CHAPTER – 2

REVIEW OF LITERATURE

Review of Literature chapter presents the scientific contribution made by scholars in India and across the globe giving an insight to the researcher. This gives guideline while planning any scientific research by showing current knowledge including substantive findings, theoretical and methodological contributions to a particular topic. This chapter also serves as a basis for not duplicating and avoid unnecessary repetition of academic or any investigation.

In its quest for scientific literature, the researcher had made a rigorous attempt to search and locate relevant articles, dissertations, thesis, documents, reports, *etc.* For this both online search engines and repositories like PubMed Central, SCOPUS, Web of Science, Google Scholars, Academia, ResearchGate, Shodhganga-INFLIBNET *etc.* were accessed and visits were made to various libraries, organizations, offices and scholars in and across state. The review was initiated with consideration of three **inclusive criteria** set in:

First, refer to the research work which focusing upon Health Communication Strategies and its provision, use, barrier, and need by Health workers in health programmes in order to gain holistic understanding of the central theme of the present study.

Second, Scientific work done during the time frame of 2008-2018*.

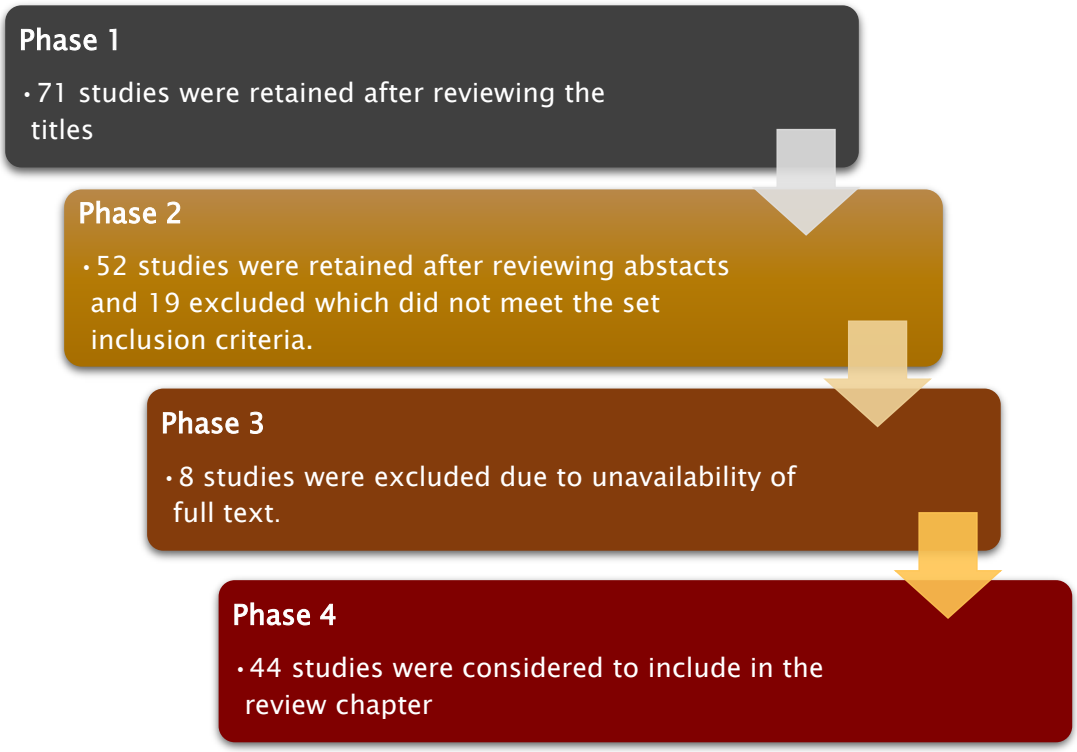
Third, studies included samples of Healthcare workers and volunteers engaged in community processes.

The researcher used **search terms** which included Health Communication Strategies, IEC/ICT/BCC in combination with other key words like use, barriers, benefits, need by health workers, health programmes, tribal people, developing countries *etc. (**Later, while finalizing the thesis one relevant research done in 2019 was included exclusively in the chapter.)

Figure 18 describes The phase wise process of review followed by the researcher.

Figure 18

Phase-wise Review Process



The investigator then classified selected 44 studies under following five categories for an easy and quick glance at the past scholarly contributions made under the present subject of study:

2.1 Healthcare workers and their awareness, knowledge, perceptions, role performance *etc.*

2.1.1 Indian studies

2.1.2 International Studies

2.2 Health Communication used under Health Programmes/Activities

2.2.1 Indian studies

2.2.2 International Studies

2.3 Information Education Communication/Behaviour Change Communication used under Health Programmes/Activities

2.1 Studies related to Healthcare workers and their awareness, knowledge, perceptions, role performance *etc.*

2.1.1 Indian studies

Sharma, N. (2017) examined the role and functioning of village health sanitation and nutrition committee (VHSNCs) and their impact on seeking and provisioning of Healthcare services under her study 'Mapping Communitisation of Healthcare Systems at the Village Level: An Exploratory Study' in Uttarakhand and Rajasthan.'

In total 12 villages (6 with NGO intervention and 6 without NGO intervention) were selected from Nainital and Alwar. Different tools were developed for each dimension of the study *i.e.* Theme-guide for conducting Focus Group Discussion, Semi-Structured Interview Schedules for various stockholders. The checklist was adapted from guidelines for community processes. (NRHM,2013). Secondary sources like records and documents maintained with VHSNCs were also seen. Data Collection was carried out from June to October 2015.

The study revealed that the composition, functioning, and dynamics of each VHSNC differed and varied from each other. However, there were some gaps which were common and served as obstacles in letting VHSNC reach their full potential.

Ownership and foundation are the foundation stones of communication. However, it was found to be missing for VHSNCs. The committee members lacked enthusiasm.

The study reported that there existed lacunae in the public healthcare system on the other hand presence of ASHA, a regular round of immunization, and medical assistance in CHC and district hospital made were some of the positive and only option available to people.

The study recommended that all committee members should be given exclusive training to build their capacities so that VHSNCs can perform their role effectively.

No Synergy was found between VHSNCs and health care service providers at primary level. Medical officers at PHC and CHC had limited awareness about the health committee. However, all of them acknowledged ASHAs' efforts at the community level which they believed had brought a drastic change in health-seeking behaviour and awareness level of community members.

Pandey and Mishra (2017) worked on 'A Study on the Factor Affecting Performance of FHW – a Study on FHW's of Ahmedabad District' to explore the factors which contribute to the performance of FHWs

Stratified sampling technique was used to identify samples of the study *i.e.* FHWs, district-level officials and supervisory staff. Data were collected through questionnaire and interviews. Octapace tool was used to design questionnaire.

The findings revealed that only 40% of FHWs scored well in terms of their performance which depend on many interrelated factors. Availability of proper infrastructure of sub-centre could boost up their motivation level, on other side lack of information sharing, freedom of micro-planning, collaboration with supervisory staff and goal-setting within department lower their motivation. Therefore, these needed to be taken care in achieving organisational goals.

Desai, P.B. (2016) studied 'Role of Accredited Social Health Activists (ASHAs) in the improvement of the health status of villagers under NRHM in Kolhapur district,

Maharashtra' to know the socio-economic characteristic of ASHAs, work was done in the selected villages and improvements in the rural health due to ASHA scheme.

Explorative cum descriptive research design was used to cover a population of total 2773 ASHAs. After the implementation of the scheme, villagers felt that there was an increase in public health care facilities and their utilization. As a result, with this scheme, the rate of institutional deliveries increased with the skillful help of ASHAs and cases of malnutrition decreased. Overall, due to this scheme, improvement in the health status of villagers was observed.

Shrivastava and Srivastava (2016) worked on 'Measuring Communication Competence and Effectiveness of ASHAs (Accredited Social Health Activist) in Their Leadership Role at Rural Settings of Uttar Pradesh (India)' to find out Accredited Social Health Activists' (ASHA) communication competence and effectiveness while working as leaders with groups in the rural setting.

The study adopted seven items from the Farmers Communication (FACOM) scale of communication measures developed by Udai Pareek and Y.P Singh. Twenty ASHAs were selected randomly from small villages of Uttar Pradesh. The scale was presented to at least five observers (all female beneficiaries) for one ASHA.

Results from the study identified a need to sensitise ASHAs on the critical role of effective communication and need for investing more in building her capacity for health communication. The training, being imparted to ASHAs had to be strengthened in terms of communication skills. They should focus upon developing all three variables of communication skills equally and integrating them to get desired results. Strategies for the overall development of communication competence should be designed, documented and pilot tested. Separate training modules should be developed to enhance leadership skills and, perhaps most importantly, her ability to communicate ideas and learning in a manner that community could comprehend easily, and one that is effective in impacting its behaviour and practices. This learning would feed into the policy planning for communication and capacity building strategy

of the ASHA programme which might lead to more effective strategies and tools of communication.

