KNOWLEDGE ATTITUDE AND PRACTICES OF COMMUNITY HEALTH OFFICERS

Dissertation Submitted to

The IIHMR University, Jaipur

for the partial fulfillment for the award of the

degree of Master of Business Administration

(MBA)

in

Rural Management

by

Niyati Saxena

Under the Supervision and Guidance of

Dr. Sazzad Parvez

DECLARATION BY STUDENT

I hereby declare that this dissertation titled **Knowledge Attitude and Practices of Community Health Officers** is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Niyati Saxena

Date: 28 June 2021

राष्ट्रीय स्वास्थ्य मिशन

मध्यप्रदेश

लिंक रोड–3, पत्रकार कॉलोनी के सामने भोपाल

मध्यप्रदेश आरोग्यम

क्रमांक / एन.एच.एम. / एच.डब्ल्यू.सी. / 2021 भोपाल, दिनांक 29 / 06 / 2021

The certificate is awarded to

Miss. Niyati Saxena

in recognition of having successfully completed her

Dissertation in the department of

Health and Wellness Centre Cell, Bhopal

And has successfully completed her study on

"Knowledge attitude and practices of Community Health Officers"

(With special reference to Bhopal district of Madhya Pradesh)

Duration of three months (March 2021- June 2021)

She comes across as a committed, sincere &

diligent person who has a strong drive and zeal for learning

I wish her all the best for future andeavors

29/06/2021

Dr. O.P. Tiwari

State Nodal Officer

National Health Mission, Madhya Pradesh

Date: 29/06/2021

CERTIFICATE

This is to certify that **Miss. Niyati Saxena** in partial fulfillment of the requirements for the award of the degree of MBA (Rural Management) from the IIHMR University, Jaipur has successfully completed her internship at **LEHS/WISH Foundation** on the topic **"Knowledge attitude and practices of Community Health Officers"** during March 24, 2021 to June 24, 2021.

Place: Bhopal

Date: 30/06/2021

State Head

LEHS/WISH Foundation

Bhopal, Madhya Pradesh

CERTIFICATE

This is to certify that dissertation titled **Knowledge attitude and practices of Community Health Officers** is a record of the research work undertaken by **Miss. Niyati Saxena** in partial fulfillment of the requirements for the award of the degree of MBA (Rural Management) from the IIHMR University, Jaipur under my guidance and supervision and his/her approach to the research study has been sincere, scientific, and analytical.

Faculty Guide: Sazzad Parvez
IIHMR University, Jaipur

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Date:

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Executive summary

The post of Community Health officer is new to the healthcare domain, a crucial part of Ayushman Bharat Abhiyan, and plays an important role in serving the large masses especially in India, where the doctor-patient ratio is 1:1404 and the nurse-patient ratio is 1.7 per 1000 population. These CHOs are expected to deliver an expanded range of services with the prime focus on Non-communicable diseases as 62% of the total mortality in 2016 happened due to NCD.

It is important to treat and prevent the disease at the primary level itself because when it goes to the tertiary level, it leads to exorbitant health expenditure that the marginal population cannot afford, that's why the government has launched a health insurance scheme for them.

CHOs are appointed for fulfilling a very important responsibility and they are required to be determined, self-motivated, and devoted to this job and most importantly, they need to contain good knowledge, attitude, and practices. To assess their KAP, a survey has been conducted through a google form, in which 43 questions were asked on MCH, NCD, communicable disease, HWC, COVID-19, practices and attitude and 79 CHOs posted in all the HWCs of Bhopal responded to the form.

CHOs possess low knowledge of Communicable disease and COVID-19 with 47.59% and 49.72% results respectively, BAMS graduates posted in HWCs accounts for highest mean, median and mode i.e, 26.92, 28 and 30 respectively as compared to the other two graduates, a good attitude is highly observed in the male CHOs having 6 months to <1 year of experience aged 35 to <40 years and CHOs possess the lowest knowledge of practices with 39.66% result.

For improving the knowledge, some interesting teaching and learning methods need to be adopted for making them understand the causes, symptoms, effects, and prescription to be given, etc. like learning with simulator mannequins, mind mapping, and practical workshops, etc. Other than the bridge program, CHOs should be encouraged to undertake other courses that can be developed by National Health Mission, MP, and its developing partners to enhance their knowledge. On the completion of such courses, some cash rewards should be provided to motivate them for the continuous process of learning. On-the-job training should be provided for enhancing COVID-19 related knowledge. A program can be initiated to make the CHOs follow the right practices in which one CHO will be posted for every 10 HWCs as "Aachran Sansthapak" who will be responsible for the best practices followed in his/her area.

Acknowledgment

I would like to convey my heartfelt gratitude to my parents who have shown the utmost confidence and trust in me throughout my dissertation.

It was a wonderful opportunity working as an intern at HWC cell in WISH Foundation and it has given a spark to writing and learning skills in such a distressful time of the pandemic. Thanks to the NHM MP and LEHS|WISH Foundation for accommodating and guiding me throughout the tenure of the dissertation.

I feel enlightened and fortunate to work under Dr. Sazzad Parvez who has guided and encouraged me. I am thankful to him for being so kind and showing the right path for making the dissertation successful.

I thank Dr. OP Tiwari, Dr. Savita Sharma, Mr. Sarvesh Malviya, and Mr. Jatin Bhatt for sparing time from their busy schedule to advise guide, and cooperate with me for the successful completion of my dissertation.

Abbreviations

USG- Ultrasound sonography

HWC- Health and Wellness Centre

NHM- National Health Mission

MCH- Maternal and Child Health

CHO- Community Health Officer

AWW- Anganwadi Worker

ASHA- Accredited Social Health Activist

ANM- Auxiliary Nurse Midwife

MLW/P- Mid-level Workers/ providers

PHC- Primary Health Centre

CHC- Community Health Centre

SHC- Sub Health Centre

BAMS- Bachelor of Ayurveda Medicine and Surgery

GNM- General Nursing and Midwifery

NCD- Non- Communicable disease

INC- Indian Nurses Council

MCI-Medical Council of India

MMR- Maternal Mortality Rate

IMR- Infant Mortality Rate

CPHC- Comprehensive Primary Health Care

KAP- Knowledge Attitude and Practices

CHAI- Clinton Health Access Initiative

PW- Pregnant woman

1. Introduction

1.1. Global view

A well-acquainted, self-motivated, and upskilled health workforce is needed to arrive at universal health coverage for delivering a wide range of healthcare services. It is vital to understand the importance of MLWs for overcoming the human resource shortage and enhancing the accessibility and equity of healthcare services.[iiiiiiivv] In Africa, the entire health system relies on the services delivered by MLWs. Some countries focus on the training part to implement priority health programs.[iii]

MLWs are considered as the cost-effective substitute of doctors for providing primary and secondary health services because they have higher retention in rural areas compared to doctors, yet they are not involved in health workforce planning and their roles are not formally regulated.[iiiivvvi] To make them capable enough to address the public healthcare needs of the twenty-first century, the curricula and training get modified from time to time according to the existing public healthcare requirements.[viiviiiixxxi]

There are different functions like diagnostic and treatment, which are carried out by a range of cadres of clinical MLWs such as clinical officers, health officers, medical assistants, clinical associates, and others who are upskilled in delivering diagnostic services and administering common medical, maternal and child health and surgical conditions.[xii] The nurses who perform anesthesia, initiate treatment, and facilitate diagnostic services can also be called as MLWs.[v,ix] These MLWs are termed as "associate clinicians" to bring uniformity to the professional development of this cadre.[xiii]

