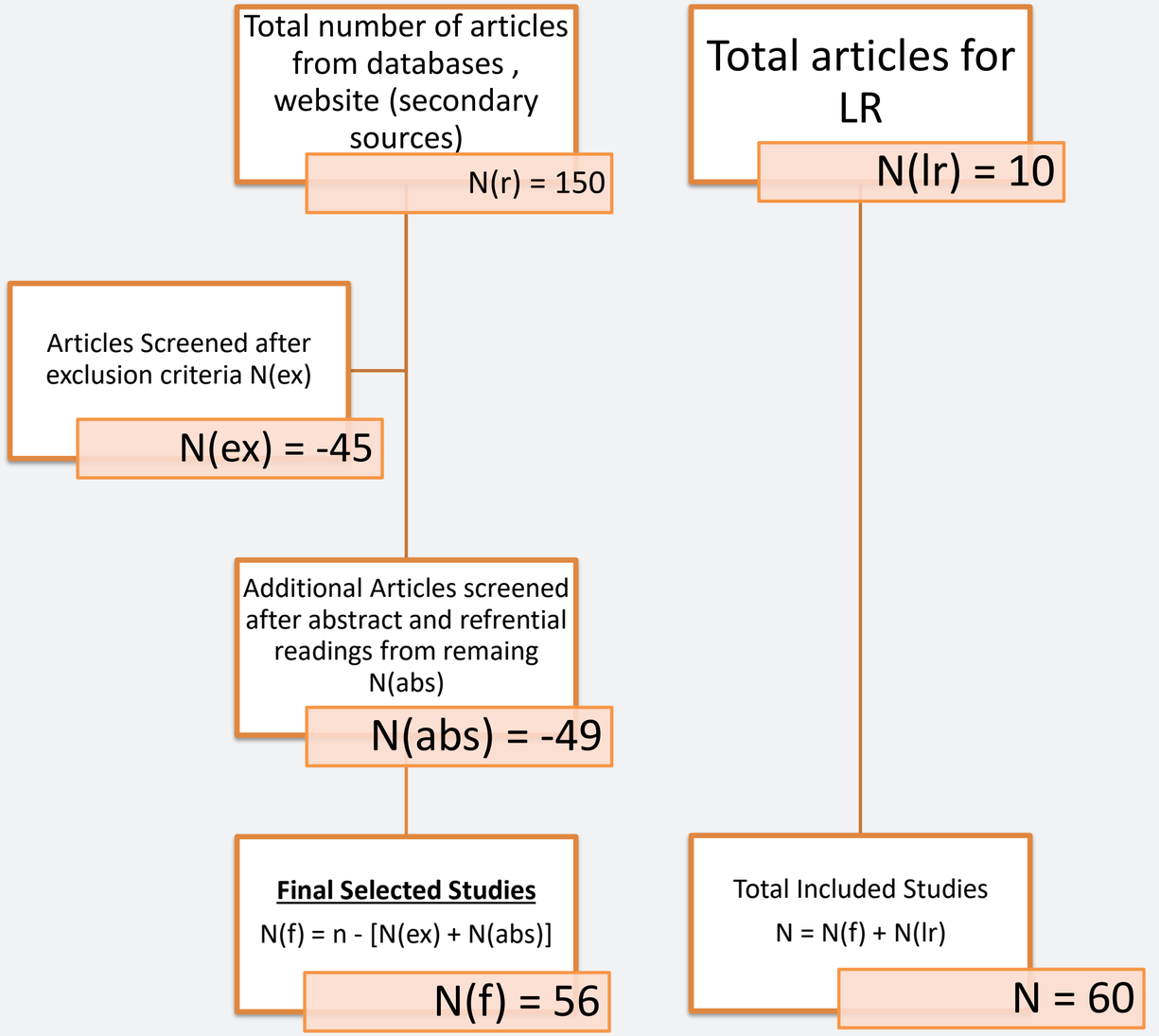
- **Telephonic Interview (primary data) – Using two staff members who were given script**
- **ONLY to known professional members of Sewaarth (not publicly circulated)**
- **Convenience Sampling Method**
  - 5 HHC Provider
  - 15 HHC nursing staff
  - Population size – 8 provider and 45 nursing staff
- **HHC Service providers and Professionals from Jaipur associated with Sewaarth since 2019**


HHC seeker data
N(Org) = 5000
Applying Exclusion Criterion. Sample Data (sd)
N(sd) = 200
Repsonses Recieved during circulated timeframe from N(sd)
N(rec) = 81
After applying data cleaning on N(rec)
N(f) = 60
HHC provider
N(p) = 8
Applying (exclusion criterion)
-3
Total provider
N(p)
N(p) = 5
HHC Staffer
N(s) = 45
Applying (exclusion criterion)
-30
Total Staffer
N(s) = 15

Literature Review

A Scoping Literature Review (3-8 weeks) – Focusing on Identifying challenges and gaps

- Articles before 2010, Books before 2000
- Outcome was not reported (and or was an open paper, white paper for peer review)
- Articles from third world country (under developed nations)
- Exception Criterion: Topics with limited literature published available in region of India such as medicolegal we have considered articles dating back to 2000