Choudhary et al. (2015) undertook a study on 'Evaluation of Knowledge of ASHA Workers Regarding Various Health Services Under NRHM in Saurashtra Region of Gujarat' to assess eligibility criteria as well as knowledge regarding the activities of ASHAs on the various health services under NRHM.

It was conducted in 9 PHC of 3 blocks in Jamnagar with 194 ASHAs. Data were obtained with pre-tested and semi-structured Performa. According to findings, various selection criteria for recruiting ASHA like age, education level and marital status were maintained but still were not fulfilling the required eligibility. So, it was suggested that strict selection criteria should be followed during recruitment. Further, findings shown that the majority of ASHAs correctly knew about various elements of the RCH programme but knowledge about other elements of their functioning was found deficient in a notable percentage. Knowledge about Village Health and Sanitation Committee was found poor. Findings reflected an urgent need for key actions at the District and Facility levels to improve ASHAs' knowledge. Hence repeated capacity building workshops could be organised to enhance their capabilities in delivering the health care services.

Garg et al. (2013) undertook 'An Evaluation of ASHA Worker's Awareness and Practice of their Responsibilities in Rural Haryana' to access the socio-demographic profile and to access the knowledge, awareness and practices of ASHAs. All 105 ASHAs in the area were interviewed using a semi-structured questionnaire.

Findings concluded that majority of the ASHAs were aware of helping in immunisation, accompanying clients for delivery, providing ANC and family planning services as a part of responsibilities. Only a few (17-19%) of ASHAs knew about registration of births and deaths, assisting Auxiliary Nurse Midwife (ANM) in village health planning, creating awareness on basic sanitation and personal hygiene. ASHAs still needed to put into practice their knowledge while providing services and advice to negotiate health care for poor women and children on hygiene and sanitation,

counselling on family planning *etc.* Due to the lack of incentives, they were not much aware of their roles in birth and death registration. These could be areas requiring reorientation.

Gosavi et al. (2011) carried out 'ASHAs' Awareness and Perceptions About their Roles and Responsibilities: A study from Rural Wardha' with the aims to study awareness and perceptions of ASHAs regarding their roles in health care provision and to study problems faced by them.

Sixty-seven ASHAs (undertaken induction training) were purposively selected from 28 villages of Anji from Wardha district, Maharashtra. An in-depth interview with a semi-structured schedule was used to elicit a response from the ASHAs. Findings revealed that most of ASHAs were not aware of their roles and responsibilities due to so many tasks expected from them, without providing adequate training, lack of support, lack of proper guidance, mutual respect and love from PHC staff, compensation for services other than institutional delivery and unclear reimbursement policy which delayed payments. The ASHAs complained regarding the lack of recognition and priority treatment of cases referred by them to Medical Officer/ANM.

It was noted that NRHM was only partially successful in sensitising the public health machinery towards; generating awareness amongst ASHA and creating a cadre of functional frontline workers in the form of ASHA.

Researchers recommended that there was much to do to sustain the concept of grass-root frontline workers and programmes as a whole.

2.1.2 International studies

Olaniran et al. (2019) United Kingdom, researched 'The roles of Community Health Workers who Provide Maternal and New-born Health Services: Case Studies from Africa and Asia' aiming to explore the scope of practice of different cadres of CHWs with regard to the provision of MNH care in different settings.

A qualitative method using a multiple-case study design was done to explore the training duration, characteristics and scope of practice of CHWs providing MNH services in sub-Saharan Africa and South Asia. Five study countries were selected using multistage sampling *i.e.* Bangladesh, India, Kenya, Malawi and Nigeria by reviewing 23 policy documents and conducting 36 FGDs and 131 key informant interviews and were analysed thematically.

Major findings include; CHWs in the study countries attained secondary education but differed based on training duration and primary workstation (facility or community), subsequently the characteristics and roles of these CHWs in MNH care varied with training duration and workstation. Additionally, it underscored contextual challenges to implementing policies relating to CHW roles in MNH care.

CHWs were engaged in a variety of cross-cutting roles which were often considered 'auxiliary services' and were needed to support health service delivery and inform decision-making.

Irrespective of training duration (8 days to 3 years), all CHWs could identify pregnant women, provided health education and screen for health conditions that required a referral to a higher level of care. Therapeutic care, antenatal care and skilled birth attendance, and provision of long-acting reversible contraceptives were within the exclusive remit of CHWs with training greater than 3 months. In contrast, community mobilisation and patient tracking were often done by CHWs with training shorter than 3 months. Challenges CHWs faced include, the pressure to provide MNH services beyond their scope of practice during emergencies, and a tendency in some settings to focus CHWs on facility-based roles at the expense of their traditional community-based roles.

It was concluded that CHWs were well-positioned geographically and socially to deliver some aspects of MNH care. However, there is a need to review and revise their scope of practice to reflect the varied duration of the training and in-country legislation.

Rachlis et al. (2016) studied 'Community Perceptions of Community Health Workers (CHWs) and Their Roles in Management for HIV, Tuberculosis and Hypertension in Western Kenya' as part of the Academic Model Providing Access to Healthcare Program (AMPATH) in western Kenya.

In-depth interviews and focus group discussions were conducted between July 2012 and August 2013. Study participants were purposively sampled. Participants were asked to describe their perceptions of AMPATH CHWs, including identifying the various roles they play in engagement in care for chronic diseases including HIV, TB and HTN. Data were coded and various themes were identified. Then was organized the concepts and themes generated using the Andersen-Newman Framework of Health Services Utilization and considering CHWs as a potential enabling resource. A total of 207 participants including 110 individuals living with HIV (n = 50), TB (n = 39), or HTN (n = 21); 24 caregivers; 10 community leaders; and 34 healthcare providers participated. Participants identified several roles for CHWs including promoting primary care, encouraging testing, providing education and facilitating engagement in care. While various facilitating aspects of CHWs were uncovered, several barriers to CHW care were raised, including issues with training and confidentiality. Suggested resources to help CHWs improve their services were also described. Findings suggested that CHWs can act as catalysts and role models by empowering members of their communities with increased knowledge and support.

Kok, Dieleman, Taegtmeyer, et al. (2015), Netherlands, undertook a study entitled 'Which intervention design factors influence the performance of community health workers in low- and middle-income countries? A systematic review'.

A systematic review of 140 quantitative and qualitative studies identified factors related to the nature of tasks and time spent on delivery, human resource management, quality assurance, links with the community, links with the health system and resources and logistics influencing CHW performance. Good performance was associated with intervention designs involving a mix of incentives, frequent supervision, continuous training, community involvement and strong coordination

and communication between CHWs and health professionals, leading to increased credibility of CHWs.

The review concluded that CHWs increasingly have made a formal part of health systems in LMICs, with expanding tasks. Although their contribution towards achieving health goals has been shown in various programmes, there were little evidences on which specific factors had contributed to the success. This systematic review found many factors related to intervention design that could influence CHW performance. These factors should be taken into account by policymakers during the development and adjusting of CHW programmes, taking the specific context of the situation in which programmes are implemented into account.

2.2 Studies related to Health Communication used under Health Programmes/ Activities

2.2.1 Indian studies

Research on 'The Effectiveness of Oral Health Education among Community Health Workers Based on Communication-Behaviour Change Model' was carried out by **Habbu and Krishnappa (2017).**

The study aimed to assess the effectiveness of health education based on communication behaviour change model (McGuire 1984) in improving knowledge, attitude and practices of the ASHA and Anganwadi workers regarding oral health.

The study was executed using a community randomized trial in Kaiware and Chinnasandra, Primary Health Centers. Self-administrated questionnaires were used followed by 30-minute oral health education, based on the persuasive health message framework (Witte,1995). ASHA and Anganwadi workers from Kairware PHC were randomly chosen and provided with oral health information leaflet as a reinforcement. After an interval of one month, they were checked for the improvement in knowledge, attitude and practice regarding oral Health Care.

The results of the Paired t-test showed a significant difference in the mean knowledge score of control and intervention (reinforcement) group. To promote

health successfully and reduce ill-health, investigators should use theoretical concepts to design all interventions for successful health promotion campaign. Community Health Workers can be effectively instrumental to reach to the population who has limited access to dental services.

Hazra (2017), 'Role of Communication for Improving The Health of Rural Women: Analysis and Implementation Strategies Used' with the objectives; to find out the health facilities available under NRHM and use of these facilities, to evaluate the impact and the effective reach of various communication in rural society, to know the use of various media in impacting health knowledge and attitude and to examine the implementation of communication strategies to involve communities.

The primary data for the study were collected through a multi-stage stratified random sampling method using two methods *viz.* interview and observation in two selected districts (Burdwan and Hooghly) of West Bengal. The total sample comprised of 640 marginalized rural women.