Patients are more satisfied, patient's admission to the hospital has increased and mortality decreased due to nurse substitution for doctors.[xiv] Kenya trained its clinical officers in 1928, afterwards, a three-year diploma was introduced in 1967 in replacement of the original certificate course.[xv] The Lancet Commission on the Education of Health Professionals for the twenty-first century did not have a dialogue exclusively on how to keep the medical, nursing and public health training align with the current health problems. The obsolete and monotonous curricula adopted for training MLWs have produced ill-equipped graduates, which resulted in poor teamwork and low focus on individual, technical and hospital-oriented care.[xvi]

A global consensus can be built on minimum requirements of MLP cadres like training period and parameters of competencies. Establishing new training institutions and upskilling the workforce require time and patience and resources are difficult to afford by many middle and

low-income countries. One can do the optimum utilization of the opportunities by enhancing the numbers of certified MLP, deploying existing professionals to train MLP, and generating clinical practice opportunities.[xvii]

There is a dire need to introduce procedures and systems for incorporating core management functions in management and planning of the health system like regulation of roles, career acceleration, professional development, and accreditation for MLP. The regulatory and professional bodies should be built to vocalize the rights and entitlements of MLPs and to resolve the conflicts with other professionals and identify the scope of practice.[xviii]

PHC is a community-driven approach to healthcare that prioritizes the needs and preferences of individuals, households, and communities. It works upon delivering comprehensive care in several dimensions and its interrelated aspects such as mental, social, physical health and wellbeing to make everyone access the right to a standard of living adequate for the health and wellbeing of himself/ herself and his/ her family, that is ascribed in the Article 25 of the Universal Declaration on Human Rights, to attain the universal coverage and to achieve Sustainable Development Goals of Good Health and Wellbeing and also significantly contribute and assist to other goals such as quality education, no poverty, gender equality, clean water and sanitation, zero hunger, work, and economic growth, reducing inequality and climate action.

PHC can address the majority of the population's healthcare needs for their entire lifespan, but the current scenario brings to the table that half of the population all over the globe still deprives of full coverage of essential health services, a deficit of 18 million health workforce and only 8 out of 30 countries invest US$ 40 per person per year on primary health care.[xix]

Figure 1 CHO at vaccination camp

1.2. National view

The acute shortage of nurses and doctors can be determined with the data of INC and MCI presented in Rajya Sabha on 3rd March 2020.

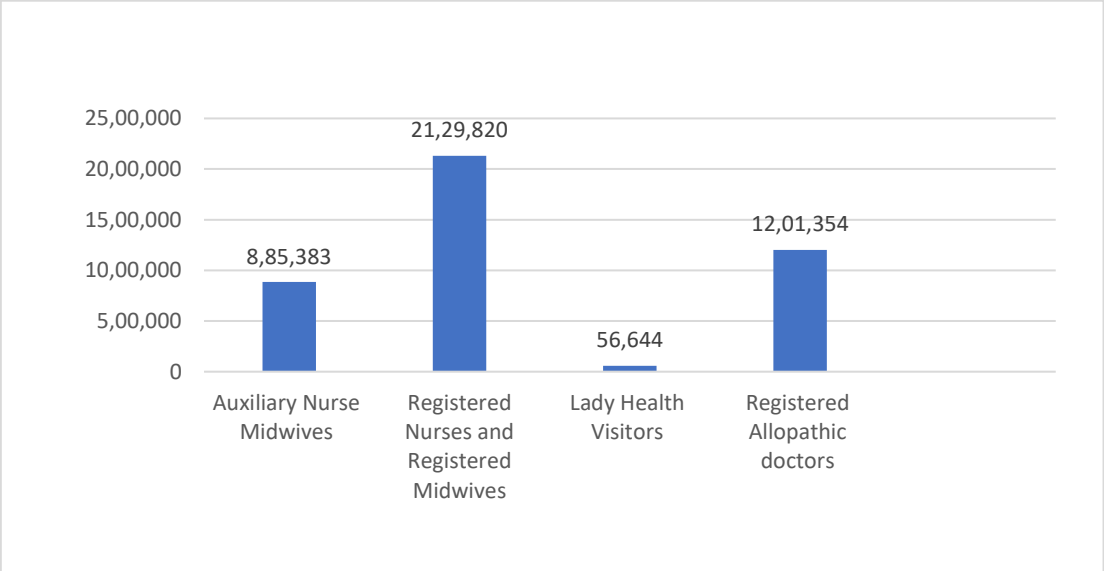

Figure 2 Number of doctors and nurses in India[xxxxi]

(a) The Nurse patient ratio in the Country at present is 1.7 nurses per 1000 population. However, the nurse-patient ratio varies from State to State, District to District, and Institution to Institution. The problem is more of skewed distribution, with a dense concentration of workforce in some areas and lesser concentration in other areas.

(b) & (c): Some of the proactive measures taken to improve the situation for better healthcare services in the country are:

(i) There are around 8500 Nursing Institutions in the country producing about 3 lakh nursing personnel annually.

(ii) To increase the number of nursing seats:-

- (a) The requirement of land to construct the building for School/College of Nursing and Hostel has been relaxed.
- (b) The requirement of a 100 bedded parent hospital has been relaxed for hilly and tribal areas.
- (c) The student-teacher ratio for M.Sc.(N) program has been relaxed from 1:5 to 1:10
- (d) Student patient ratio for Nursing Institutions has been relaxed from 1:5 to 1:3
- (e) Admission for Nursing has been allowed for married candidates.

(f) The maximum number of 100 seats for Nursing College will be given to those having parent hospitals with 300 beds without insisting on Medical College.

(g) Distance from school to hospital has been relaxed from 15 km to 30 Km. However, for hilly and tribal areas the maximum distance is 50 Km.

(h) Eligibility Criteria to admission i.e. (Marks) for Diploma and Degree has been relaxed by 5%.

(i) Relaxation for opening M.Sc. (N) program. Super-specialty Hospital can start M.Sc. (N) without having an undergraduate program.

(iii) The Nurse Practitioner in Critical Care Nursing (NPCC) has been developed which prepares registered B.Sc. Nurses for advanced practice roles as clinical experts, managers, educators, and consultants leading to M.Sc. degree in Nursing.[xxii]

(a) & (b) MCI informed that total of 12,01,354 allopathic doctors registered with the SMCs/MCI as of 30th September 2019. Assuming 80% availability, it is approximately 9.61 lakh doctors may be actively available to deliver services. It reflects a doctor-population ratio of 1:1404 as per current population approximately 1.35 billion against the WHO recommended ratio of 1:1000.

(c) & (d) The Central Government has taken several steps to increase the number of medical seats in the country. 29185 MBBS seats increased during the last five years. The measures adopted include:

i. Establishment of New Medical Colleges attached with district/referral hospitals in underserved districts of the country.
ii. Strengthening/ up-gradation of existing State Government/Central Government Medical Colleges to increase MBBS and PG seats.
iii. Flexibility in the norms for establishment of Medical College in terms of obligations for faculty, staff, bed strength, and other infrastructure.
iv. The minimum requirement of land for setting up medical colleges in metropolitan cities as ascribed under Article 243P(c) of the Constitution of India has been dispensed with.
v. Enhancement of maximum intake capacity at MBBS level from 150 to 250.
vi. DNB qualification has been recognized for appointment as faculty to take care of shortage of faculty.

vii. Enhancement of age limit for appointment/ extension/ re-employment against posts of teachers/dean/principal/ director in medical colleges up to 70 years.

viii. The ratio of teachers to students for Professor has been revised from 1:1 to 1:2 for all MD/MS disciplines and 1:1 to 1:3 in all clinical subjects in Government-funded medical colleges and Private medical colleges with 15 years standing. Further, for Associate Professor, the said ratio has been modified from 1:1 to 1:2 and 1:3 if he/she is a unit head in all clinical subjects in Government medical colleges and Private medical colleges with 15 years standing. This would result in a nationwide spike in the number of PG seats.