Data Analysis

With HHC Seeker

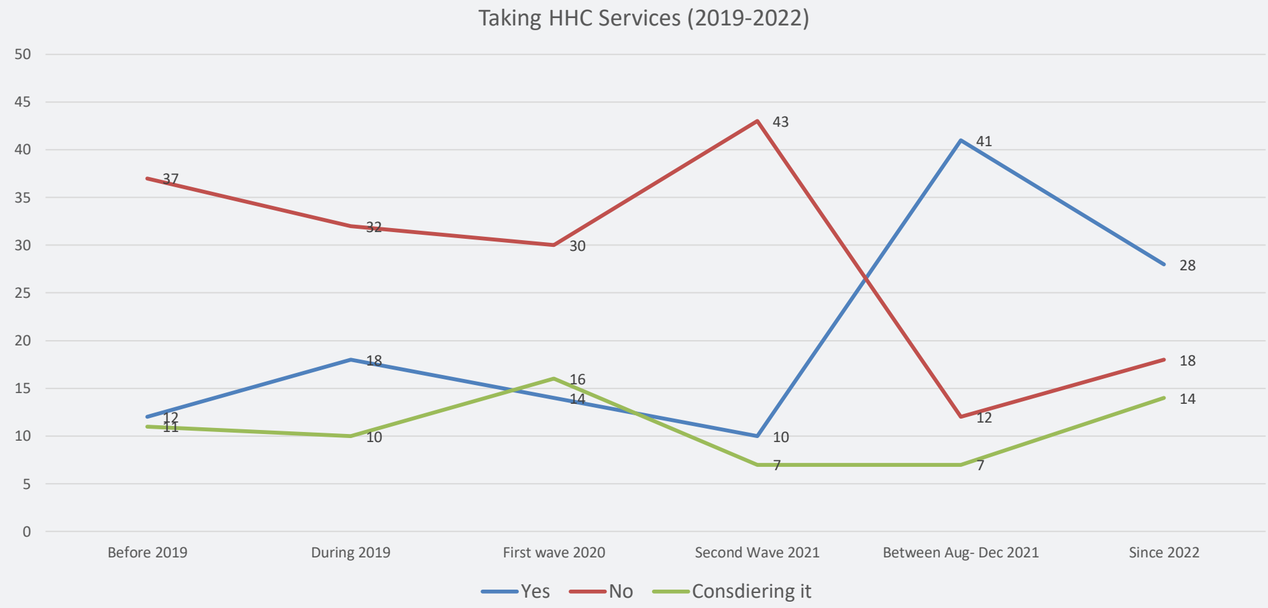
With HHC Provider and Staff

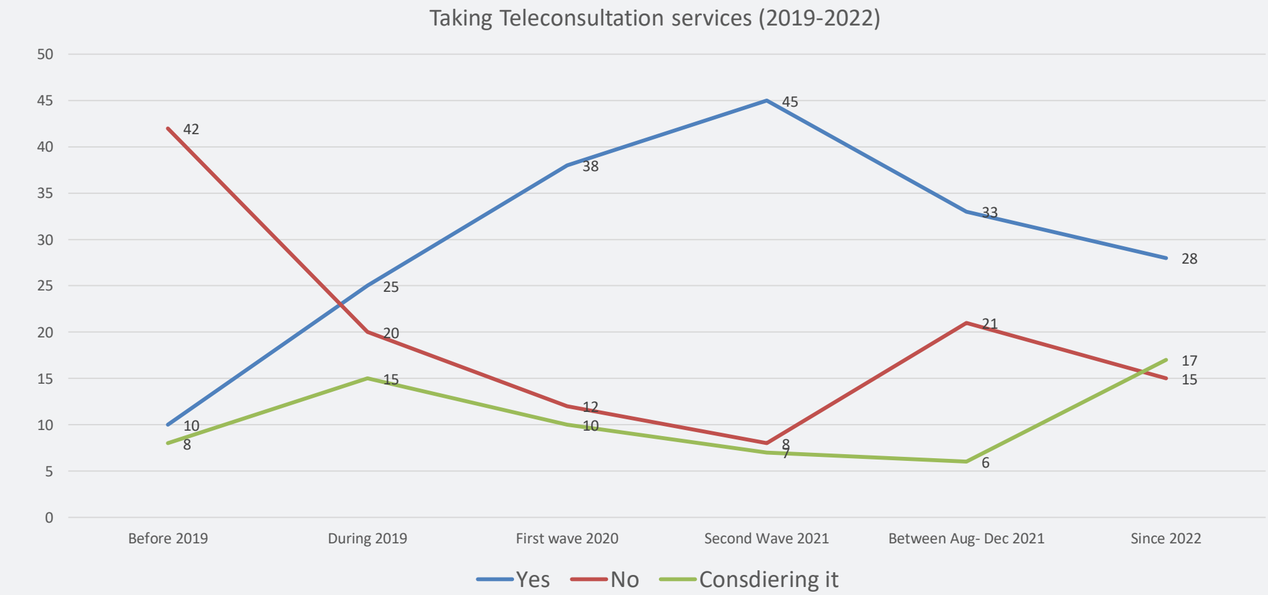
Literature Review

Points for discussion

Perception Study with HHC Seeker

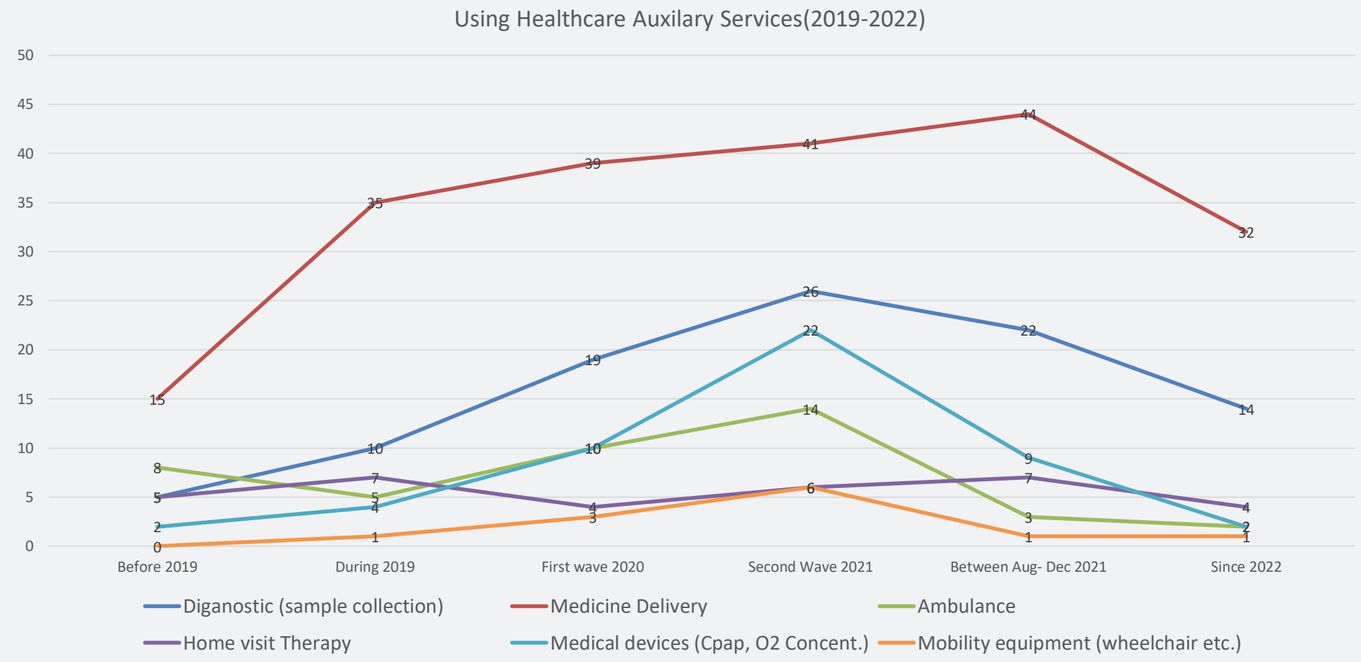
Variable	CHARACTERISTICS	FREQUENCY	PERCENT
What is your Gender	M	39	65%
	F	21	35%
		60	
What age Group you belong to	18-25	0	0%
	26-35	3	5%
	35-45	20	33%
	45-55	23	38%
	55-65	10	17%
	65+	4	7%
		60	
Level of Education	No Formal Education	1	2%
	High School or Less	9	15%
	Collage Graduate	31	52%
	Post Graduate	19	32%
		60	
Where are you living	Urban	50	83%
	Rural	3	5%
	Semi Urban	7	12%
		60	
Employment Status	Professional	22	37%
	Business Owner	25	42%
	Retired	4	7%
	Gov. Service	8	13%
	Armed Forces	1	2%
	Currently Unemployed	0	0%
		60	
Number of family Members (including you)	2 to 4	8	13%
	5 to 8	40	67%
	8+	12	20%
		60	
Type of family	Joint	14	23%
	Nuclear (elders or parents NOT living with you)	10	17%
	Nuclear (elders or parents living with you)	36	60%

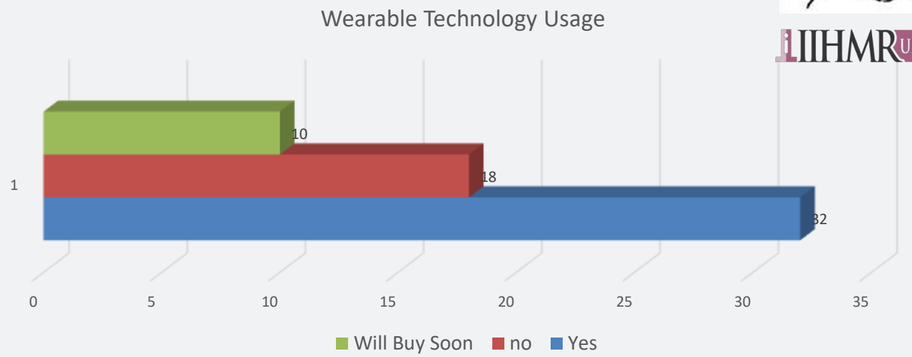


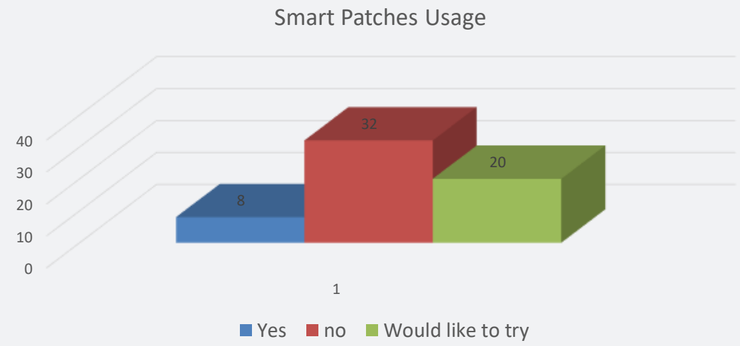


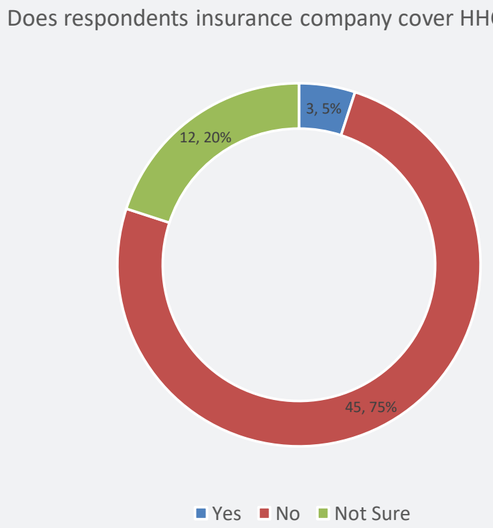
Demographic Data (n=60)

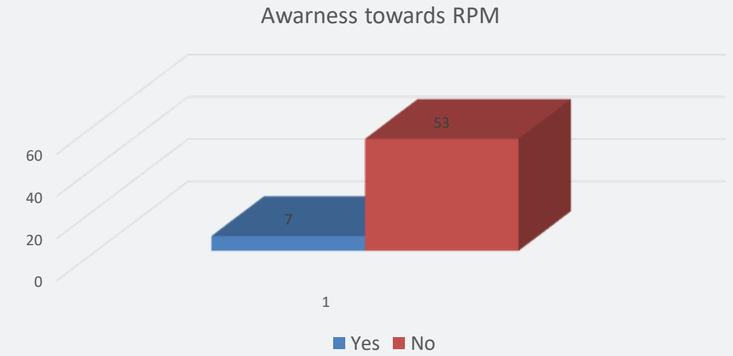
Awareness Study with HHC Seeker (contd.)