Major findings revealed that 73.43 % of total respondents from these Blocks were aware of NRHM program. most of the respondents *i.e.* 90.31 % knew about ICDS workers followed by 85.46% were aware of ASHA workers. 82.18 % of the respondents said that television has become one of the important parts of their daily life. 66.25% of respondents had mobile for their personal use in the rural areas of these Blocks.

Findings highlighted that communicating the need for screening in the local language, with clear terms, and by somebody, local suffices for most women to understand the problem. To spread these critical messages about women health screening, community radio and health talks, combined with the dissemination of information through interpersonal networks, were found to be the most effective routes.

The researcher concluded 'health had a close connection with the socio-cultural, economic and environmental aspects of the rural women community. The NRHM has improved the infrastructure in rural areas and provided adequate staff. The communication plans specifically focused on group communication. It has also

emphasized the production of printed materials and usage of outdoor advertisements, radio and television to reach the target group.'

Kaur et al. (2017) worked on 'Evaluation of Women Led Health Communication Program in Haryana'. The process evaluation paper was about Sakshar Mahila Samooh (SMS) programme, launched in rural Haryana. A total of 6788 SMSs, each having 5-10 literate women were equipped with enhanced health communication.

The methodology consisted of a Random Sample Survey of 283 ANMs, 1164 SMS members and 1123 village women representing 5 districts. Data were collected through a semi-structured interview schedule for each group of ANM, SMS members and village women. Program inputs, processes and output were compared in the five districts and chi-square was used for checking the significance.

Result revealed that in the sample division, out of 2009 villages 1732 had functional SMS. In the last three years, SMS conducted 15036 group meetings, 2795 rallies, 2048 wall writings and 803 competitions. Little less than half (44.5%) of the allocated budget was utilized despite receiving funds regularly.

SMS program had performed its function of communicating health messages and mobilizing the majority of village women with some variation in different areas. Through SMS initiative village women were trained and encouraged to play active roles using their collective spirit. SMS members had freedom in planning various types of health communication activities on various topics of their choice which they wanted to be covered in each *'Pakhwara'* or fortnight using different channels of communication for mobilization. *i.e.* group meetings, wall writing, street rallies, *etc.* These SMS groups acted more like a group of volunteers to promote health communication among the unreached and vulnerable population of the villages. The activities of SMS were financially and technically supported by the state government. Majority of the village women had exposure to the SMS activity.

However, SMS was not the only source of health information among village women as other IEC schemes were also operating. Though in the SMS program, community members became active participants in many places.

It was observed that the interaction of SMS with the community was quite active as the majority of village women reported receiving information from them and also acting upon it. Trust in SMS played an important role in the participation of women in their activities. Social capital built through collective actions played an important role in Health Promotion.

It was concluded that the SMS program has communicated health messages to the majority of the rural population through selected activities like rallies, wall writing, *etc.*

Nongmaitthem (2014) carried out 'A study of RCH Communication: A Critical Analysis of NRHM, Manipur' with the main aim to evaluate the RCH communication plan and programmes in the NRHM with reference to Manipur.

A questionnaire was developed to collect data from village women. The convenient sampling method was used in identifying both the village and respondent samples. A total of 600 respondents, 300 from each district had been administered the questionnaire wherein purposive informal interview method was also adopted.

Findings revealed that a majority of women in both districts owned video player machine, nearly half of the respondents watched TV only to watch films or movies on video players. Women in both districts watched several satellite channels also on Television and almost same listened to the radio. Newspaper readership among respondents was found negligible in both the districts.

Respondents received messages from various sources of information such as mass media like radio, TV and newspapers as well as interpersonal sources. Amongst the sources, the newspaper was the least preferred source of information. Many women respondents were not aware of NRHM but they could understand when they were mentioned about ASHA.

Some of the barriers with regards to information were observed during the researcher's field visit. But due to lack of nutritional information and less health consciousness, many women never tried to get the right information or follow reliable sources.

There existed a lack of communication and the desired relationship between physician and patients. However, the Government made much effort through IEC/BCC strategies and ASHAs played a great role in bridging the health gap at the village and community level. The applicability of the information was observed weak mostly among poor income families, people residing in far-flung areas with bad road transport condition, less educated families, lower media exposure and where ASHA activity was low. Bad road condition and non-availability of doctors in far-flung areas in both Chandel and Thoubal districts were also factors in marginalizing them.

The researcher found it obvious that people's knowledge of RCH issues has improved with the inception of NRHM and its communication interventions in Manipur. Nevertheless, most people in villages are not aware of the provisions under NRHM. In this respect, it was suggested that NRHM has to supply more information to the people about the benefits, provisions and schemes for them and encouraged people to claim them as their rights which they were not doing so. It was highly suggested by the researcher to properly organize focus group discussions, which was also a hard-core strategy of NRHM. The aims and objectives of NRHM will be able to achieve only when the BCC/IEC strategies go hand in hand with the actual implementation of service in the State. For successful implementation of the mission, it was suggested that the mission create better awareness among the public about the benefits and provisions under the mission clearly through an appropriate medium of communication.

Ghosh and Saha (2013) in their article entitled as 'Health Communication and Behavioural Change: An Exploratory Study among Marginalized Communities in Rural West Bengal, India' documented about their small-scale research intervention project.

The project aimed to develop and test an integrated package of communication campaign on health awareness among women belonging to the marginalized community. It was implemented in an underdeveloped setting of West Bengal, India during 2010-11. A quasi-experimental research design, with cross-sectional surveys conducted in six intervention and control villages of Birbhum

district. The baseline and end-line were used to evaluate the outcome of intervention among 1,196 respondents. Villages were selected through Probability Proportion Sampling method and semi-structured pre-tested questionnaire was used for collecting data during baseline and end-line surveys. Analyses of data were done using multiple, binary logistic and multinomial logistic regressions with a Difference-in-Difference estimator.

The health communication campaign in underdeveloped regions of rural West Bengal was designed to increase awareness, knowledge, and behaviours associated with positive health outcomes *i.e.* general and reproductive health knowledge, reporting of illnesses, and treatment-seeking from formal providers, especially from the public sector.

Results of the exploratory study suggested that the net effect of exposure to the intervention had a positive and significant impact on most of the indicators shown an increased level of awareness about signs and symptoms of general and reproductive complications. However, the net effect of exposure was mixed for the indicators of reporting of illnesses, pattern and sources of seeking treatment. The experience of implementing the project determines that it was possible to improve women's general and reproductive health awareness and practices which could have resulted in positive health outcomes in the long run.

Moreover, it was recorded that grass-root level public health care providers need to be sensitized towards the special requirements of women from marginalized communities. Further, special efforts were needed to provide preventive and curative aspects of health information and services directly to the women through outreach workers in the form of Inter-Personal Communication campaign. There existed resistance among mothers and not approving of their adolescent daughters listening to reproductive health information as they perceived their daughters are not 'adult' enough.

Anand and Batra (2008) in 'Efficacy of Media in Disseminating Health Messages: An Appraisal of the Health Communication Efforts of National Health

Mission (NRHM)' documented their observations. It aimed at to assess the role played by ASHA in facilitating health-seeking behaviour of rural women, to identify the most potent communication media source for creating awareness about NRHM and to conduct the content analysis of the IEC material designed by NRHM for promoting awareness about various health issues. A semi-structured interview was used with 50 women and 50 ASHAs, selected through purposive sampling technique. Besides this, content analysis was conducted various IEC interventions by NRHM on mass media viz, TV, Radio and Newspaper.

The study asserted that although mass media had a considerable impact on disseminating health-related information at the grassroots; it was interaction with ASHA that strengthened the delivery of such messages. The findings reinforced that for people with limited access to information and low literacy levels, inter-personal communication can support mass media to provide health-related messages effectively hence bringing change in health-seeking behaviour rather than just creating awareness.

2.2.2 International studies

Estrada et al. (2018), University of California, had tried out 'Development of a Participatory Health Communication Intervention: An Ecological Approach to Reducing Rural Information Inequality and Health Disparities' to address the gap by describing a participatory intervention in a rural, majority-Latino community. Previous work identified a weak information infrastructure as a major barrier to health: Residents struggled to find timely, relevant information, while stakeholders faced challenges knowing how to reach diverse audiences with critical health-related information.

Researchers employed participatory health communication asset mapping to identify health communication resources – safe, trusted spaces, and places – that served three distinct communication functions: informational (*i.e.*, where health information can be provided), conversational (*i.e.*, where residents feel comfortable

discussing health issues), and connection (*i.e.*, where a relationship exists). Through a six-step process, community leaders and residents identified communication resources and collaborated to create a communication resource map.