ix. By revising the regulations, it has been made compulsory for all the medical colleges to begin PG courses within 3 years from the date of their MBBS recognition /continuation of recognition.

x. Colleges are permitted to apply for PG courses in clinical subjects at the time of the 4th renewal. It will serve to advance the process for beginning PG courses by more than 1 year of tenure.

xi. Provision has been made in the regulations to offer less number of seats to the applicant medical college, in case, it falls short of minimum prescribed requirements of applied intake to avoid wastage of human resources.

xii. A Consortium (a group of 2 or up to 4 private organizations) has been allowed to establish a medical college.[xxiii]

Figure 3 CHO giving vaccine to infant

CHO while conducting USG

India has undertaken a comprehensive range of services under maternal, neonatal and child health to reduce MMR and IMR since the last decade and has been successful in slashing the ratio. But according to the report of the India State-level Disease Burden initiative, the NCD-based burden has surpassed the burden of communicable, neonatal, maternal, and nutritional disorders in all the states. Consequently, 62% of the mortalities occurred due to NCD in 2016.[xxiv] This figure in itself was an eye-opener to the kind of demographic transition India is going through. Ayushman Bharat Scheme launched by Prime Minister Narendra Modi is based on the two components, first, Comprehensive Primary Health Care and second, Pradhan Mantri Jan Arogya Yojana. The second component covers 40% of the marginal and vulnerable population for providing secondary and tertiary care.[xxv] The CPHC component aims to work on the principles of quality, universality, equity, and two-thirds of the annual budget is dedicated to primary health care and converting peripheral centers to HWCs.[xxvi]

Under the Ayushman Bharat Scheme, the Government of India in February 2018 declared to transform 1,50,000 SHCs and PHCs into HWCs by 2022 to set these as a platform for delivering CPHC. It envisages bringing healthcare in the proximity of households to cover the people seeking both MCH and NCD services including free dispersal of essential drugs and diagnostic services.

The health and wellness center aims to deliver an expanded range of services to all, empower individuals and the community and promote and inculcate good health and hygiene practices among them to prevent the risk of morbidities and chronic diseases. It will altogether increase the responsiveness of health systems and enhance their ability to meet the needs of the marginalized section of society.[xxvii]

To deliver the expanded range of services, there is a provision to set up a team at the PHC level, in which one CHOs or MLWs, one or two ANM, one male health worker (optional), and one ASHA per 1000 population should be staffed. The concept of Community Health Officer is new to the system. The Community Health Officers are the pivotal manpower added in the organogram of PHCs after their conversion into HWCs. One should be B.Sc in Community Health graduate, or an Ayurveda practitioner to get recruited to the post of CHOs. This post has been launched to plummet the out-of-pocket expenditure of households, decrease the caseloads in secondary and tertiary care, make the healthcare accessible to rural folks, and ensure the optimum utilization of primary level of care for meeting the public healthcare needs.

How these objectives are met?

- CHOs are required to accelerate the capacities of their respective HWCs to deliver the expanded range of services for making healthcare affordable and accessible for all.
- Bolster and intensify the preventive and promotive healthcare activities and timely measure the outcomes of these activities.
- Improve care coordination, continuum of care, clinical management, basic diagnostic tests, feedbacks, early identification of disease, and distribution of medicines.

The functions of CHOs are enlisted below:

- Clinical functions: To diagnose and detect the disease, refer to the most appropriate health facility, counsel the patients, provide teleconsultation facility and facilitate follow-up care.
- Public health functions: Supervise the population-based survey and make plans to arrange services, keep a close eye on disease patterns and undertake health promotion and prevention activities at the community level.
- Managerial functions: Recording, reporting, and monitoring of the services delivered at HWC, responsible for the administrative functions of HWC, and supportive supervision of the HWC team.[xxviii]

A 6 months Bridge program on the certificate in community health is rolled out by IGNOU from 1st January to 1st July every year, in which the candidates get practical training at Program Study Centers and Health Centers identified and accredited by IGNOU. The students are given field-based assignments and research projects which are done with the help of community visits. In addition to this, they are also required to do an internship of 18 days at the District Hospital, with practical training at PHC, SHC/ HWC, and Anganwadi Centers. On the successful completion of this certificate course, IGNOU provides the certificate to candidates and they are posted as CHOs at HWCs.

The eligibility criteria for this Bridge program for Nurses are as follows:

1. GNM/ B.Sc (Nursing) from a recognised Institute/ University
2. Less than 35 years of age for general, less than 40 years for SCs and STs.
3. At least 2 years of relevant work experience in the health sector, preferably at the CHC/ PHC level.

4. Proficiency in regional/local language and dialect.

The eligibility criteria for this Bridge program for Ayurveda Practitioners are as follows:

1. BAMS from a recognized Institute.
2. Less than 35 years of age for general and less than 40 years for SCs and STs.
3. At least 2 years of relevant work experience in the health sector, preferably at the CHC/ PHC level.
4. Proficiency in regional/local language and dialect.[xxixxxx]

1.3. Regional view

The baseline study of CHAI depicts an alarming requirement of boosting the capacities of front-line workers. Less than 50% of AWWs are receiving any kind of training on anemia. Most of them were able to identify symptoms but merely 6% of the AWWs and 1% of the ASHAs can identify all four symptoms of anemia. ASHAs and AWWs are in direct contact with the community and they are the first point of contact, that's why it is significant that they should have a comprehensive knowledge of all the four symptoms of anemia so that the cases are identified at the first point of contact itself and start with its treatment.

Figure 4 CHO at the time of addressing anemic PW

Apart from this, the primary duty of AWWs is to monitor the periodic growth of a child, only 62% of AWWs are doing so, this depicts the lack of monitoring even if the device is available. About half of the children whose growth was monitored were reported as SAM cases.

The knowledge of breastfeeding among frontline workers was high, but then too the rate of children breastfed within the 1 hour of birth was just 43%. 73% of AWWs about the age at which a child should be started feeding complimentary food, but 58% of mothers of children aged 6-11 months were aware of this. It reflects a lack of knowledge on anemia, growth monitoring, and the introduction of complementary food between 6 to 8 months.[xxxi]

1.3.1. Selection Process of CHOs in MP

The written exam is conducted and figure 5 indicates how weightage to different subjects are allocated. If a candidate qualifies for this exam, then he/she gets eligible to participate in the interview process.

Secondly, the selection is made if the candidate passes the interview round.

Position Name: Community Health Officers (CHOs)		
#	**Subject**	**Marks**
1	Physiology	5
2	Anatomy	5
3	Demography and common health statistics	5
4	Community Health, Epidemiology and Disease Prevention	5
5	Maternal Health (Pregnancy and Childbirth)	10
6	Child health and Nutrition	5
7	Immunization	5
8	Adolescent health	5
9	Family Planning	5
10	Common Communicable diseases	10
11	Non-Communicable Diseases	10
12	National Health Programs	10
13	General Knowledge	5
14	Skill Based	10
15	Analytical and Communication Skills	5
	Total Marks	**100**

Note:
(a) Each question carries 1 mark for the correct answer.
(b) E-Admit Card of all eligible candidates as per the advertised TOR shall be enabled to download seven days before (i.e., June 20, 2021) of Online Written Test date form www.sams.co.in;
(c) A link for mock/ dummy test for rehearsal/practice for the CBT based online written test shall be provided on our website www.sams.co.in 5 days before of Online Written Test.

Figure 5 Weightage to different subjects for written examination of CHOs conducted by NHM MP[1]

2. Research Objective

1. To assess the knowledge, attitudes, and practices of Community Health Officers.

[1] https://www.freshersnow.com/nhm-mp-cho-previous-papers/

2. To find out the gaps in KAP and explore different options to fill those gaps.

3. Research Question

1. What is the current status of KAP of CHOs?
2. What are the shortcomings in the KAP of CHOs?
3. What could be the different way of techniques to inculcate appropriate KAP among CHOs?