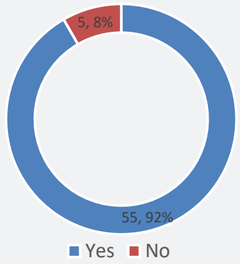




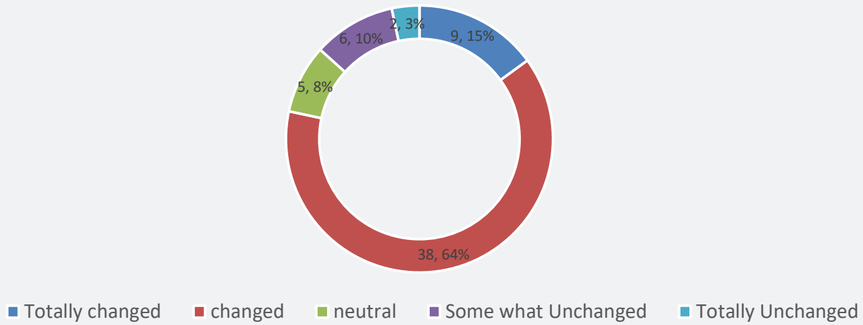


Perception Study with HHC Seeker (contd.)

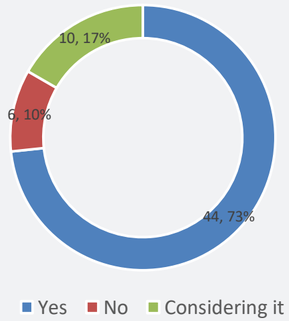
Has perception changed about HHC from before and after Pandemic



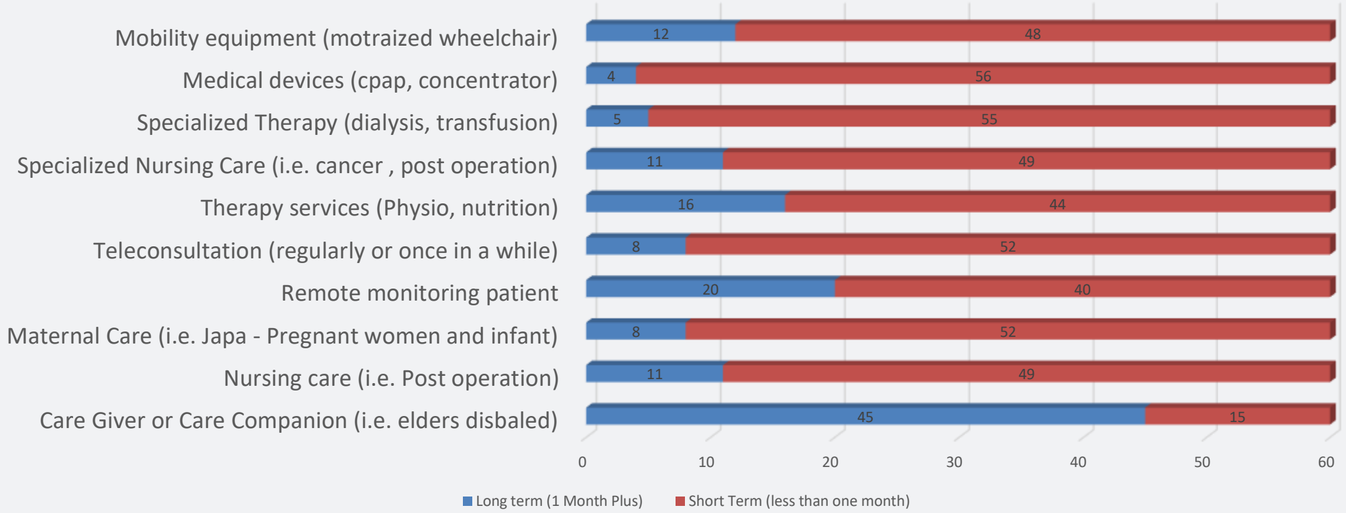
Measure Degree of change in Perception



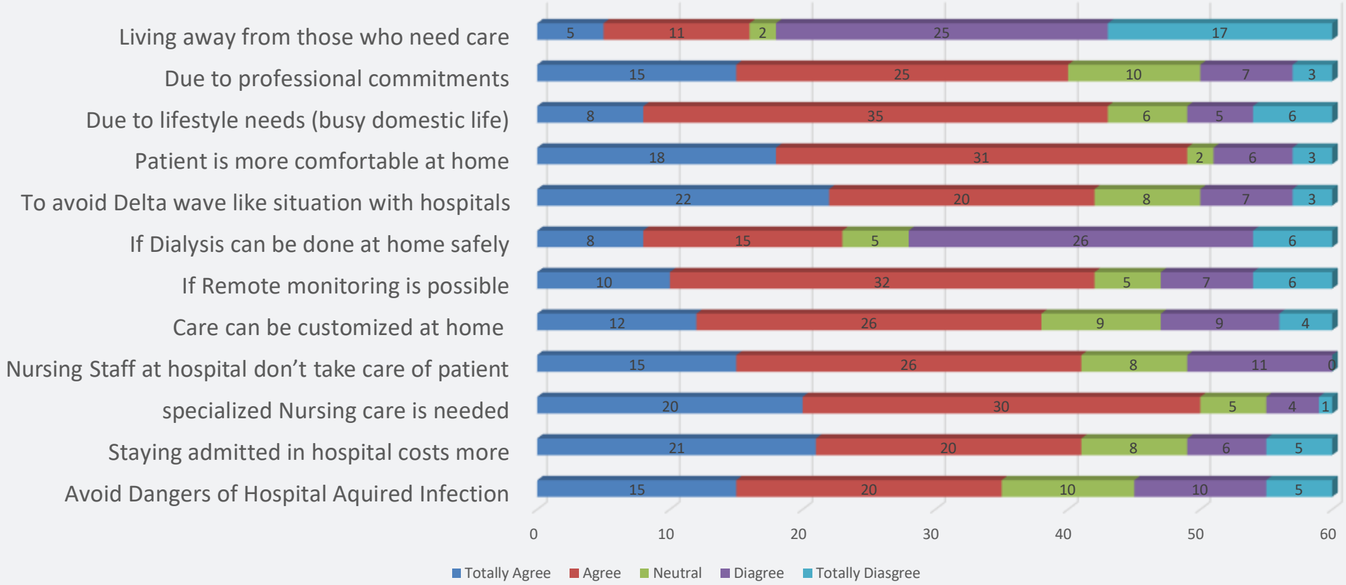
Will respondents take HHC service post pandemic