The participatory health communication asset mapping process articulated by the authors can be used to identify local communication resources that can be used to disseminate health information and help residents understand where to seek health information. Moreover, it was found to be useful beyond the intended purpose of health promotion. It served to build capacity for residents to serve as opinion leaders and change actors in their community as analysed from the process evaluation where primary motivating factors for residents' participation involved feeling empowered to contribute their opinion too and improve their community. This process adopted in this study serves multiple functions that contribute to the "culture-centre" approach to communication that demands authentic community engagement for better effectiveness.

The study provided a promising approach for the integration of a culture-centre approach to understand health and communication needs with an ecological approach to communication intervention in rural areas.

'Health Communication Campaigns in Developing Countries' a review article by **Sood et al. (2014),** attempted to examine key elements of health communication campaigns in developing countries. This review includes 43 articles and 5 books with chapters discussing campaigns from developing countries of wide geographical dispersion.

Authors mentioned that 'Despite a lack of scholarly consensus on the effectiveness of health communication campaigns, there is general agreement that communication interventions are necessary to bring about and maintain large-scale behaviour and social change. Designing, implementing and evaluating health communication campaigns is a complex task with myriad challenges, multiplied manifold in developing country settings.'

The campaigns reviewed ranged from multinational initiatives to programmes confined to specific cities or villages. The health issues undertaken in the manuscripts were reflective of the health goals articulated in the United Nations Millennium Development Goals. A relatively small proportion of the reviewed literature discussed the use of theory as a framework or foundation for the intervention(s); individual-level behaviour change theories were the most commonly used. The selected campaigns utilized a range of mass media, community mobilization, and interpersonal communication strategies, and often employed multiple strategies and communication channels.

A set of recommendations are presented to as under:

- The theories and frameworks utilised for developing campaigns should look beyond Western models of individual-level behaviour change towards more holistic frameworks consistent with Socio-Ecological approach.
- The traditional conceptualisation of campaigns as large-scale community-based mass media efforts should be reconsidered given that the findings of this review revealed a shift towards small-scale community-based efforts as the norm for health communication campaigns in developing countries.
- Reporting on health communication campaigns should include more specific descriptions of the participatory processes that guide them. They may be different from externally funded and driven national and multi-national efforts specifically due to their ability to be responsive to local needs and strengths.
- The use of health communication campaigns in developing countries is a well-established approach for motivating individual-level behaviour and social change and has driven improvements in public health over the last 30 years.

- A more strategic, evidence-based approach that begins with theory and utilises an appropriate combination of channels is needed to advance the field of communication campaigns for global health.

Keller and Lehmann (2008), Washington DC, USA carried out 'Designing effective health Communications: Meta-analysis' to provide evidence-based guidance for tailoring health Communications to enhance health intentions.

It included 60 studies, which reported results in 584 different experimental conditions, indicates that the type of message communication has an impact on intentions. The study checked the influence of 22 tactics and 6 individual characteristics on intentions to comply with health recommendations.

Results from full regression model suggested that low involvement audiences are more persuaded by moderately fearful, gain frames, other- referencing, vivid-messages, and strong source credibility, conversely, high involvement audiences prefer base information and strong messages that are also moderately fearful, but they do not distinguish between levels of vividness, common source credibility, and referencing. Surprisingly it was not found a differential advantage for the loss-framed message among those who were highly involved.

The model also indicated that health communications should be tailored to specific audiences. Although health messages on detection behaviours are equally appealing across age, segments, older target audiences have higher intentions for detection behaviours than prevention or remedial behaviours.

Snyder (2006) took up research on 'Health communication campaigns and their impact on behavior' to review the evidence for the effectiveness of health communication campaigns. In Total 441 campaigns were reviewed for the overall effectiveness and then lessons were organized around three critical elements of campaign planning: goal, strategy and research.

The average health campaign affects the intervention community by about five percentage points, and nutrition campaigns for fruits and vegetable consumption, fat intake, and breastfeeding have been slightly more successful an average than for

other health-related topics. The factors affecting the success rate were discussed in the article:

- Campaigns should explicitly state behaviour change as a goal because it will guide the development of the appropriate message and campaign strategies.
- To specify fairly homogeneous target groups and to create tailored messages designed for each group and their feedback
- Soliciting the participation of members of the target population and community organizations in campaign design and implementation- through community boards, hiring staff from the target population to be involved in campaign design, and conducting formative research with the target population - may improve the campaign.
- The common strategy is to communicate directly with the target population to change their behaviour.
- If there are environmental barriers hindering behaviour change, it may be effective to use the strategy of advocating for policy changes with policymakers, involve professionals, business and the general public.
- Activities and channels should be selected and used in a way to reach a high percentage of the target population multiple times in a given period. Greater reach- or exposure- to a campaign is associated with greater behaviour change.
- Using multiple communication channels may also increase the frequency of exposure to campaign messages when people see messages across different channels.
- Commonly used theories include the Theory of Reasoned Action, Social Cognitive Theory and Stages of Change, or the Transtheoretical model, and more recently The Social-Ecological Model was mentioned.

It was recommended that research is needed into which strategies such as participation in the campaign by local organisations, selecting goals, messages, and strategies that are sensitive to local cultures and values; and targeting informal

socialization agents so that they may teach successive generations the nutrition behaviour lead to sustained campaign effects.

2.3 Studies related to IEC/BCC under Health Programmes/Activities

2.3.1 Indian studies

Tripathy et al. (2018) conducted research on 'Use of IEC Materials by ASHAs During Home Visits to Disseminate New-born Care Messages in Uttar Pradesh, India' to explore the crucial variables of the health education issues related to new-born care which the ASHAs disseminate at the household level during home visits.

In total four districts of Uttar Pradesh were selected purposively and the data collection was done using a pre-tested structured interview schedule with both close-ended and open-ended questions. Besides, in-depth interviews were also conducted amongst the ASHAs and a total of 250 respondents had participated in the study.

The common job-aids available in all the four districts was the medicine kit that was given to ASHAs. IEC materials across the four districts were not available with more than 90-95% of ASHAs.

Regarding the benefits of using job-aids, more than 75% of ASHAs thought that the materials helped in giving the complete message. Very few ASHAs used the materials to reply to any health-related query during home visits. Less than 25% of ASHAs across the four districts thought that the materials added to the credibility of the message and helped to explain to illiterate households.

The process of orientation of ASHAs for effective use of the IEC materials provided to them could be considered as a significant strategy in developing the need specific communication skills of ASHAs. The meetings and training platforms at the CHC or PHC need to be optimally utilized to improve the level of interpersonal communication skills during their home visits. The materials would be used properly if regular guidance, work-related problem solving, record keeping and documentation of activities were discussed frequently.

Thakur et al. (2017) undertook research 'Is Focus on Prevention Missing in National Health programmes? Situation analysis of IEC/BCC/ Health Promotion Activities in a District Setting of Punjab and Haryana'

The objective of the present study was to carry out a situation analysis of IEC/BCC/ Health Promotion activities and to assess the awareness level of the community members regarding ongoing health programmes.

SWOT of implementation of IEC/BCC/ Health Promotion at district level was done during the situation analysis and in-depth interview of stakeholders, program officers, medical officers, health workers, and counsellors to carry out facility base assessment. Household (102 interviews) were contacted to assess knowledge of the community regarding risk factors.

Findings revealed that there was a high vacancy in the mass media division with 40% (2 out of 5) and 89% (8 out of 9) of the sanctioned positions remained vacant in Hoshiarpur and Ambala, respectively, with low capacity of staff and budget. There was no annual calendar and logbook of activities had a poor recording of IEC materials received and disseminated.

The Village Health and Sanitation Committee (VHSC) in the district of Hoshiarpur and Village Level Core Committee (VLCC) in the district of Ambala were found to be a non-functional with no IEC/ BCC activities in the covered village in July 2015. Monitoring and supervision of IEC/ BCC activities were poor in both the districts. Eight parameters were considered for carrying out situation analysis viz; the availability of the skilled human resource for or conducting IEC/BCC activities, presence of a District Action Plan specifically for IEC/ BCC activities, an annual calendar of IEC/BCC activities, logbook of IEC/BCC activities, availability of adequate IEC or resource material, budget for IEC/BCC activities, monitoring and evaluation of IEC/BCC activities, and integration and convergence of IEC/BCC activities.

The research concluded that IEC/BCC/Health Promotion component in National Health programmes under NHM was a neglected area in the selected districts, with inadequate infrastructure and human resources and poor implementation. The scope of IEC/BCC activities in the district was limited to the

distribution of IEC materials and conducting a few group meetings on RCH issue per se.

The need was emphasized to strengthen IEC/BCC/HP component, which could be possible by a pooling of resource, development of resource material, and integration and convergence within the ongoing National Health programmes.