4. Methodology

Study location- All HWCs of Bhopal, Madhya Pradesh

Study duration- 3 months

Study tool- Google forms

Study design- Interventional

Sample size- A sample size of 79 CHOs is appropriate according to the study duration and the length of the questionnaire.

The study is based on secondary as well as primary data. The secondary data is gathered with the help of reports, articles, journals, research papers, and government data like the Indian Nursing Council, Medical Council of India, WHO, CHAI baseline study, and HWC guidelines book, etc. On the other hand, the primary data will be collected through a google form containing closed-ended questions based on knowledge, attitude, and practices of CHOs, which will be filled by the CHOs posted in HWCs, Madhya Pradesh. There are 6 sections of the questionnaire, that are, Maternal and Child Health, Health and Wellness Centre, Non-communicable disease, communicable disease, COVID-19, and attitude. These sections are analyzed with the age, experience, sex, and qualification of CHOs.

5. Discussion

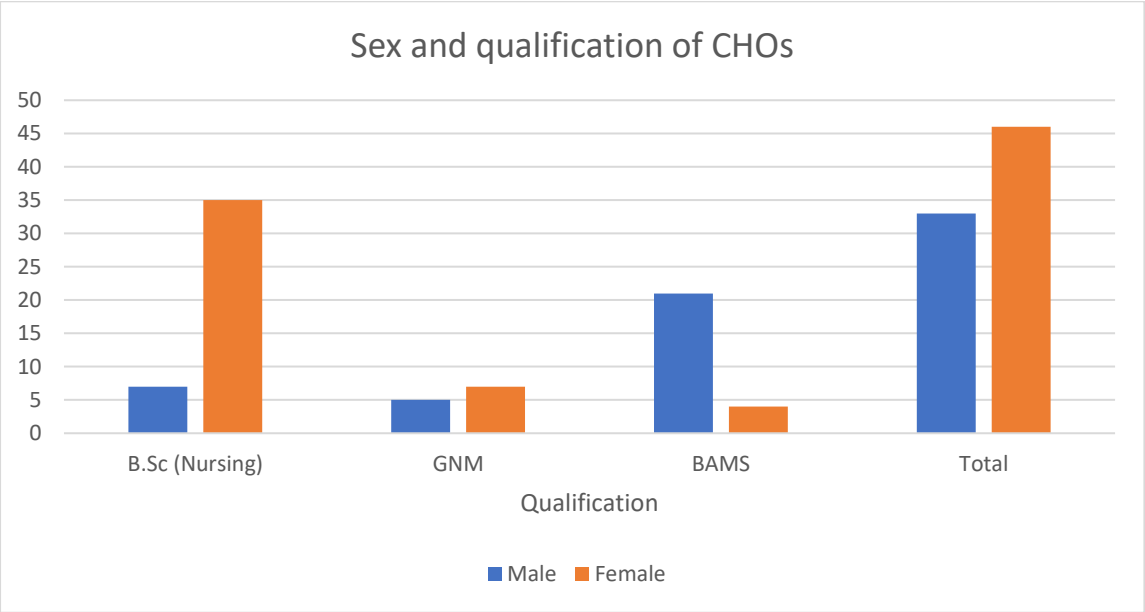

Figure 6 Sex and qualification of respondents

Figure 6 articulates 7 respondents out of 42 from B.Sc (Nursing) are males and the rest are females, 5 CHOs out of 12 from GNM are males and the rest are females, and 4 out of 25 respondents from BAMS are females and the rest are males. There is a total of 33 males and 46 females.

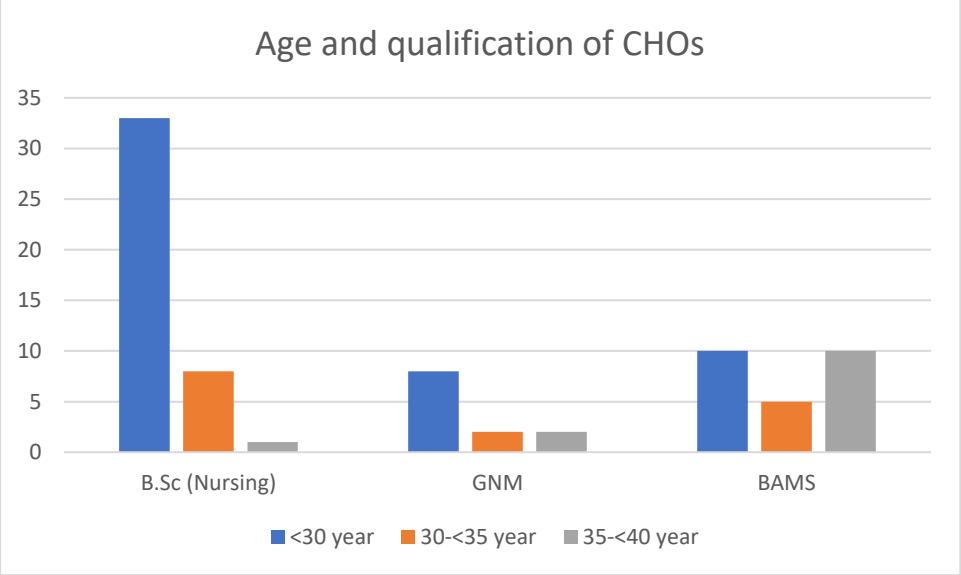

Figure 7 Age and qualification of respondents

Figure 7 describes that 33 out of 42 respondents were aged below 30 years, 8 respondents were aged 30-<35 years, and the rest 1 CHO aged 35-<40 years are from B.Sc (Nursing). 8 out of 12respondents aged below 30 years, 2 respondents aged 30-<35 years, and the rest 2 CHOs

aged 35-<40 years are from GNM. Whereas, 10 out of 25 respondents aged below 30 years, 5 respondents aged 30-<35 years, and the rest 10 CHOs aged 35-<40 years are from BAMS.

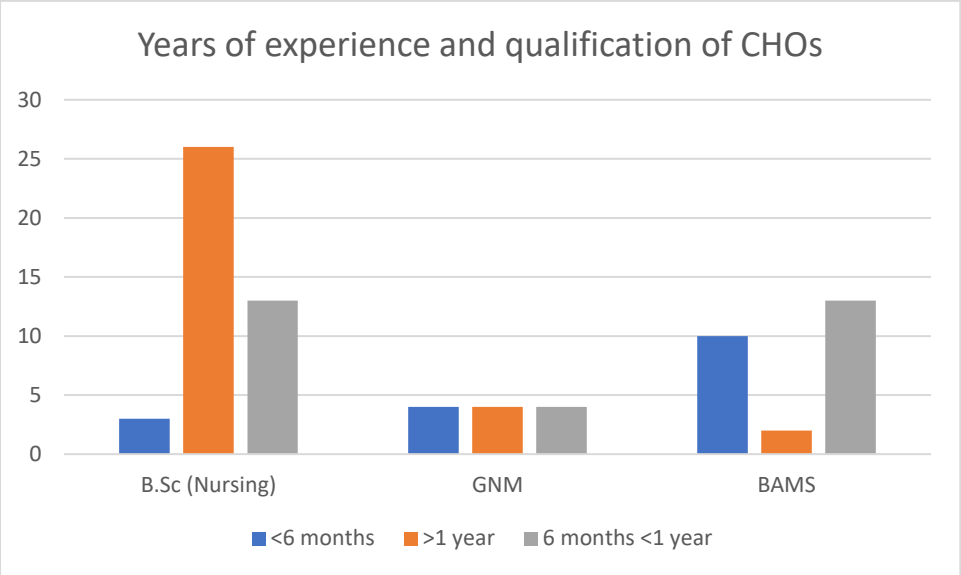

Figure 8 Years of experience and qualification of CHOs

Figure 8 shows that 3 out of 42 respondents have <6 months of experience as a CHO, 26 respondents possess >1 year of experience and the remaining 13 CHOs holds 6 months <1 year of experience are from B.Sc (Nursing). 4 out of 12 respondents have <6 months of experience as a CHO, 4 respondents possess >1 years of experience and remaining 4 CHOs holds 6 months <1 year of experience are from GNM. 10 out of 25 respondents have <6 months of experience as a CHO, 2 respondents possess >1 years of experience and remaining 13 CHOs holds 6 months <1 year of experience are from BAMS.