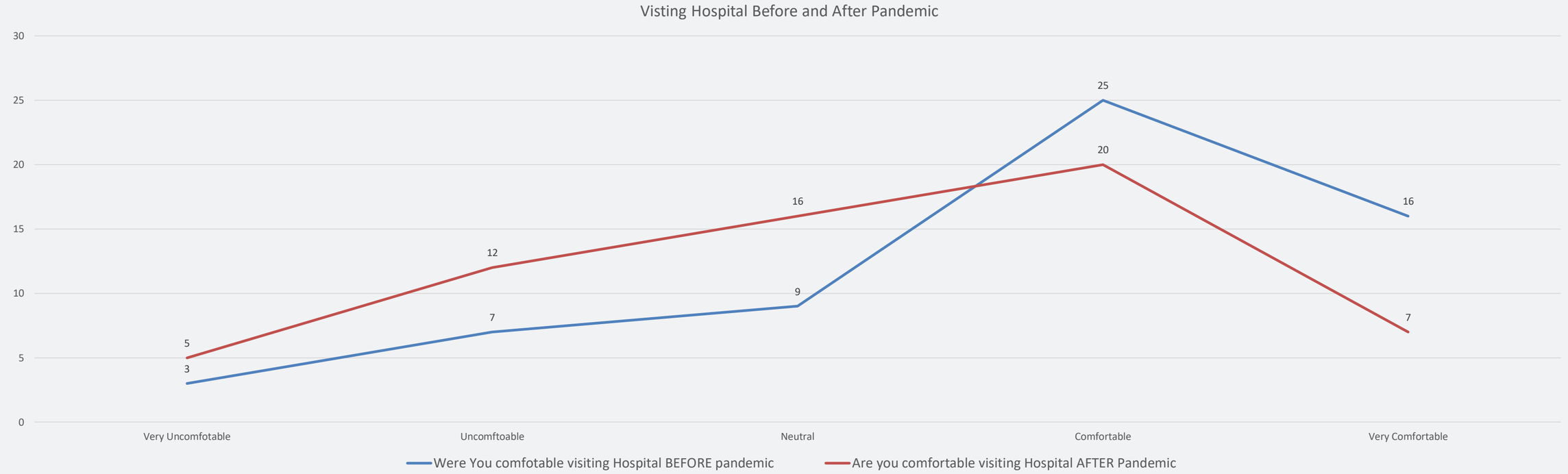
Perception After Pandemic - What would be prefered choice of Regular HHC Services

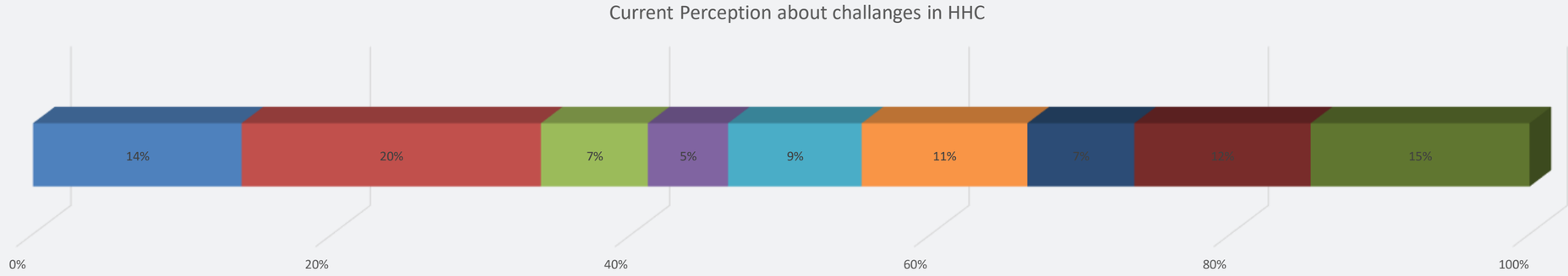


Post Pandemic - Why to choose HHC over Hospital Admittance



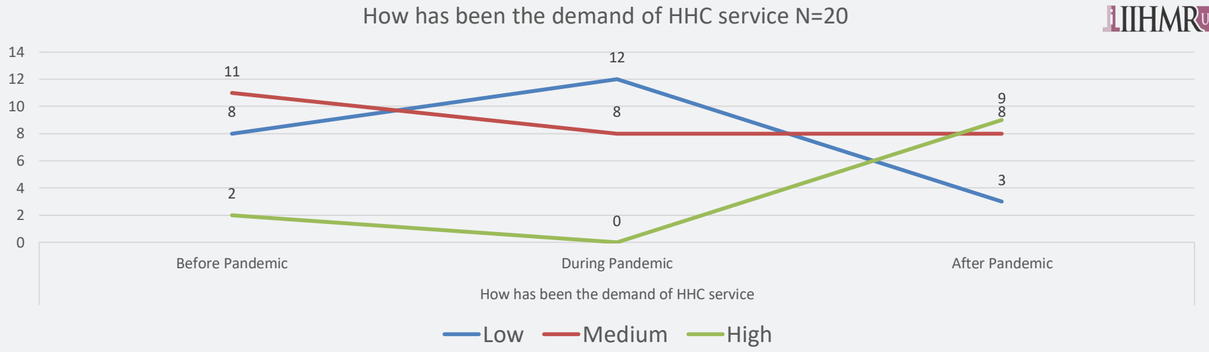
Perception Study with HHC Seeker (contd.)