Achyut et al. (2016) worked on 'Impact Evaluation of the Urban Health Initiative in Urban Uttar Pradesh, India'. The longitudinal research aimed at rigorous impact evaluation of the Urban Health Initiative (UHI) which included strengthening the active referral system; training and mentoring of providers; and enhancing Information, Education and Communication (IEC) materials. Partial implementation includes the provision of some training and/or provision of IEC materials.

The Measurement Learning and Evaluation (MLE) design included a longitudinal sample of women and health facility with baseline (2010) and end line (2011) data collection in six cities in Uttar Pradesh. A sample representative of women in each city was selected with oversampling of the poor. The two-stage sampling design was used, 84% of the women interviewed at baseline were interviewed four years later at the end line. The longitudinal data support a within/ fixed effect approach to identify program impact on changes in modern Family Planning use.

Longitudinal data were collected from women and the facilities in six cities in UP. All women were asked about exposure to UHI radio and television messages which promoted the use of modern Family Planning (FP) methods. The UHI programme aired on radio and three similar spots on the television, each woman was asked if she was familiar with each of these Spots. They were also asked about exposure to a number of print media in including brochures and books posters/ wall paintings about FP. Mid media activities such as magic shows, street plays and roadshows were also considered under the research work.

Results at end line revealed, more than four-fifth of women reported ever seen a billboard/poster/wall painting with an FP message. Sixty-one per cent of women recognized UHI specific message in television programs. About one-fourth of women reported exposure to FP brochure at the end line. There was high exposure to general FP messages on television in the last 3 months at baseline and end line.

At baseline, in the average cluster, a majority (65%) of women reported exposure to CHW in the last 3 months, by end line this percentage had declined to 45%. Exposure to the other activities including community groups, UHI radio and mid media activities was below 5% at the end line.

Future programmes in urban India should consider including the significant activities found in this study (e.g. brochures, billboards, posters, wall painting, CHW, supply-side and television), used local level targeting of poor areas to create comprehensive, multi-component programs, these programs should also ensure that activities are to support broader exposure and impact. The findings from the study can be used by the GOI to inform strategies to attain their FP 2020 commitments and to support the NURM under NHM.

Mahanta et al. (2016) undertook a study 'Effect of Social and Behaviour Change Communication by Using Infotainment in Community Perception of Adolescent Girls for Reproductive and Sexual Health Care in High Priority Districts of Assam' to assess its effects.

The methodology adopted was interventional study-before-after cross-sectional along with Focus Group Discussions. Low performing blocks were identified from 16 dashboard indicators used for RMNCH+A monitoring from HMIS (health management information system) data. From 1350 households, 528 adolescent girls were enrolled as participants using random sampling.

Social and Behaviour Change Communication (SBCC) intervention was given using Facts for Life (FFL) video show followed by discussion and feedback by trained Village Youth Volunteers (VYV) and frontline workers (ASHA, AWW, ANM). The topics included in video show were anaemia, nutrition and growth, family planning,

menstrual hygiene, HIV/ AIDS, hygiene and sanitation and diarrhoea prevention, safe motherhood, breastfeeding, and immunization. These FFL video messages have been repacked into the FFL IPC (Inter-Personal Communication) video series – for small group viewing and facilitated discussions to explain information, how to address barriers and challenges, which leverage opportunities and encourage community for action. Ten weeks of the intervention was given by showing 10 videos and doing pre- and post-show assessment. Statistical analysis used rates, ratio, proportion, and chi-square for variables like knowledge, attitude, belief and practices of adolescent girls regarding selected topics.

SBCC intervention showed significant improvement in knowledge and perception ($p < 0.05$). SBCC by using infotainment in community perception and practices for adolescent health, nutrition, awareness about HIV/AIDS, and other RTI/STI was found effective in improving awareness amongst adolescent girls in High Priority Districts of Assam. It requires further improvement in all high priority Districts of Assam. There was a need to have focus on IEC/BCC/SBCC to improve the situation. Therefore, community demand generation should be done along with the filling of facility gaps to make the call to action strategies successful.

ORG Center for Social Research (2009) reported in '2009 India: Assessment of Effectiveness of IEC Materials at Integrated Counselling and Testing Center' the effectiveness of the IEC materials provided by UNICEF at the Integrated Counselling and Testing Center (ICTCs). The assessment was carried out to check the knowledge, attitude and behaviour of the target groups as well as insights into the issues related to supply chain management in terms of reach and utilization of IEC of materials. Effectiveness of IEC of materials was assessed about the availability, relevance, usage, understanding and recall of the messages, appropriateness, appeal, impact, gets, *etc.*

Both qualitative and quantitative research methods were used, which involved observation of 72 ICTCs, photo documentation of 72 ICTCs, semi-structured interviews with 210 service providers, exit interviews with 2097 clients and documentation of 15 case studies. Multistage, proportionate and systematic random

sampling methods were used to draw samples from three selected States; Andhra Pradesh (with a prevalence of HIV/AIDS), Gujarat (with a medium prevalence of HIV/AIDS) and Uttar Pradesh (with a low prevalence of HIV/AIDS). Lists of ICTCs were provided by UNICEF.

Major findings were as follows:

- Three fourth of the service providers felt that IEC material supplied was adequate. A much higher percentage of counsellors in Gujarat felt that the IEC materials were adequate compared to Andhra Pradesh and Uttar Pradesh. This is the line with the finding that the supply of IEC of materials in Gujarat was much better than in Andhra Pradesh and Uttar Pradesh. There is a need to supply, use and monitor IEC materials in UP.
- Exposure to IEC materials in Andhra Pradesh and Gujarat was higher due to good supply and utilization of IEC of materials by the service providers. Also, observations have reflected that posters were displayed in these States, whereas in Uttar Pradesh hardly any posters were observed.
- A very high percentage of the clients (95%) felt that the counsellors were very cooperative.

The report suggested that IEC material should be in local language and reflect cultural sensitivity so that clients can identify themselves with the material. IEC material should be used to create awareness and address myths preventing in society and to reduce stigma.

Government of Uttar Pradesh (2008), prepared a document titled as 'Behavioural Change Communication (BCC) Strategy for NRHM in Uttar Pradesh (UP)' to provide a blueprint for focussed BCC interventions to achieve the goals of NRHM. It is evidence-based and used an ancient Indian theory of *'Sadharanikaran'*, in addition to the John Hopkins University, Centre for Communication Programmes, *'Pathways'* model as its conceptual foundation.

Situational and behavioural analysis in UP was done. It included an extensive review of the literature. 24 Stakeholders interviews with a range of policymakers,

programme implementation staff, development partners and service providers, field visits, Group discussions and in-depth interviews with ASHAs were held in two districts-Hardoi and Sitapur.

The report documented BCC gaps like; weak BCC supervision at the state, district, block and village level, weak capacity for planning and implementing BCC programmes, weak community-based BCC inputs, uncoordinated and unfocused mass media campaigns, lack of adequate BCC capacity in the state to implement BCC programmes at scale and need for orientation of all health personnel regarding BCC.

Further, based on this analysis, modified BCC log frames were prepared to address health services and structural barriers too. The BCC strategy aimed at convergence of behavioural focus, associated persuasive inputs and synchronisation resources. An integrated three-year strategy at the interpersonal, community and mass media levels of communication through a 'phased campaign approached' was proposed. It aimed to build on vast community-based resources available in the state and to build the capacity of ASHAs to be effective BCC change agents.

2.3.2 International Studies

UNICEF (2013), documented 'Cambodia: Community Care of Mothers and New-borns (CCMN)' the first incident of Cambodia, implementing an innovative community-based integrated maternal and new-born initiative in low-performing districts, using established CHWs to increase the proportion of institutional deliveries in its Working Paper 'Innovative Approaches to Maternal and New-born Health Compendium of Case Studies, Maternal, New-born and Child Health'.

During the home visits, trained community volunteers provided health education, advised families on care during pregnancy and post-partum periods, referred to health facilities for ANC, delivery and PNC services, assisted pregnant women to prepare a birth plan, advised and checked for danger signs for both mothers and new-borns — referring them to a health clinic if necessary — and promote and support breastfeeding practices. The CCMN package consisted of training materials, supervision and monitoring tools, counselling cards for

community volunteers and IEC materials for families. To ensure the continuity of care, the CCMN package was implemented in areas where previous training, equipment and supervision investments had already been made in the health system.

The community volunteers used CCMN package conducted 24 lessons, with three extra lessons that cover all possible activities of community volunteers in the field. The CCMN package pilot was evaluated in 2011 to assess its relevance, quality and effectiveness, efficiency, scalability and sustainability and to inform national expansion plans. CCMN was piloted in two provinces, Kampong Thom which is semi-rural and Stung Trang which is very rural and has a large number of ethnic minority groups.

The assessment report indicated considerable increases in desirable health and nutrition practices, as well as in-service coverage. This could be attributed to increases in home contact and information or advice provided by community volunteers. There were strong associations between the processes meant to promote effective interventions (reported home visits and advice) and the reported practice of desirable health behaviours and service use.