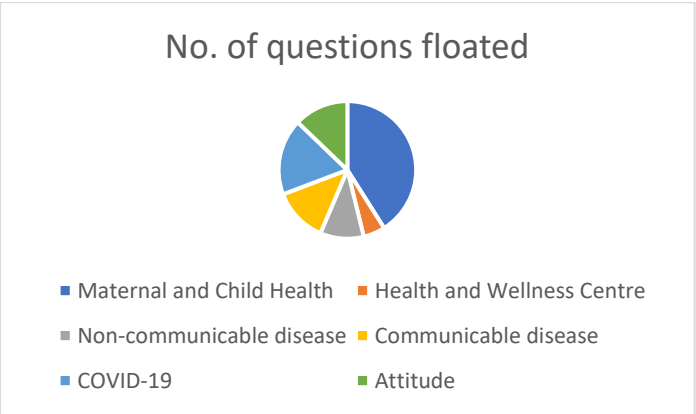

Figure 9 No. of questions

Figure 9 enumerates that 16 questions were framed for maternal and child health, 2 questions for health and wellness center, 4 for non-communicable disease, 5 for communicable disease,

7 for COVID-19, and 5 for attitude. Total 39 questions were floated for assessing the knowledge, attitude, and practices of Community Health Officers.

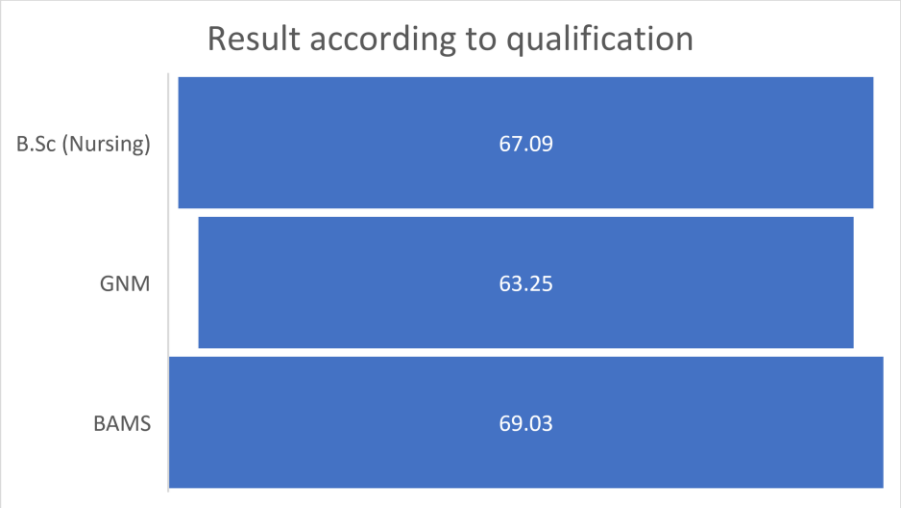

Figure 10 Result according to qualification

Figure 10 explains that the overall result of B.Sc (Nursing) respondents is 67.09%, GNM respondents result is 63.25% and CHOs posted holding BAMS degree can score 69.03%.

Table 1 Overall score

Total score			
Score	Percentage	Frequency	Remarks
1-13	-	0	Low
14-26	51.90	41	Moderate
27-39	48.10	38	High
		79	

Table 1 depicts that 41 out of 79 respondents lie in the 14-26 category i.e, moderate knowledge and the remaining 38 respondents answered between 27-39 i.e, high knowledge in the questions asked in all 6 domains. The marking is based on the right and wrong answers ticked by them (for every right answer, 1 mark is given and 0 is allotted for every wrong answer).

Table 2 Maternal and Child Health knowledge

Maternal and Child Health			
Score	Percentage	Frequency	Remarks
1-4		0	Low
5-8	5.06	4	Low

9-12	50.63	40	Moderate
13-16	44.30	35	High
		79	

Table 2 states that 4 out of 79 CHOs fall under 5-8 category i.e, low knowledge, 40 out of 79 respondents comes under 9-12 category i.e, moderate knowledge and rest 35 respondents answered between 13-16 i.e, high knowledge of Maternal and Child Health domain.

Table 3 Knowledge of Health and Wellness Centre

Health and Wellness Centre			
Score	Percentage	Frequency	Remarks
0	-	0	Low
1	39.24	31	Moderate
2	60.76	48	High
		79	

Table 3 puts on the table that 31 out of 79 CHOs scored 1 out of 2 questions asked, which demotes moderate knowledge and the remaining 48 answered both questions correctly, which means they have high knowledge of health and wellness center.

Table 4 Knowledge of Non- communicable disease

Non-communicable disease			
Score	Percentage	Frequency	Remarks
0	1.27	1	Low
1	7.59	6	Low
2	18.99	15	Moderate
3	59.49	47	Moderate
4	12.66	10	High
		79	

Table 4 denotes that 7/79 respondents fall under 0 or 1 category i.e, low knowledge, 62 out of 79 CHOs answered 2 or 3 questions correctly out of 4, accounts for moderate knowledge, and the remaining 10 answered 4 questions correctly out of 4, that means they have high knowledge of the non-communicable disease.

Table 5 Knowledge of communicable disease

Communicable disease			
Score	Percentage	Frequency	Remarks
0-1	17.72	14	Low
2 3	70.89	56	Moderate
4 5	11.39	9	High
		79	

Table 5 points that 14 out of 79 CHOs arise in the category of 0-1 i.e, low knowledge, 56 out of 79 falls under 2-3 category i.e, moderate knowledge, and the remaining 9 comes under 4-5 category i.e, high knowledge of the communicable disease.

Table 6 Knowledge of COVID-19

COVID-19			
Score	Percentage	Frequency	Remarks
0-1	10.13	8	Low
2-3	39.24	31	Moderate
4-5	45.57	36	Moderate
6-7	5.06	4	High
		79	

Table 6 indicates that 8 out of 79 respondents falls under the category of 0-1 i.e, low knowledge, 67 out of 79 CHOs answered 2-5 questions correctly, which means, moderate knowledge and the rest 4 CHOs lies under the category of 6-7 i.e, high knowledge of COVID-19.

Table 7 Attitudinal response

Attitude			
Score	Frequency	Percentage	Remarks
0-1	7	8.86	Bad
2-3	14	17.72	Average
4-5	58	73.42	Good
	79		

Table 7 describes that 7 out of 79 CHOs falls under 0-1 category i.e, bad attitude, 14 out of 79 lies under 2-3 category i.e, average attitude and rest 58 respondents come under 4-5 category i.e, good attitude related to sanitation and hygiene practices and other hospital essentials.

Table 8 Score related to practices

Practices			
Class interval	Frequency	Percentage	Remarks
0	14	17.72	Low
1	36	45.57	Low
2	29	36.71	Moderate
3	0	0.00	High
	79		

Table 8 states that 50 out of 79 CHOs answered 0 or 1 questions right, i.e, low knowledge, 29 CHOs have answered 2 questions correctly and no CHO has answered all 3 questions correctly.