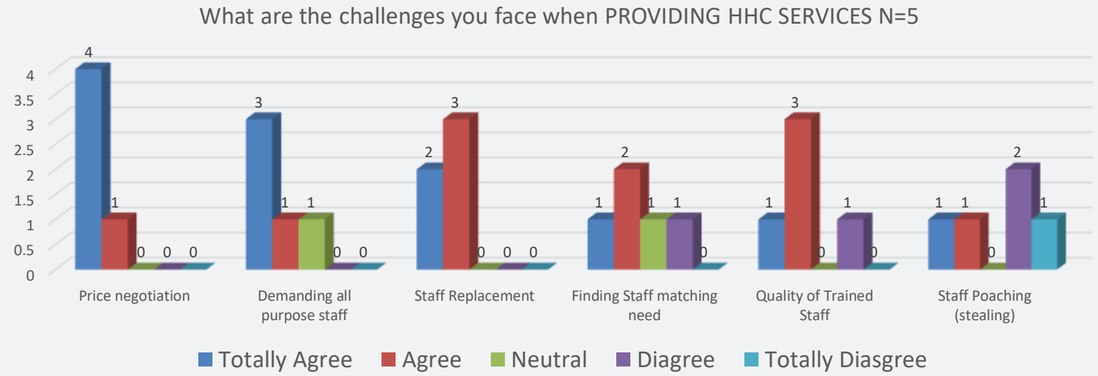


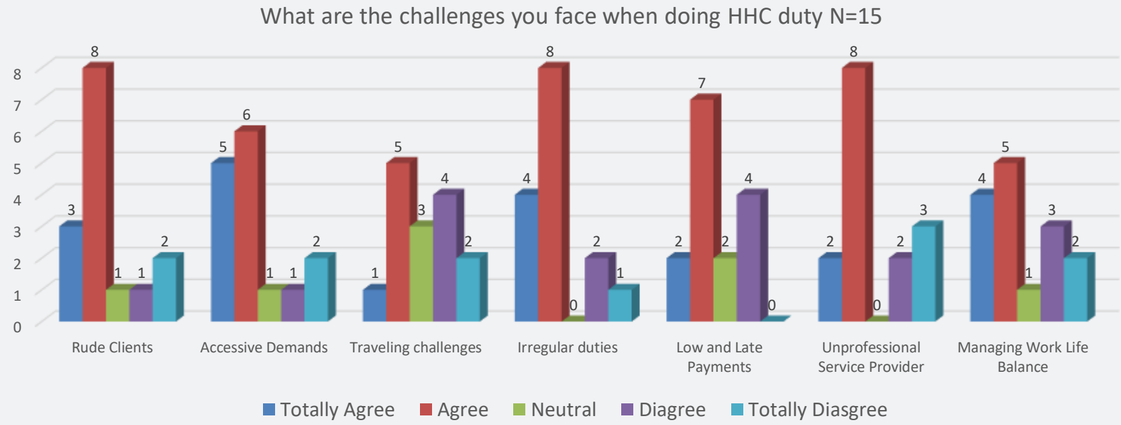


Perception Study with HHC Providers , Staff

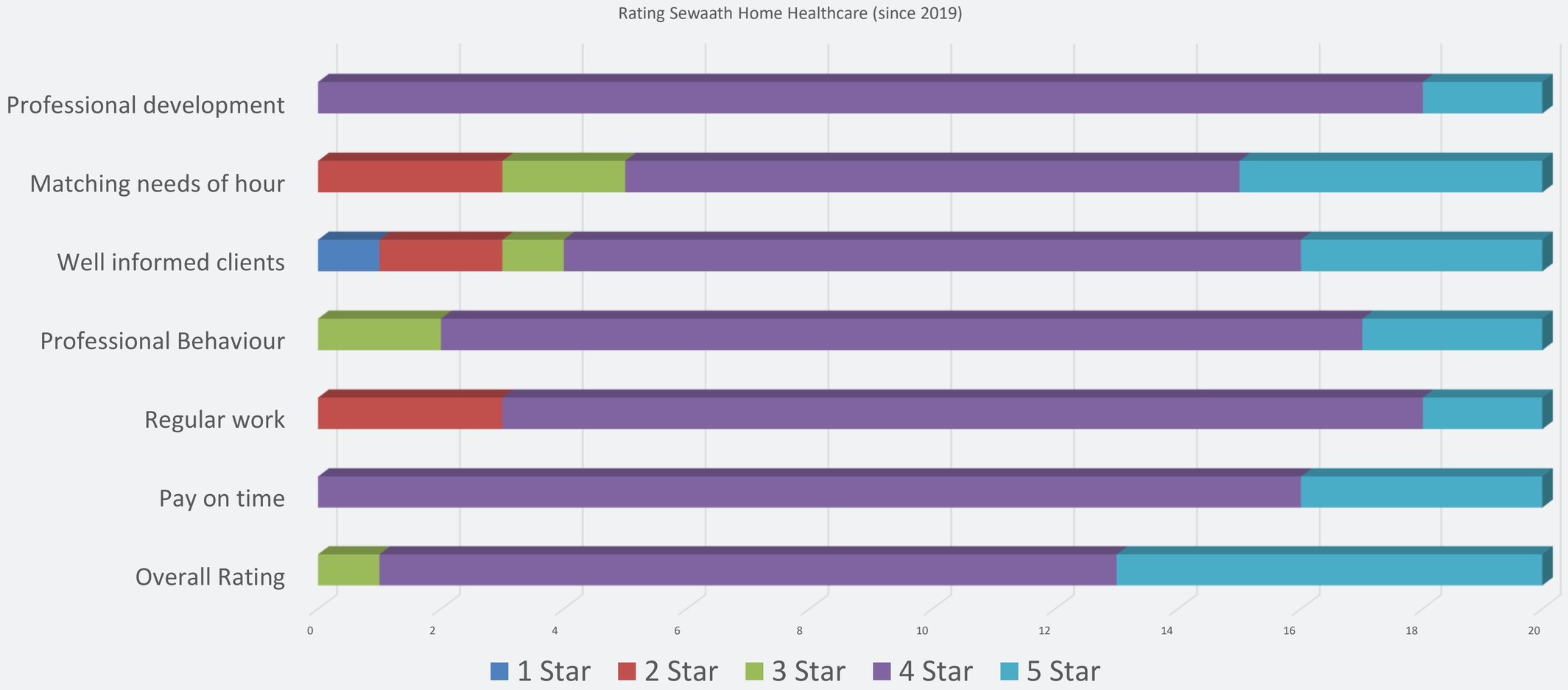
Variable	Characteristics	Frequency	%
Gender	Male	8	40%
	Female	12	60%
Role	Nursing staff	15	75%
	Staff Provider	5	25%
Marital Status	Unmarried	6	30%
	Married	12	60%
	Divorced	2	10%
	Widow	0	0%
If you are a Women, are you primarily a housewife	Yes	4	20%
	No	8	40%
Years of Experience in Nursing field	0 to 2	8	40%
	3 to 5	6	30%
	5 to 8	4	20%
	8+	2	10%
age group	18-24	4	
	25-30	5	20%
	31-35	7	25%
	36-40	2	35%
	45-50	2	10%
	50-55	0	10%
	56+	0	0%
			0%
Do you also working another job other than Sewaarth	In Hospital	8	40%
	Another Service provider	3	15%
	I am also studying	7	35%
	I only work with Sewaarth	2	10%







Rating Sewaarth with HHC Providers , Staff



Scoping Literature Review (Tech – 20)

Author (year)	Study Location	Sample Size	Sample Technique	Abstract and Salient Features
Thanos G. Stavropoulos, Asterios Papastergiou, Lampros Mpalta doros, Spiros Nikolopoulos and Ioannis Kompatsiaris (2020)	Switzerland		Literature Review	Wearables, smart home sensors, cameras, microphones, and indoor and outdoor tracking are all prominent examples of IoT technologies. Assessment of cognitive function, frailty, and other conditions, as well as support, help, and fall prevention, are among the main goals. [29]
Jeffrey Soar, Lei Yu(&) , and Latif Al-Hakim (2020)	Austraila	537 Studies with 34 papers reviewed	Literature Review	Older individuals have mostly accepted and utilised assistive technology. More market demand research is needed to determine the acceptability of the use of assistive technology. [30]
Valsalan, Prajoona Baomar, Tariq Ahmed Barham Baabood, Ali Hussain Omar	Oman		Literature Review	The new practical approach for remote patient monitoring is ImOT. [31]
Lakmini P. Malasinghe, Naeem Ramzan, Keshav Dahal (2019)	India		Literature review	The use of remote monitoring for diabetes, the neurological system, heart disease, and mental health was discussed. Additionally, the presented suggestions for further research [32]
Ienca,Marcello Lipps, Mirjam Wangmo, Tenzin Jotterand, Fabrice Elger, Bernice Kressig, Reto W. (2018)				By examining the opinions and attitudes of important health professionals in dementia and older adult care, detailed knowledge on the clinical translation of IATs can be gained. IATs currently have prospects and limitations in the clinical setting. [33]
Vaneeta Bhardwaj, Rajat Joshi, and Anshu Mli Gaur (2022)				The IoT-based health monitoring system makes it simple for clinicians to get real-time data. High-speed internet access enables the system to continuously monitor the parameters. Additionally, the cloud platform enables data storage so that earlier measurements may be accessed soon. This approach would aid in the early detection and treatment of specific COVID-19 patients. [34]
Mlađan Jovanović , Marcos Baez (2020)	US , Serbia	158 publicly available chatbots	systematic analysis	This article focuses on the Human-AI interface features and the transparency in AI automation and decision making to examine how these developing Chabot address design problems pertinent to the provision of healthcare services. [35]

Scoping Literature Review (Tech – contd.)

Author (year)	Study Location	Sample Size	Sample Technique	Abstract and Salient Features
Ben Henson (2021)	US	Article		Chatbots are assisting HHC in addressing a variety of issues, including regulatory, infrastructure, safety, and preference issues. [36]
Lee, Soo-Yong , Nelson Filip (2020)	Sweden		Qualitative Method	The sentiments toward the use of assistive technology in geriatric care are generally favorable. Although issues were found that had a negative impact on their views about specific technologies, the necessity of using technologies in the workplace was acknowledged. The technology's malfunctions are primarily to blame for the bad opinions about it. There are no issues with the technology' overall goal.. [37]
Suchada Vichitvanichphong, Amir Talaei-Khoei			Literature Review	The paper's conclusion is that although while a lot of research in this field focuses on providing direct assistance to elderly citizens, the successful application of technologies to preserve seniors' physical and cognitive capacities needs further study. This may open up opportunities that would enable elderly people to function freely. [38]
Yu-hsiang Chou, Shu-yung Brenda Wang & Yi-ting Lin (2018)			Literature review	Robots can be helpful in hyper-aging societies like those in Taiwan and Japan, however they are more often used for entertainment than for support or assisted living. To be trusted and incorporated into society for healthcare needs, this requires legislative standards and other areas. [39]
Bhaita R. (2020)	India		Empirical Study	Studying the pre- and post-COVID-19 circumstances as drivers or facilitators for various telehealth programmes in India. The study's conclusions state that "individuals' healthcare demands," "accessibility," "tech use," "info seeking," and "usefulness and ease of use of telemedicine" should receive the most of attention. [40]
Anthony (2020)			Literature review	The author's goal was to advise healthcare professionals on how to handle the COVID-19 using telemedicine services. According to the research, telemedicine services increased in price, but few healthcare providers actually used them. The author has highlighted that there is a need to provide training for a better care delivery [41]
Garg S, Gangadharan N, Bhatnagar N, Singh M Dam sky, Raina S K, Galwankar (2020)	India		Literature review	"A review of the use of telemedicine during pandemics and its effects on public health in lower-middle income nations, such as India." "Challenges and barriers to telemedicine acceptance and the future" [42]

Scoping Literature Review (Staffing - 6)