The CCMN approach addressed both demand-and supply-side considerations for improved maternal and newborn health outcomes. It was highlighted that, while CCMN requires commitment, technical and supply investments, it is relatively low-cost and can demonstrate considerable improvement in outcomes related to maternal and newborn health knowledge, attitudes and practices.

The report also emphasized that CCMN was not a stand-alone activity, it was implemented as part of the continuum of care approach in all the selected operational districts in Cambodia. Thus, UNICEF also supported the improvement of quality of care at the health centres levels, integrated outreach, emergency referral systems, strengthening of the supervision and on the job coaching for health staff.

Zulliger et al. (2014) undertook a descriptive study titled as, "She is my teacher and if it was not for her, I would be dead": Exploration of rural South African Community Health Workers'-Information, Education and Communication activities.

It was a qualitative study including 102 interviews that explored experiences with Information, Education and Communication (IEC) activities provided by CHWs within rural South Africa. Semi-structured interviews schedule was administered with CHWs (n=17), their clients (n=33) and the primary caregivers of these clients (n=30), allowing for data source triangulation. Moreover, twenty-two follow-up interviews explored emergent themes like illness experience, caregiver roles and relationships, and perceptions of the quality of care provided. IEC activities were not specifically probed but emerged as a prominent theme in interviews.

Despite limited formal education and training, CHWs in this study were significant providers of IEC, including the provision of generic health talks, HIV-specific information, facilitation to support clients' entry and maintenance in the formal health system. They often incorporated local knowledge and understanding of illness in their communication. CHWs in this study were able to bridge the life worlds of the community and the formal services to expedite access and adherence to local clinics and other services. As mediators between the two worlds, CHWs reinterpreted health information to make it comprehensible in their communities.

With the growing formalization of CHW programmes in South Africa and elsewhere, CHWs' important role in health service access, health promotion and health maintenance must be recognised and supported to maximise impact. This study suggested that CHWs will require training and orientation on the importance of these services. It also highlighted the need for improved documentation of CHWs' IEC services. Through the adaptation of messages and strong community understanding, CHWs in this study were important providers of IEC. It was, therefore, important to protect this role and imperative that CHWs continue to be drawn from the local community and their preventive and promotive work is supported. This would require adaptation of Monitoring and Evaluation systems to value CHWs' IEC-related activities.

Ministry of Health, Cambodia (2011), reported in 'End of Project Evaluation of Health Behavior Change Communication Project in Cambodia' with the main objectives of valuation; to assess the project's performance using standard evaluation

criteria of syllables/appropriateness, effectiveness, efficiency, impact (potential), sustainability and to document good practices, success, to generate evidence-based lessons learn and recommendation, and to guide the way forward for the strengthening ongoing efforts, new initiatives and BCC expansion.

The multistate assessment was considered to ensure participants of stakeholders at each national, provisional, district and village levels. It comprised three phases: desk review face included a comprehensive assessment of all project document, reports, log frames, service, *etc.*

A baseline survey on key family practice was conducted among community and village, health volunteers to obtain end-line data on Knowledge, Attitudes and Practices (KAPs) in terms of the 12 key family practices.

The evaluation was concluded as that the health BCC project was relevant to the context and largely effective in contributing to Cambodia's Health Promotion needs. The project was successful in meeting its objective as defined by the national level long frame: strengthening National BCC policy-making and National Centre for Health Promotion (NCHP)'s capacity to support BCC at National and provincial level.

At provincial levels, BCC training was provided to Provincial Health Promotional Unit (PHPUs) and health providers, training on counselling and IPC were given to health centre staff and Village Health Support Groups (VHSGs). It was found that most provincial-level health providers found the training and IEC materials to be useful.

The planning and implementation of the nationwide ANC, BCC campaign was a huge success. Other notable achievements include revision and dissemination of the national BCC policy, the establishment of BCC forums in all provinces and the roll-out of training across provinces.

However, the project faced key challenges like; NCHP had no budgetary oversight resulted in decreased ownership of the project, especially from long term point of view as NCHP state perceived the project to be time-bound and operating with limited funding.

Secondly, NCHP's long term role and MOH's reason for the institution as a pivotal point for health promotion remained unclear. However, the BCC resources developed during the initiative had wide applicability, the sustainability and expansion of a project's BCC activities were doubtful due to the lack of a long-term approach for health promotion in Cambodia and necessary government funds.

Interviews with community members revealed an attitudinal change among care providers at health centres. As key agents of change and influence in the community, the impact of VHSGs was also important as they were able to reach people who do not use health centers. Through the door to door counselling and Inter-personal communication, the groups shared knowledge on key family practices, which was well received by the community.

ANC campaigns and interviews were found to be overall better in health-seeking behaviour. BCC forums were extremely important in providing a platform to discuss and spread awareness about health issues at the community level.

Improved service delivery, training on counselling and interpersonal communication, attitudes of service providers, resulted in better service delivery and thereby positively mark an impact on overall health-seeking behaviours.

During the evaluation, the following recommendations were made for future activities:

- Continuous monitoring and supervision of activities under Health BCC project to ensure that activities do not dissipate at the national levels.
- BCC forums have been very effective and should be continued in as many provinces as possible.
- Refresher training should be conducted, particularly among the district, health centre and village staff.
- IEC materials used at health centres should employ large practices. As the project revealed that text-heavy brochures have a smaller impact and are only effective when implemented by other materials.

2.4 Studies related to ICT, mobiles and new media under Health Programmes/ Activities

2.4.1 Indian Studies

Shah et al. (2018) documented 'The Role of a mHealth Intervention in Improving Knowledge and Skills of Accredited Social Health Activists in Tribal Areas of Gujarat, India: A Nested Study Within an Implementation Research Trial.'

The experiment was undertaken to evaluate the effectiveness of a mHealth intervention in improving knowledge and skills of ASHAs in improving maternal, newborn and child health care in India and adopted cross-sectional study design within a cluster randomised controlled trial. The intervention was a mobile phone application which has inbuilt health education videos, algorithms to diagnose complications and training tools to educate Accredited Social Health Activists (ASHAs). A total of 124 ASHAs were randomly selected from the control (n = 61) and intervention (n = 63) groups of the larger study after six months of training in Bharuch and Narmada districts of Gujarat. Data collection was carried out using a pretested, structured questionnaire. Cross-tabulation was performed to see the differences between intervention and control clusters. Chi-square and Fisher's exact tests (for numbers of cases below five) were used to measure the differences between intervention and control groups. Multivariate logistic regression was used for each of the variables on knowledge and skills to generate the Odd Ratios (OR) for the intervention arm.

The knowledge of ASHAs regarding pregnancy (OR: 2.51, CI: 1.12–5.64) and newborn complications (OR: 2.57, CI: 1.12–5.92) was significantly higher in the intervention arm compared to the control arm. The knowledge of complications during delivery (OR: 1.36, CI: 0.62–2.98) and the postpartum (OR: 1.06, CI: 0.48–2.33) period was similar in both groups. The activists from the intervention arm demonstrated better skills for measuring temperature (OR: 4.25, CI: 1.66–10.89) of newborns compared to the control group.

The results suggested the potential benefits of mHealth intervention for

improving knowledge and skills of accredited social health activists. Considering the potential low cost, mHealth can become an important tool for empowering ASHAs to acquire appropriate knowledge and skills at regular intervals in remote rural areas.

Srishti and Raj (2018) carried out a research 'Potential of Health informatics for Improving Maternal Health in Bihar'**.** The objective was to explore the role of mobile phones as health Informatics tool for improving maternal health conditions in Bihar.

Mixed method approach was used under the study. Data were collected using the interview method with both services users *i.e.* mothers and service providers. Mothers were selected through purposive random sampling method. The data were thematically arranged and for data analysis, both quantitative and qualitative methods were used.

It was observed that caste-based variations play a critical role in determining maternal health-seeking behaviour of women in Patna, moreover, gender-based discrimination emerged as a vital concern for availing of Healthcare facilities. Cultural and linguistic behaviours created a communication gap between health professionals and women health seekers. Health professionals acknowledged that maternal education if propagated through media tools like mobile phones can ameliorate the poor maternal health-seeking behaviour of women.

Findings also highlighted the willingness of the women to receive health-related information daily on mobile phones through information videos. Mobile phones could be instrumental and would make it possible for women to receive medical information, treatment, diagnosis and counselling from Healthcare professional in less time. Moreover, it would also assist women during pregnancy and the postpartum period for example reminders for ANC and PNC checkup visits. The need was emphasized to check and understand the association between women's health, culture and society through the Postmodernist lens before developing any mobile initiative.