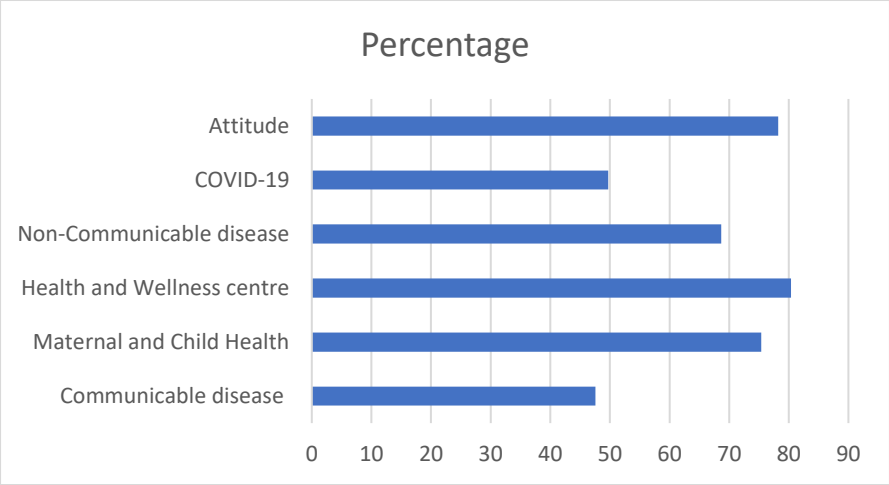

Figure 11 Percentage score in all sections

Figure 11 enumerates that CHOs have low knowledge of Communicable disease and COVID-19 with 47.59% and 49.72% results respectively. Similarly, CHOs possess moderate knowledge of Non-Communicable diseases with a 68.67% result. CHOs contain high knowledge of HWC and Maternal and Child Health domain with 80.37% and 75.36% results respectively and carry good attitude with 78.23% results.

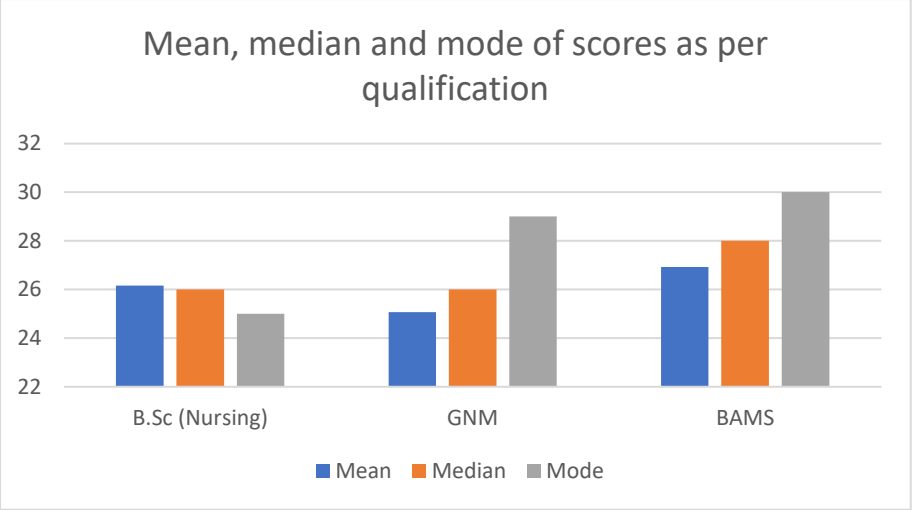

Figure 12 Mean, median, and mode of scores as per qualification

Figure 12 elaborates that as per the scores of assessment form filled by B.Sc (Nursing) graduates posted as CHOs at HWCs, the mean value is 26.16, the median value is 26 and the mode is 25. Similarly, the mean, median, and mode values of scores generated by GNM graduates are 25.07, 26, and 29 respectively. Whereas the mean, median, and mode value of scores created by BAMS graduates are 26.92, 28, and 30 respectively.

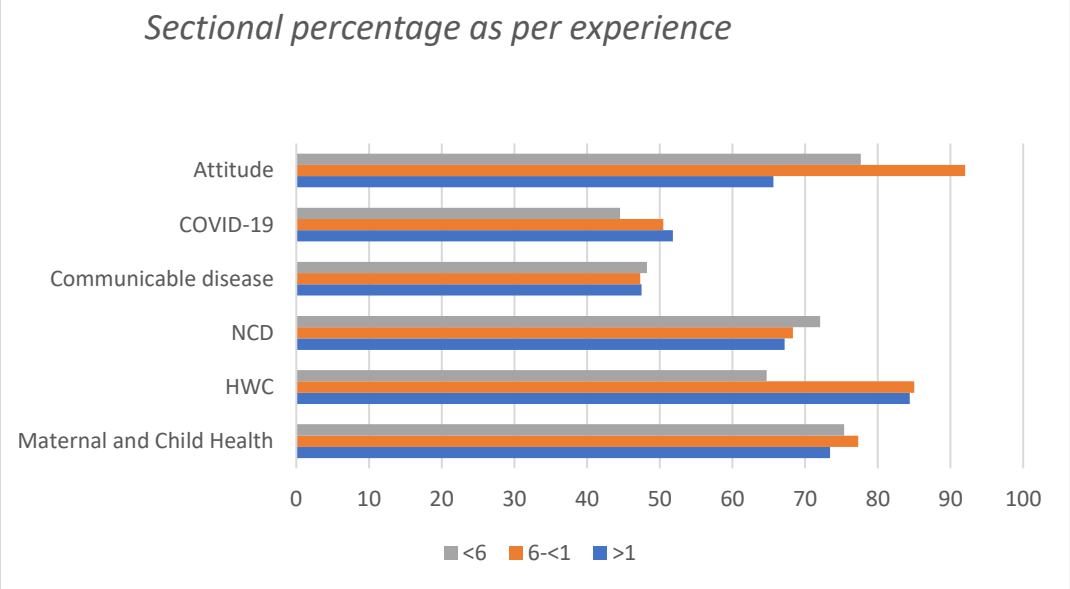

Figure 13 Sectional percentage as per experience

Figure 13 lays down that good attitude is highest among respondents with 6 months to < 1-year experience and average attitude among respondents with >1 year of experience. The knowledge of COVID-19 is lowest among CHOs with <6 months of experience and highest among CHOs with >1 year of experience, knowledge of communicable disease is lowest among respondents with 6 months to <1 year of experience, knowledge of NCD is lowest among CHOs with >1

years of experience and highest among CHOs having <6 months of experience, knowledge of HWC is lowest among CHOs having <6 months of experience and highest among those who have 6 months to 1 year of experience and knowledge of MCH among respondents with 6 months < 1-year experience is high and low among >1 year of experience.

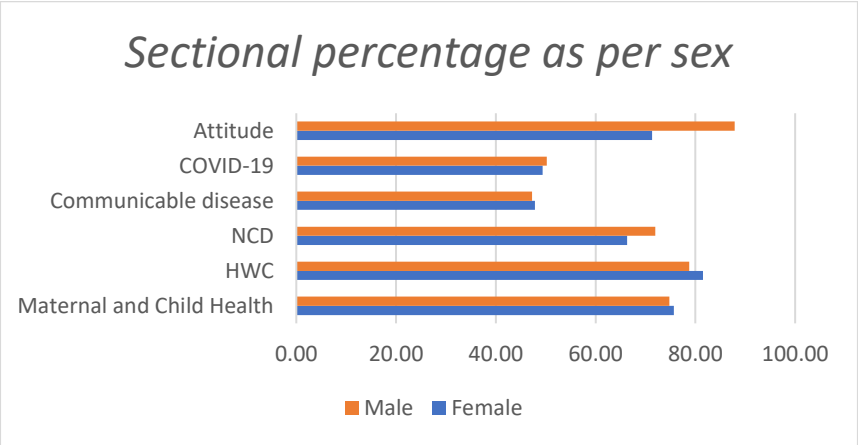

Figure 14 Sectional percentage as per sex

Figure 14 states that good attitude is highest among both male and female respondents with 87.88% and 71.3% respectively. The knowledge of COVID-19 is lowest among female CHOs with 49.38%, knowledge of communicable disease is lowest among both female and male respondents with 47.83% and 47.27% respectively, knowledge of NCD is moderate among female CHOs with 66.3% and highest among male respondents with 71.97%, knowledge of HWC is highest among both female and male CHOs with 81.52% and 78.79% respectively and knowledge of MCH is highest both in male and female respondents with 74.81% and 75.68% respectively.