Author (year)	Study Location	Sample Size	Sample Technique	Abstract and Salient Features
K.Harish, S.Sathiya Naveena, S.Rathika (2020)	IVF hospital (bloom)	200	Simple Random Sampling	It was noted that a few of the causes associated with a high attrition rate included job shift timings, new job prospects, health concerns, remuneration and other benefits, and personal issues. [43]
Anoop Jain, Dilys M. Walker, Rasmi Avula, Nadia Diamond-Smith, Lakshmi Gopalakrishnan, Purnima Menon, Sneha Nimmagadda, Sumeet R. Patil & Lia C. H. Fernald	MP	554	Cross sectional study	Overall, we find that even if a smartphone-based app is provided and AWWs have been given the option to forgo using the paper registers, they still devote a significant portion of their work time to completing out their paper registers. This is a problem that the government can solve because it could prevent them from spending the required amount of time making house visits and helping adolescent girls, pregnant women, and nursing moms. Second, we discover that, in order to better reflect the work realities of AWWs, the present standards for the amount of time that should be spend on core task should be optimized so focus can be given on delivery. [44]
Edwin Chamanga, Judith Dyson,Jennifer Loke, and Eamon n McKeown (2020)	Systematic Literature Review	NA	NA	According to data, organizational and personal problems including management's lack of appreciation, an unbalanced work-life balance, and emotional tiredness are what most affect community nurses' ability to stay in the field. [45]
Thephilah Cathrine R (2019)	Saveetha Medical College and Hospitals, Tamil Nadu, India.	50 nurses who resigned the job.	Simple random sampling method	The data showed that the attrition rate among unmarried and new nurses was higher than that among married nurses and experienced nurses, with 38% of the 21–25 year old staff nurses having high attrition rates with the majority of them being female. [46]

Scoping Literature Review (Quality - 5)

Author (year)	Study Location	Sample Size	Sample Technique	Abstract and Salient Features
Carol Hall Ellenbecker; Linda Samia; Margaret J. Cushman; Kristine Alster	USA		Evidence based Handbook	This is an quality training manual to educate the staff about cases and evidence based learning. Various case studies are dicussed to review the literature and how things needs to measured and calculated. These standards can be implemented and practised by home healthcare service providers from India. [47]
Wachtel TJ, Gifford DR	USA		Systematic Review of literature	The demand for home care services will increase as the older population grows and acute care hospitalizations decline. Physicians should be informed of the present eligibility requirements for such services and should take part in advocacy efforts for criteria that are expanded to allow patients to get necessary services that are not covered by current Medicare laws. [48]

Scoping Literature Review (Training - 5)

Author (year)	Study Location	Sample Size	Sample Technique	Abstract and Salient Features
Soo JungChang	Korea	11	Qualitative study	There were nine themes found. The findings of this study supported the mixed feelings that senior residents of nursing homes frequently have. Nursing home residents' families should receive education from nurses so that they may better respect the residents' ideas and offer them the necessary support. Additionally, nurses need to focus more on the nursing home's surroundings so that the senior residents can feel at home there in addition to offering dependable assistance, resources, and acting as advocates. [50]
Santham Lillypet (2016)	Rural Banglore	302 AWW 350 RDW	Descriptive cross sectional study	Most of the AWW and ANM staff lacked adequate knowledge to read with RDW and hence discouraged the HH to take services from these public service. Thus to get a positive attitude and using these services from ASHA teaching and training programs should be conducted to incline people to use public health services thus improving health indicators as well as rural development. [51]

Scoping Literature Review (Insurance/UHC - 4)

Author (year)	Study Location	Sample Size	Sample Technique	Abstract and Salient Features
Zodpey, Sanjay, Farooqui, Habib Hasan	India			According to research from around the world, social health insurance and tax-based financing are the most progressive ways to pay for healthcare services, whereas OOP spending is the most regressive. To ensure competition and choice in the healthcare industry, it is advised that the regulatory framework, institutions (such as the Insurance Regulator and Development Authority and the Competition Commission of India), and public health facilities be strengthened. The goal of AB-NHPM and Health and Wellness Centre synergy is also recommended because it would ensure complementarity between the comprehensive primary care provided by Health and Wellness Centres and the secondary and tertiary care services covered by AB-NHPM, as well as prevent demand-side moral hazard and rising healthcare costs. [53]

Scoping Literature Review (Medicolegal - 4)

Author (year)	Study Location	Sample Size	Sample Technique	Abstract and Salient Features
Bevinahalli N. Raveesh, Ragavendra B. Nayak, and Shivakumar F. Kumbar	India		Systematic Literature review	Preventive measures are the best method to deal with medico-legal concerns, and this article aims to list them in order to protect the doctor from a negligence lawsuit. Significant changes are being made to medical law. The evolution of the law surrounding professional negligence and misbehaviour is not sufficient. The laws are insufficient and therefore do not cover every aspect of medical malpractice. By ensuring patient satisfaction, sticking to policies and procedures, providing patient-centred care, and being aware of measures to defend against malpractice verdicts, lawsuits for medical malpractice can be reduced or prevented. In today's litigious environment, having adequate professional liability insurance is essential. [56]

Scoping Literature Review (HC Delivery - 8)

Author (year)	Study Location	Sample Size	Sample Technique	Abstract and Salient Features
Emma Sacks, Melanie Morrow, William T Story,Katharine D Shelley, D Shanklin, Minal Rahimtoola, Alfonso Rosales, Ochiawunma Ibe, Eric Sarriot (2019)	Kazakhstan		Evaluation based on the framework and building blocks of healthcare	Beginning with the identification of the crucial factors that produce health, this study proposes an enlargement of the WHO building blocks. It presents an expanded framework that explains the need for committed human resources and high-quality services at the community level, situates community resource organisation and mobilisation strategies within the framework of health systems, positions health information as a component of a larger block devoted to information, learning, and accountability, and acknowledges societal partnerships as crucial connections to the public health sector. This framework intends to educate efforts to locate community health within national health systems and global guidance to attain health for all by making clear the sometimes overlooked investment needs for community health. [57]
Md Zabir Hasan, Shalini Singh, Dinesh Arora, Nishant Jain & Shivam Gupta (2020)	India		Systematic review of literature and public health documents	To move toward UHC, an integrated primary, secondary, and tertiary health care approach is crucial. In order to support PSI in India, policy decisions, legal and financial frameworks, adjustments to the way health services are organised, the use of information systems, and the orientation of health teams would all need to be informed by the findings of this scoping review. This study will act as the basis for modelling and putting PSI's efforts under the AB programme into practise. [58]
Arvind Kasthuri (2018)	India		Editorial Review	The public's health in our illustrious nation is threatened by the five issues listed. It addresses these and other problems as we get ready to face a future that is both full of opportunity and unpredictable in equal measure, keeping in mind that the fight against disease is the struggle against all that is damaging to humanity. [59]
Ankit Singh (2017)	India		Review Article	The growth of HHC market in India in private sector shows growth and potential but these services are missing in for elders through public sector. Accessibility to these services will be a challenge and reason for failing of market due to market barriers such as high cost and challenge with human resources. [60]

Scoping Literature Review (Public Policy - 5)

Author (year)	Study Location	Sample Size	Sample Technique	Abstract and Salient Features
UNICEF report A Vision For Primary Health Care In The 21st Century (2021)	Global		Annual Report	UNICEF report on Towards universal health coverage and the sustainable development goals [62]
MHFW report on RMNCH+A (2013)	India	Using NFHS 4 data	Quantitative Analysis and research report	The well-established connection between mothers and children survival and the employment of family planning techniques is yet another convincing argument in favour of investing in an integral approach throughout life phases. The objective is to provide practical instructions to apply this approach during the following phase of the NRHM (2012-2017) and an awareness of the holistic approach to enhancing child survival and safe motherhood. The document gives programmers instructions that, if taken seriously, would result in a notable improvement in adolescent, female, and child health. The document primarily discusses the actions performed thus far to enhance the health of mothers, women, and children. [63]

Scoping Literature Review (Special Report - 9)