When all these would be taken into consideration then in Bihar, mHealth could have an empowering role in capacitating women to avail antenatal checkups, institutional deliveries, postnatal care of right time and bring positive changes in the maternal health sector by functioning as a tool for social change.

Arya (2016) taken up a study on 'Information Communication Technology Used by Healthcare Worker (ASHA) of Uttarakhand'.

The objectives of the research were to study the socio-economic and communication characteristics of ASHAs, to find out the existing knowledge about Communication Technology among ASHAs and to evaluate the feasibility of the communication technology used by ASHAs.

Forty ASHAs were selected as respondents with whom questionnaire was used. The results were prepared with frequency and percentages.

The findings of the study implied that:

- Technology should be used for disseminating nutrition information to rural women by the ASHA.
- In imparting health and nutrition education, use of group method was minimum and for the dissemination of the health and nutrition, they used other methods.
- Lack of community participation was reported as a major constraint in the effective delivery of health and nutrition messages, there is a need to equip the ASHAs with required skills in leading community meeting for awareness as well as give learning on handling a computer, cell phone, *etc.*
- Moreover, the need was felt to think about the media appropriate to the ASHAs. Given their knowledge regarding Communication Technology, there was a definite need to develop a system through which they learn the use of this medium and then can transfer useful technologies to women.

The study concluded that the use of ICT had lots of potential in improving the overall performance of the public Healthcare system. It could transform both quality and access to healthcare services. The rural poor would be greatly benefited as they would be able to assess quality health services through ASHA. Hence, ASHAs should be trained and facilitated for the effective use of ICTs during service delivery.

Chib et al. (2012) in their research article 'ASHA-The Hope of ICTs in Indian Rural Healthcare' reported about their examination of how mobile phones, which can empower and enable rural health care workers to deliver better health care services. This mainly focused on investigating the impact of rural community healthcare workers under India's National Rural Health Mission, known as Accredited Social Health Activists (ASHAs) in Uttarakhand State.

The study was carried out in two cities-Rudrapur and Haldwani and rural areas-Udhamsighnagar, during 2009. Qualitative in-depth interviews with each set of samples were conducted which included 14 rural CHWs, 13 ASHAs, 18 doctors and 11 patients. A mix of convenience and snowball sampling methods were employed. Field observations in the form of short interviews and audio-visual recordings were used as secondary methods to provide supporting evidence for triangulation purposes.

A separate set of questionnaires was created for each of the three categories of respondents. Each questionnaire consisted of two sections; the first section with generic ICT consumption pattern questions and the second with questions on their usage of mobile phones in specific situations encountered at work. The transcripts were analyzed thematically based on codes developed from the benefits and barriers identified before-hand from the ICT4H model.

This study revealed that adopting a theoretical model, the ICT4H model, had value in determining key enabling and limiting factors in the Indian rural healthcare context, as there is a paucity of theoretically grounded case studies within the discipline. The study provides an early insight into potential benefits and drawbacks

that might be encountered when developing a plan for the extensive roll-out of ICT programs in the healthcare sector by government or any organisations.

The findings concluded that four main benefits of using mobile phones—opportunity production, capabilities enhancement, social enabling and knowledge generation-as well as obstacles to usage, which include economic, technological, socio-cultural and infrastructural barriers, were applicable in the Indian rural healthcare context. Further, policy recommendations for developing-country government investment in rural healthcare towards supporting the organic diffusion of mobile phones versus the current Internet focus were also narrated by the authors.

Murthy and Vijayraman (2012) in 'Role of Mobile phone in Female Health Workers' work routine' documented results of a field study of six randomly selected PHCs in Mysore, Karnataka. The study aimed at understanding FHWs' workload, workflow, information needs, barriers to meeting those needs, current use of mobile phones in their work processes and kind of support the mHealth product could offer to improve their work efficiency. The study was conducted with 25 FHWs, 31 ASHAs and 25 young mothers using semi-structured questionnaires.

Findings confirmed the near universal availability and use of mobile phones by all health workers and a majority of their clients, providing further support to the proposed mHealth initiative that will be attempting to exploit the mobile phone technology to the fullest extent, going beyond calling and receiving calls, to make the health workers more productive and improving quality of services they provide. The results highlighted upon constraints such as age and heavy workload of health workers besides connectivity, battery charging and credit available for the mobile handset. Moreover, researchers reported on opportunities for FHWs of the Drishti mHealth product like facilitating timely communication about delivery and birth notification, danger signs of ANC and PNC and virtual presence during follow up with ASHAs and mothers.

Garai and Ganesan (2010), Uttar Pradesh**,** studied 'Role of Information and Communication Technologies in Accelerating the Adoption of Healthy Behaviours'

aiming to assess the status of ICT use in the health sector, to understand the application of existing and emerging ICTs that have the potential to rapidly accelerate the adoption family health behaviours and to determine how emerging technologies can be used in a Behaviour Communication Strategy (BCC) and the delivery of services for improving family health outcomes.

In the present study, data were collected using three methods–a literature review, 26 key informant interviews and consultations with domain experts. Review of literature provided insights into the effectiveness of ICTs in Health Behaviour Communication. Also, information on the feasibility, challenges and uses of ICT in developing countries. Besides, Key informant interviews with experts in India focused on the acceptance, feasibility and potential use of ICTs in India.

The research highlighted upon key areas where such research was required include testing the accuracy and effectiveness of data collection using mobile technology among frontline health workers and its use in communicating with their supervisors, establishing and testing HMIS that could remind providers about visits to beneficiaries, sending voice call reminders to end-users and using video applications to build the capacity of frontline workers during their monthly/bi-monthly visits to the PHC. In the context of rural UP, the use of ICTs (mobile phones and hand-held devices) for networking and coordination among the health workers (AWWs, ASHAs, ANMs, PHC doctors), collecting and sending primary data and using CD-based reorientation programs appeared to be feasible and could be tested on priority. Developing an MIS and using the system to remind providers and end-users by sending voice calls on their mobile phones could also be attempted. The mobile phone/telephone was the only communication technology available to end-users in rural UP then. Since the ownership of mobile phones has been expected to exceed that of television or radio in the coming years, it was important to explore how messages received by men shared with women. To communicate with end-users, single interaction systems using ICT are being used in many health projects. However, multiple interaction systems were not adopted in a significant way in health projects

in India. Evidence suggested that multiple interaction systems were far more effective than single interaction systems and needed to be incorporated into BCC strategies.

2.4.2 International studies

Udousoro (2014) carried out research 'Use and Gratification of ICTs by Health Care Personnel in Nigerian South-South Tertiary Hospitals' to seek answers to these questions: Which ICTs do healthcare personnel in tertiary hospitals in South-South Nigeria use frequently? What do healthcare personnel in tertiary hospitals in South-South Nigeria use ICTs frequently for? and What benefits do healthcare personnel in South-South Nigeria derive from using ICTs?

The population of the research comprised of health professionals in 3 tertiary hospitals, by using proportionate stratified sampling technique 351 samples were drawn from over 3000 professionals. A questionnaire was administered for collecting data from the selected samples.

The findings of the study noted that health workers applied ICTs to various activities such as communicating with colleagues and patients; using ICTs as personal assistants, (reminders, schedulers *etc.*); for storage and analysis of patients' data *etc.* Multimedia presentations during seminars and lectures, research and publication of academic papers as well as browsing the net for medical information *etc.*, were other activities for which health workers utilized ICTs. Besides this, ICTs have influenced service delivery in areas such as improved diagnosis, assembling health workers faster during emergencies through calls, text messaging and better patient management procedures occasioned by easy access to updated information on the Internet.

The present study offered recommendations too; more software packages that ease the complicated health care processes should be provided by hospital management and health care worker trained for the same, health workers should get engaged in online discussions using ICT enabled support, hospitals should adopt ICTs like computers and internet more for medical diagnostic purposes, storage and retrieval of soft copies of medical records.

Florez-Arango et al. (2011), United States of America, studied 'Performance factors of mobile rich media job aids for community health workers.

The team of researchers attempted to study and analyse the possible benefits on the performance of community health workers using point-of-care clinical guidelines implemented as interactive rich media job aids on small-format mobile platforms.

The study adopted a randomized prospective crossover study design with one intervention (rich media job aids) and one control (traditional job aids), two periods, with 50 community health workers, each subject solving a total 15 standardized cases per period (30 cases in total per subject).

Error rate per case and task, protocol compliance was calculated to measure the significance. Intervention with CHW included cell phones in a structured interactive workflow using reach media (text, audio/voice, images/videos). The Intervention was compared to traditional paper-based job aids using several metrics including error rates, measures of guideline compliance, case completion time, usability measures and six dimensions of workload. Performance of the subjects concerning errors and protocol compliance was scored by the observing physicians. Consistency and reliability were supported employing checklists for scoring and identification of errors.