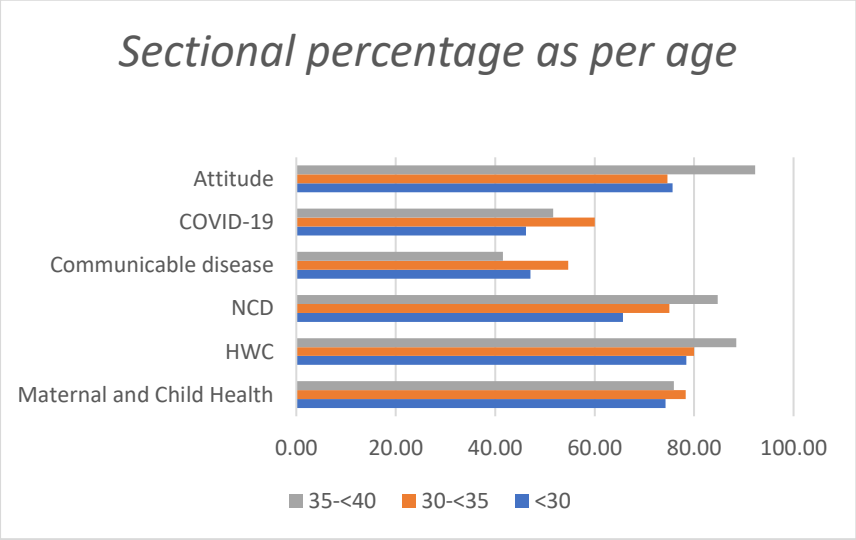

Figure 15 Sectional percentage as per age

Figure 15 states that a good attitude is observed among all the three categories of respondents with, but highest in 35-<40 age group with 92.31% result. The knowledge of COVID-19 is lowest among <30 age group with 46.22%, knowledge of communicable disease is moderate among 30-<35 age group with 54.67% and lowest among other two groups, knowledge of NCD is moderate among CHOs of <30 age group with 65.69%, and high among other two categories and knowledge of HWC is high among all the three age groups but highest among 35-<40 age group with 88.46% result and knowledge of MCH is high among all the three groups but highest in 30-<35 age group with 78.33% result.

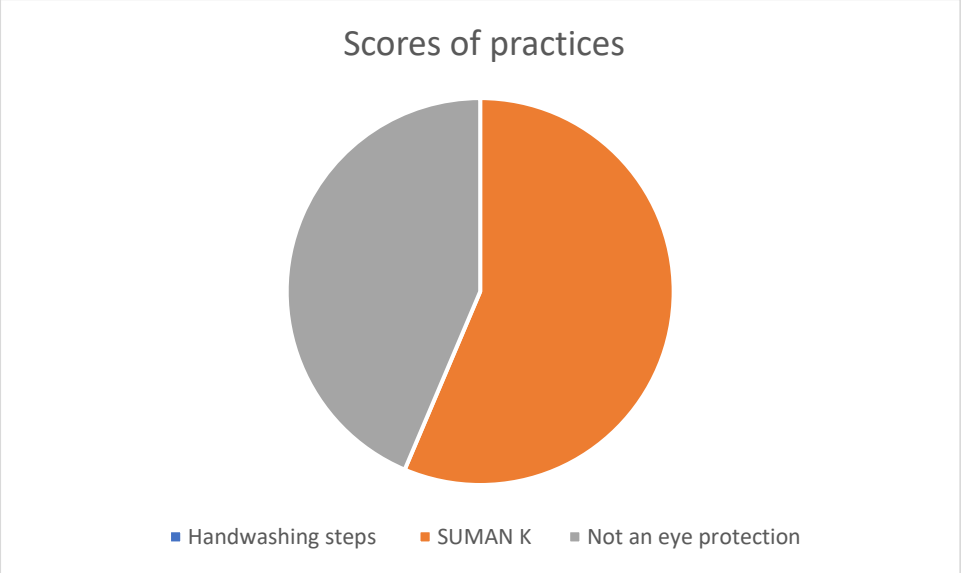

Figure 16 Score of practices

Figure 16 states that as per the survey conducted on practices, 3 questions were asked regarding practices, none of the CHOs has answered correct answer of the number of handwashing steps suggested by WHO, 53 out of 79 CHOs knew the correct full form of SUMAN K and 41 out 79 CHOs ticked a right answer when asked about protection not used for eye. The overall percentage of practices is 39.66% which is considered low.

6. Findings

- CHOs possess low knowledge of Communicable disease and COVID-19 with 47.59% and 49.72% results respectively.
- As per the calculation of measures of central tendency, BAMS graduates posted in HWCs accounted for the highest mean, median, and mode i.e, 26.92, 28, and 30 respectively as

compared to the other two graduates. It depicts the highest performance of CHOs who hold BAMS degree.

- A good attitude is highly observed in the male CHOs (87.88%) having 6 months to <1 year (92%) of experience aged 35 to <40 years (92.31%).
- CHOs possess the lowest knowledge of practices with a 39.66% result.

7. Recommendations

- CHOs are usually trained in NCD and HWCs, but it is important to inculcate the knowledge of communicable disease as CHOs are expected to deliver an expanded range of services. Some interesting teaching and learning methods need to be adopted for making them understand the causes, symptoms, effects, and medicines to be prescribed, etc. like learning with simulator mannequins, mind mapping, and practical workshops, etc.
- Other than the bridge program, CHOs should be encouraged to undertake other courses that can be developed by National Health Mission, MP, and its developing partners to enhance their knowledge. On the completion of such courses, some cash reward should be provided to motivate them to pursue these courses in the future as well.
- On-the-job training should be provided for enhancing COVID-19 related knowledge.
- A program can be initiated to make CHOs follow the right practices in which, for every 10 HWCs, one CHO will be posted as “Aachran Sansthapak” who will be responsible for the best practices followed in his/her area.
- Quarterly assessments should be made in regards to practices. HWC with the highest score should be provided cash rewards so that all the HWCs can get encouraged to maintain the best practices.
- A surprise visit to HWCs can be organized by NHM authorities to view whether the right practices are being followed or not.

7. Conclusion

CHOs work as a pillar of establishing HWCs and delivering CHPC services to the marginalized community. They carry a big responsibility on their shoulders, hand side it is very crucial to maintain a good KAP for the proper running of HWC. As per the study conducted in the Bhopal district, CHOs lack knowledge of communicable disease and COVID-19 which is essential in this scenario. A gap in the practices has also been identified, they scored lowest in the practice

section. To improve this, the surprise visits can be planned, quarterly assessments can work, and the post of "Aaachran Sansthapak can be established. Apart from this, there is a dire need to incorporate interesting teaching as well as learning methods like learning with simulator mannequins, mind mapping, and practical workshops, etc, so that it does not get monotonous and they can retain knowledge for a longer period.