Author (year)	Study Location	Sample Size	Sample Technique	Abstract and Salient Features
Deloitte report “ Crisis as a catalyst : accelerating transformation” (2021)	India		Market research report	More than two thirds of respondents expressed strong confidence in their company's success over the course of the next year, according to the survey, which reveals that most respondents think their businesses would recover from the crisis. They also think that most important company KPIs will rise. With 52% of highly resilient firms expressing extreme confidence in their prognosis for the next three years, compared to just 20% of those in the bottom tier, highly resilient organisations are even more upbeat about their prospects for long-term success. [70]
PWC report “Transformation of the patient journey in a virtual healthcare setup in the new normal” (2021)	India		Market research annual report	To outline the various steps taken by the Indian government and private healthcare companies to grow the virtual healthcare market while researching current trends in virtual healthcare around the world and best practises that can be derived from them. Governmental efforts to improve virtual health, COVID-19, disruption in the patient life cycle, and its difficulties. [71]
Niti Ayog (2021)	India		Book – Annual Publication	The development of private companies outside of metropolitan areas to Tier 2 and Tier 3 locations in the hospital sector is an alluring investment opportunity. Along with providing investment opportunities in sectors notably contract innovation and research, over-the-counter drugs, and vaccines, India also has the chance to increase domestic pharmaceutical production, supported by the most current PLI initiatives. The expansion of diagnostic and pathology facilities as well as miniature diagnostics is a huge opportunity in India for people involved in the medical devices industry. [72]
KPMG Report “Healthcare 3.0 Re-imagining healthcare in the next decade” (2020 and articles from 2021)	India		Market research Annual Report	To identify the main trends and drivers of change that India would experience. The creation of "digitally disruptive business models," "customer purchasing behaviour," and "effect of technology" as agents of change in India's healthcare system. These elements would contribute to the UHC and the strengthening of the health system. [66]

Results & Recommendation

Points for discussion

With HHC Seeker

With HHC Provider and Staff

Literature Review

Result Summary with HHC Seekers

- 65% of the Decision Makers in HH were male (due to financial control or say)
- 89% of the Audience was from the age range of 26-65 with 38% being from 45-55
- Most of them were educated above collage graduate level (83%)
- Most of them were living and wanting care in urban area (83%)
- Most of them were working professionals or business owners who could afford the services or understood the value for quality concept (78%)
- Most of the family size was between 5-8 relating (67%) to nuclear families with elders (60%)
- The HHC service in usage moved up by 133% from 2019 to 2022 (12 to 28) while people not taking services reduced to 50% of respondents. Those considering it also showed positive movement of 27%
- Teleconsultation jumped up by 180% from 2019 to 2022 and those considering it jumped up by 100%, and those not wanting these services reduced by 64%
- When it came to using auxiliary services (100%) most used was online pharmacy , followed by diagnostic (180%) , with a healthy growth showing in home visit services for therapy
- Many wanted their insurance company to cover HHC but were not aware if they had it covered (20%) about 75% did not have it covered
- About 53% of them were using smart watch with about 17% considering to get one.
- About 13% used smart patch and 33% showed inclination to use them
- Only 12% of the people were aware of RPM technology available in Jaipur
- About 92% people showed positive change in attitude with 64% people showing reasonably positive change
- 75% are now wanting to use HHC for long term care giving services while for majority of others they are showing inclination to short term or sporadic usage
- Majority of them stated that due to professional commitments or lifestyle challenges, comfort of patient, HAI as well as need for nursing care for critical patient was most common reason to take HHC service, a Positive reason to choose services was use of RPM in Jaipur (55%)
- Majority of the clients pointed towards quality of services and Trust as the challenges in HHC service they find.

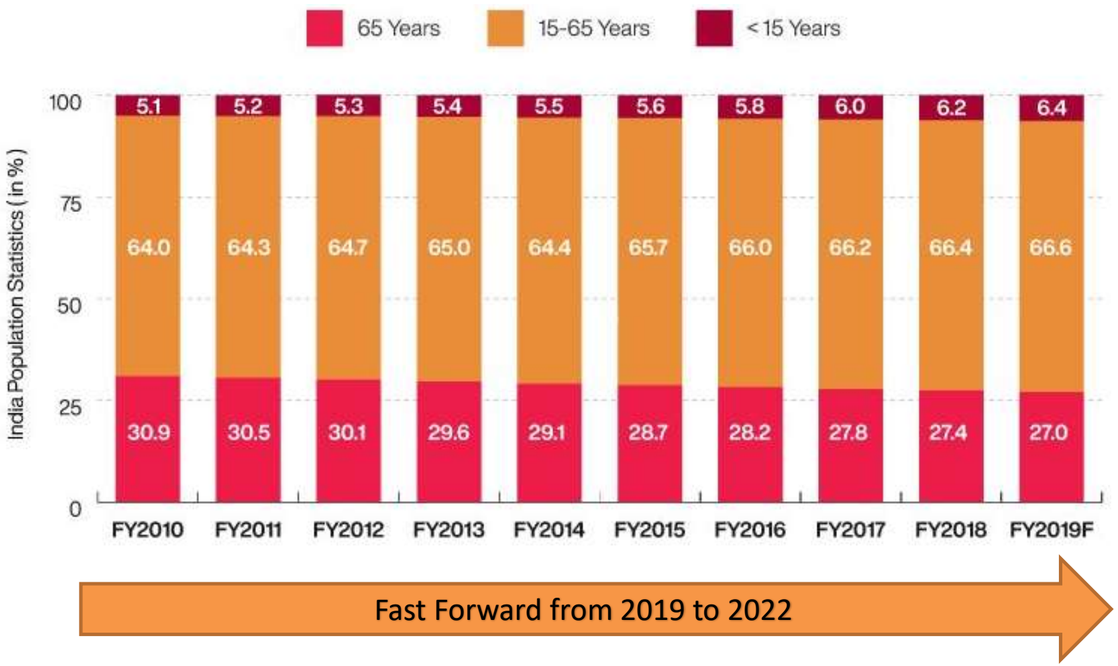
Result Summary with HHC Provider

- Staff members were majority females (60%)
- Majority of them were married and were housewives (67%)
- Majority of the staff carried 0-5 years of work experience
- Majority of them belonged to age group of 25-35 yrs
- About 40% of them working with hospitals and about 30% of them studying
- Majority of them felt that compared to 2019 during pandemic the demand was low medium and now is medium high post pandemic
- Some of the major challenges faced by providers were price negotiations and demands of customer (i.e. all purpose domestic help)
- Major challenges faced by staffers where Unprofessional providers , irregular duties and rude customers. Also staffers resented getting late payments
- Sewaarth received an overall rating of 4.3 / 5

Result Summary with Scoping Review

- Most notable technology in HHC market was found to be RPM and assistive technology paired with ImOT devices or wearables
- Technology is an important catalyst for providers and public HCW to improve quality of care, reporting and compliance.
- Technology helped with improving the health care outcomes and reduced the world load on staff as well as family members. By pairing ADL with technology HHC services QOL was drastically better
- Staffing and scheduling was one of the pain areas of HHC provider as neither quality staff was available nor regular hours were possible all the time – hence many leave or drop out, also poor management leads to staff management gaps
- Quality is not the focus in India as demand is also of low quality staff even if staff is trained customers doesn't want to pay. Quality is one key reason why customer doesn't trust pricing. HHC services unlike developed nation lack standardization and regulatory requirements to get certified .
- Training – Staffs members are certified but still lack knowledge nor regular trainings are provided. It was seen that poor training , resulted in poor usage of public health facility. Training can be major catalyst . Training also played a vital role in dealing with difficult and critical situations and can prevent legal complications
- Insurance / UHC – Insurance companies have started covering for HHC services however still regulations need to come into play with more regulation for HHC providers (thus quality is important). In Public Sector UHC can help take care of mother and child as well as elderly thus it is critical to implement UHC with fair financing all across India. It can help created a VBHS using HHC service (FFS) to utilize current and future ANM, ASHA workers
- Medicolegal cases in Indian HHC sector is very infant and is needing more papers and work. There is a need for more research and study to be done in this sector so that it can aid regulation. Our legal system is very reactory and thus until and unless we don't see a major case or challenge we might have to wait when government turns their head towards it.
- Healthcare system in India is needing strengthening and by hiring and training HCW , using VBHS based HHC service can be provided. Also even in urban areas they can be regulated so that private hospitals start adopting it as well.
- Public policy and financing points towards UGC again and again – there is major challenges of unfair financing or major disparity amongst different states. UHC is important so that people can have access to healthcare and then only such services will work but it is the missing link in our healthcare delivery system (maybe bigger than technology for seekers)

Impact of Covid Pandemic on HHC



Fast Forward from 2019 to 2022

Key HHC services taken in India

1. Teleconsultation
2. Pharmacy Delivery
3. Personal Care Givers
4. Nursing staff
5. Mobility Assistance
6. Diagnostic Sample collection, Potable test
7. Therapeutics Devices (Cpap, concentrators)