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Appendix

Questionnaire for CHOs

A. Basic questions

1. Sex
   a.) Male
   b.) Female
   c.) Others
2. Age
   a.) <30 years
   b.) 30-<35 years
   c.) 35-<40 years
3. Basic Qualification
   a.) GNM
   b.) B.Sc (Nursing)
   c.) BAMS
4. Experience as a community health officer
   a.) <6 months
   b.) 6-<1 year
   c.) >1 years

B. Maternal and Child Health questions

5. Infants born to mothers who are vegan may be at increased risk of deficiency of which nutrient?
   a.) Vitamin C
   b.) Folate
   c.) Vitamin B12
   d.) Calcium
6. Which of the following symptoms is/ are identified for anemia?
   a.) Paleness and lack of redness in hands and togue
   b.) Paleness and lack of redness in nails
   c.) Conjunctiva of eyes
   d.) All of the above
7. What are the reasons of LBW at the time of birth?
   a.) Less age of mother

b.) Anemia

c.) Inappropriate PNC

d.) All of the above

8. How much weight gain takes place during pregnancy?

   a.) 5-6 Kg

   b.) 6-7 Kg

   c.) 2-3 Kg

   d.) 9-11 Kg

9. Which of the following is not a risk factor in 12 year old child?

   a.) Cyanosis

   b.) Severe Chest is drawing

   c.) Grunting

   d.) 38.4° C temperature

10. How much dose of IFA tablet is given to pregnant women when hb is at normal level?

    a.) 1 tablet per day till 1 month

    b.) 2 tablet per day till 3 months

    c.) 1 tablet per day till 6 months

    d.) No tablet to be given

11. Where to treat a child who is less than 1800 gm weight expected to develop bacterial infection?

    a.) HWC

    b.) PHC

    c.) S.N.C.U

    d.) CHC

12. Which of the following vitamin stops the excessive flow of blood in infant at the time of delivery?

    a.) Vitamin A

    b.) Vitamin C

    c.) Vitamin D

    d.) Vitamin K

13. Which of the following dose of gentamicin is given to 2 year old child suffering from pneumonia?

    a.) 7.05 ml/ kg/ day

b.) 7.50 ml/ kg/ day

c.) 5.70 ml/ kg/ day

d.) 7.50 l/ kg/ day

14. Which of the following dose of zinc is given to 2 month child suffering from diarrhea

a.) 10 ml/ once a day

b.) 15/ once a day

c.) 20/ once a day

d.) 5/ once a day

15. Which of the following vaccine is injected to children for preventing diptheria?

a.) Tetracycline

b.) Azithromycine

c.) Colistin

d.) DPT

16. Which of the following symptoms of malnutrition is not hospital rigid?

a.) Less than 11.5 MUC

b.) High fever or low body temperature

c.) Hb level less than 07 gm/ dl

d.) Swelling in both the legs

17. Which of the following measures is/are to be taken to stop hypothermia

a.) Kangaroo mother care

b.) Heat up the room temperature (25-28 degree)

c.) Ensure appropriate breastfeeding

d.) All of the above

18. How much should be the approximate temperature of room to maintain the body temperature of new borns?

a.) 28° C

b.) 34° C

c.) 25-28° C

d.) 25° C

19. A grandparents of 2 year old child bought their grandson to OPD with the complaint of loss of appetite. His weight is 5.75 Kg (50% less than normal) and height is 75% of normal. What measure will you take to solve this problem?

a.) Prescribe multivitamin tablet

b.) Pressurise child to follow proper diet

c.) Diagnose him for UTI

d.) Ask grandparents to not to take tension

20. When to start breastfeeding?

a.) Within 1 hour of child birth

b.) Within 2-4 hours of child birth

c.) Within 1-6 hours of child birth

d.) Within >6 hours of child birth

C. Health and Wellness Centre

21. As per the new EDL how many medicines should be available at HWC?

a.) 95

b.) 96

c.) 97

d.) 98

22. What is the importance of door to door visits of health workers?

a.) To do health assessment of mother

b.) To ask about child from mother

c.) To do health assessment of child

d.) All of the above

D. Non-communicable disease

23. Which of the following habits can develop NCD in a person?

a.) Consumption of tobacco

b.) Excessive consumption of alcohol

c.) No physical exercise

d.) All of the above

24. How much percentage of cancer can be treated at the initial stage?

a.) 10%-20%

b.) 20%-30%

c.) 30%-50%

d.) 50%-70%

25. Which of the following is the feature of liver cirrhosis?

a.) Jaundice

b.) Feel excessive tiredness

c.) Loss of appetite

d.) All of the above

26. What is the main reason of type 2 diabetes?
    a.) Low consumption of sugar
    b.) Obesity
    c.) Low weight
    d.) Excessive exercise

E. Communicable disease

27. Which of the following disease cannot be eliminated from its roots?
    a.) Polio
    b.) Diptheria
    c.) Tetanus
    d.) Measles
28. How long does chickenpox stay?
    a.) Till the last scab fall off
    b.) 3 days after onset of rash
    c.) 6 days after onset of rash
    d.) Till the fever subsides
29. Incubation period of typhoid fever
    a.) Less than 3 days
    b.) 3-5 days
    c.) 10-14 days
    d.) 21-25 days
30. Most common problem/ complication of mumps in children is?
    a.) Encephalitis
    b.) Aseptic meningitis
    c.) Pancreatitis
    d.) Pneumonia
31. Which of the following is not the measure to prevent pneumonia?
    a.) Vaccination
    b.) Wash hands with soap
    c.) Vitamin A
    d.) Lessen domestic pollution

F. COVID-19

32. Are people living with HIV always more at risk of COVID-19?

a.) Yes- people with HIV have weaker immune systems

b.) No- people who adhere to antiretrovial treatment (ART) and have a high CD4 count aren't more at risk

33. How many number of handwashing steps are recommended by WHO?

a.) 5

b.) 7

c.) 9

d.) 11

34. What is the full form of SUMAN K with regards to handwashing?

a.) S- Seedha, U- Ulta, M- Mutthi, A- Anguli, N- Nakhun, K- Kalai

b.) S- Seedha, U- Ulta, M- Mutthi, A- Angutha, N- Nakhun, K- Kalai

c.) S- Sar, M- Mu, A- Anguli, N- Nak, K- Kanpati

d.) Surakshit Matritva Ashawasan

35. Which of the following medicine is given to those who come in contact with COVID-19 positive patient?

a.) Chloroquine

b.) Hydroxychloroquine

c.) Remdesivir

d.) None of the above

36. What happens to a person suffering from COVID-19?

a.) Around 80% of the people will require no treatment as such and will recover on their own.

b.) Around <20% or a small proportion may need hospitalization

c.) A very small proportion basically suffering from chronic illness may need admission in an Intensive Care Unit (ICU).

d.) All the above are correct

37. In which age group the COVID-19 spreads?

a.) COVID-19 occur in all age groups.

b.) Corona virus infection is mild in children.

c.) Older person and persons with pre-existing medical conditions are at high risk to develop serious illness.

d.) All the above are correct

38. Which of the following is not a suitable type of eye protection in healthcare?

a.) Prescription glasses

b.) Polycarbonate protective glasses

c.) Face shields

d.) Goggles

G. Attitude

39. Handwashing practice and proper bio medical waste management can reduce the risk of infection and fatality.

a.) Strongly agree

b.) Agree

c.) Disagree

d.) Strongly disagree

40. Practicing the physical distancing norm and wearing mask breaks the chain of transmission.

a.) Strongly agree

b.) Agree

c.) Disagree

d.) Strongly disagree

41. With the stretagy of testing, teaching and treating, anemia and malnutrition can be defeated.

a.) Strongly agree

b.) Agree

c.) Disagree

d.) Strongly disagree

42. Early detection of NCD and NAFLD leads to reduced risk of mortality.

a.) Strongly agree

b.) Agree

c.) Disagree

d.) Strongly disagree

43. Documentation for hospitals is very important, it must be timely, accurate and outline the specific services.

a.) Strongly agree

b.) Agree

c.) Disagree

d.) Strongly disagree