Source: IQVIA 2021 Digital Health Trends, HHC Service utilization – OECD data by Inc42

Changing dynamic in Indian HHC Market

In Matter of 5 years 2015-2021

Home Health Care Services Covered By Insurers

Category	What Is Covered?	Home Healthcare Startups Offering These Services
Out-patient Cover	Physiotherapy, nursing, lab tests, doctor's consultation	
Day Care	Procedures which do not require 24 hours hospitalization	
Domiciliary Care (Home Care Service)	Disease, illness, injury which requires care at hospital, but is treated at home	
Value-added Services	Some insurers offer discount on home care services	
Covid-19 Care	Covid-19 Test Expenses, Home Quarantine and Self Isolation	

PORTEA HEAL AT HOME
HealthCare at HOME By your side
medRabbits
We - The Carers ZORGERS
mycareline
care24
TriBeCa Care Bringing Healthcare Home
medwellventures
Click2Clinic
CallHealth
INDIA HOME HEALTH CARE

Source: IQVIA 2021 Digital Health Trends

Points for discussion

Conclusion

Pandemic Impact

During the pandemic, hospital facilities were constrained, leading to chronic patients seeking home healthcare. In India, hospitals were inundated with COVID-19 patients, preventing them from treating patients with non-COVID-19 symptoms. As a result, for unmet patient demand, home healthcare became the ideal alternative.

The pandemic propelled rapid advancements in technology. The adoption of telehealth applications, remote patient monitoring, home ICU, infusion, equipment, and others in India are driving the market growth. As per the Future Health Index report, 94% of leading healthcare providers in India are looking forward to invest in artificial intelligence to boost the use of the latest technologies in India.

FOCUS: Remote consulting, Delivery, Sample collection

Post Pandemic

The demand for home healthcare is expected to be a high post-COVID-19 pandemic. Home healthcare services will continue to be the best alternative for the dependent geriatric population due to their convenience & efficiency. Home chronic care is expected to reduce hospital visits making it easier for health care providers to give the best services.

Post COVID-19, healthcare in India is expected to be more robust. The investment of companies in AI is expected to result in the availability of the best home health technologies in India boosting the market growth. Home healthcare equipment is expected to witness higher demand as healthcare providers find them ideal for the initial diagnosis & treatment of acute & moderate cases.

Focus: Long term care at home, ICT based care

Resulting Trend and Focus Area

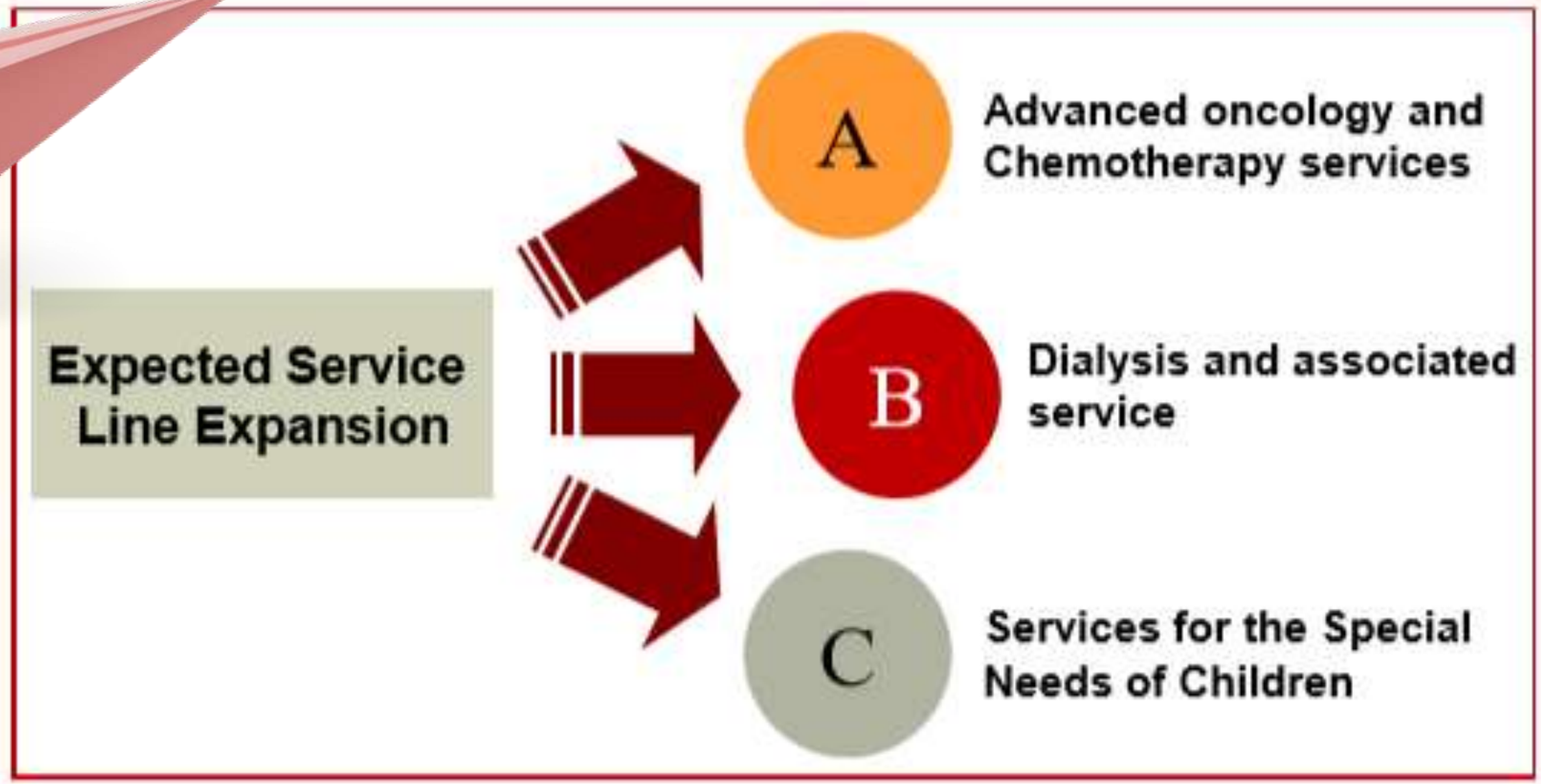
Future Trends and Expectations

Regulatory Body: It is expected that the government will bring in clearly defined regulations to ensure prescribed standard of home care as well as increase the popularity of these services in the country

Insurance Tie-Ups: Leading Home Healthcare providers In talks with insurance companies so as to make home healthcare affordable and for enabling healthcare providers tap into lower income segments.

Emerging Patient Care Segments: More players to introduce services such as sleep study, speech therapy, infant care, ICU at home, dialysis at home, Pharma delivery among others.

Resulting Trend and Focus Area



Service Line Expansion is expected in Chemotherapy, Dialysis and Children's Special Needs segments. Source: RedSeer Analysis

Hypothesis Conclusion

1. Observational learning was correct – improved perception has also improved demand
2. Market will settle in due course of time with improved services and use of technology to monitor build trust
3. There are key pain areas like staffing, training and regulatory requirements that can help balance quality

NEW FINDING: The role of HHC services in Public Domain is far bigger and greater. That with the help of UHC is the missing link in improving the Indian Healthcare delivery System

Resulting Work at Sewaarth

1. Technology is being redeveloped to keep data integrity in mind of customer
2. Telemedicine platform along with ImOT based technology has been tested out (alpha) with select few customers
3. Over the period of 3 months 3 training session (soft skills and case based learning) was conducted to train staff)
4. Selected staff was also trained on technology being tested out
5. Sewaarth got selected for international incubation program from California and was selected to present to Global Jury expected to be end of July 2022.
6. The care average has tripled in last one year since focus has been on quality and customer feedbacks. From averaging 5 care prior to April of 2021 today they are averaging 15-18 cares per month.
7. Focus is on implementing lean six sigma process indicators to improve the standard of delivery.
8. Sewaarth as of now has started filling for various accreditations and certifications under quality and startup India program

Future Work (My Target)

- **Currently Under review to publish this work as a white paper for peer review**
- **Additionally expanding this research work into**
  - Rapid Review
  - Pan India Data

Get to research and work at my Alma Mater !!!

Thank you Jury !!

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