Results emphasized upon error-free /less error (33.15%) in making clinical decisions and hence more standardized protocol care (30.18%) compliance of the intervention. These results indicated promising prospects for mHealth technologies in general, and the use of rich media clinical guidelines on cell phones in particular, for the improvement of community health worker performance in developing countries.

Since the system described, provides information and guidance using audio, images, and video, it was estimated that the study results would persist. However, further research with CHWs and patients across a spectrum of educational levels was required. Potentially, the long-term result of using such systems could bring improvements in patient health outcomes. Future work could include enhancing the

user interface, adding features such as GPS location, and repeating the study with human patients in Colombia and elsewhere in other developing countries.

2.5 Studies related to information needs of Healthcare workers

2.5.1 Indian studies

Raj et al. (2015), 'The Health Information Seeking Behaviour and Needs of Community Health Workers in Chandigarh in Northern India', conducted a cross-section study to assess the health information-seeking behaviour and needs of community health workers.

A semi-structured questionnaire was used to collect data from Community Health Workers on their information-seeking behaviour, needs, attitudes, barriers to accessing health information and the usage of information and communication technologies (ICTs). The sample consisted of 43 ANMs, 32 AWW, 14 NGO members, 7 *Sarpanchs* and 4 Pharmacists.

Major findings revealed; almost all the respondents acknowledged the need for health information in their daily routine. The main reasons they reported for seeking health information were: educating the community (68%), upgrading knowledge (55%), self-health promotion (45%), out of interest (41%) and queries of patients (38%). The most preferred sources for health information were non-print resources like television and radio (79%) and interpersonal communication through training/workshops (79%) for the topic like; immunisation, child health, maternal health, nutrition, communicable and non-communicable diseases. Moreover, a majority of them wanted their information in multimedia format (videos and films) and local languages.

The reasons for not using a computer were; no access (81%), do not know how to use (88%) and lack of time (25%). However, all had felt the need to get computer training in their jobs. Almost all (95%) health care workers had mobile phones and the majority (n = 69) can use short message services (SMS). However, only two of the mobile phones were provided by the community health workers' departments. The

major reason for not using mobile phones to access information was lack of money to pay bills (65%).

The study provided shreds of evidence to policymakers about the need to improve access to health information resources for community health workers.

Kapadia-Kundu et al. (2012), studied the 'Understanding health information needs and gaps in the Healthcare system in Uttar Pradesh, India'

The study was attempted to better understand health information need in terms of content, quality, simplicity, timeliness and barriers across all of the level of Healthcare system in Lucknow, Uttar Pradesh. It was also aimed to gain a deeper understanding of local patterns of information flow.

Data collection consisted of 46 key informants' interviews (State, district and block level officers, ANMs, ASHAs, officers from the US Agency for International Development and staff of NGO and other professional organizations. At the district level – the health officer, Information officer and community mobilizer, at block level – medical officers, health education officer and laboratory technician) and 9 Focus Group Discussions (5 with Grassroot level health workers, 2 with community members, 1 with SHGs, and one with laboratory technicians) were conducted. First, the transcripts were translated into English and further it was analyzed using ALTAS. ti software.

The findings of this study highlighted that needs were dynamic and encompass programmatic and service delivery information. Providing actionable information across all levels of the health system was key to strengthening the health system and improving the quality of services.

Across all media and whatever the content, policymakers, program planners and communication/information specialist needed to keep in mind the five parameters for actionable information-language, timeliness, simplicity, quantity and accessibility to meet diverse needs of each level of the health system.

Various upcoming Information and Communication Technologies and mobile phones, in particular, could have a profound effect on information access and use

across all level of Healthcare system provided that the applications are tailored to the need and sustainability of their uses in mind.

2.5.2 International studies

D'Adamo et al. (2012), United States of America, 'Meeting the Health Information Needs of Health Workers: What Have We Learned?' in their commentary, deliberated on needs of Health Workers in relation to three studies of health information needs in India, Senegal, and Malawi that demonstrated information challenges, provided additional insight and described innovative strategies to improve knowledge and information sharing, published in Journal of Health Communication.

The information challenges faced by health workers worldwide included lack of routine systems for seeking and sharing information, lack of high-quality and current health information, and lack of locally relevant materials and tools.

Results confirmed that health workers' information needs differed based on the level of the health system in which a health worker is located, regardless of country or cultural context. Study findings also confirmed health workers' need for up-to-date, simple information in formats useful for policy development, program management, and service delivery.

It was noted that data demonstrated a persistent need for a variety of information types from research syntheses, to job aids, to case studies and suggest the need to invest in multifaceted knowledge management systems and approaches that take advantage of expanding technology, especially mobile phones; support existing professional and social networks, and are tailored to the varying needs of health professionals across health systems. These common lessons could be universally applied to expand health workers' access to reliable, practical, evidence-based information.

LeMay and Bocock (2012), undertook health information needs assessment in Malawi, aimed to determine access to, and need for, health information in HIV/AIDS and family planning/reproductive health at all levels of the health system.

Qualitative research methods through Key Informants Interview and Focus Group Discussion the data were collected. The study used convenience sampling to recruit study participants. At the central level, participants included USAID staff, representatives from the Ministry of Health and National AIDS Commission, and directors and senior managers from Non-Government Organizations and professional networks working in FP/RH and HIV/AIDS. At the district and community levels, participants included district health officers, district management teams, Non-Governmental Organization district managers, health facility staff, and community health workers. The research team conducted 25 individual interviews and 10 focus groups discussions.

The study presented the need to build the capacity of government technical working groups to collect and store information and to promote information exchange at all levels of the health system; improve information synthesis and packaging, particularly for users at peripheral levels; strengthen the district level to serve as an information hub for the district- and community-level providers; and explore mobile technologies to increase provider access to knowledge and information.

Sullivan et al. (2012) 'Working Together to Meet the Information Needs of Health Care Providers, Programme Managers, and Policy Makers in Low and Middle-Income countries.'

The finding presented in this research revealed that tailoring materials to the varying needs and preferences of health care professionals across the health care system were vital for improving access and knowledge sharing. The study also confirmed the need among health care workers for timely access to the most current information, in simple formats, to develop policy, manage health care programmes and deliver high-quality services. It was importantly noted that a persistent need was

felt for a variety of information types-from research syntheses to job aids and case studies. They also proposed the need to establish multi-faceted knowledge management systems and approaches that take advantage of expanding information and communication technologies, especially mobile phones; support existing professional and social networks; and evidence-based information. Strengthening knowledge management systems can facilitate the flow, exchange, and use of information, which, in turn, can improve the health system in general.

'Knowledge and Communication Need Assessment of Community Health Workers in a Developing Country: A Qualitative Study' was undertaken by **Haq and Hafeez (2009)** in Pakistan to document the perceptions of these workers on their knowledge and communication needs, image building through mass media and mechanisms for continued education.

Under Cross-sectional study design, multi-stage, stratified, random sampling was used. Focus Group Discussions with health workers and their supervisors belonging to all the four provinces of the country and the Azad Jammu and Kashmir region, Pakistan were conducted. A questionnaire was administered with a sample of 57 Lady Health Workers and 48 supervisors and theme guides were used with 27 participants during FGDs in their respective areas.

About four-fifths of the respondents described their communication skills as moderately sufficient and wanted improvement. Dealing with barriers perceived by the community required communication skills in addition to updated knowledge. Knowledge of emerging health issues was insufficient and the respondents showed a willingness to participate in their continued education. It was reported by both the groups of respondents that there existed lacuna in their communication capacity. LHWs found it difficult to deal with male members about Family Planning programme.

Specific suggestions on the communication capacity building LHW highlighted that they should be provided with better IEC materials and inculcated skills for role plays on the common difficult scenario. Additionally, it was suggested that an adequate and timely supply of IEC materials should be improved.

Respondents belonging to both categories in all the districts liked their representation in the mass media. Media campaigns were successful in building the image of health workers as a credible source of health information.

The study concluded that a continued process should be ensured to provide opportunities to health workers to update their knowledge, sharpen communication skills and bring credibility to their persona as health educators.

'Information Needs of Health Care Workers in Developing Countries: A Literature Review with a Focus on Africa' was written by **Pakenham-Walsh and Bukachi (2009).** The article aimed to address the following questions: What is known about the health information needs of health workers in developing countries (with a special focus on Africa)? What processes and tools have been used to assess health information needs in developing countries? And what can we learn from their limitations? How can we adapt and adopt successful tools?

This included a review of firstly 149 documents which were identified as potentially relevant to the review. Thirty-five of these were found to be highly relevant among which eight studies looked at information needs as perceived by health workers, patients and family/community members; 14 studies assessed the knowledge of health workers, and eight looked at health care practice.

Methodologies for assessing information needs "Information needs" was a complex, heterogeneous concept that encompasses several different perspectives, including information needs or "wants" as perceived by health care providers, information needs to be inferred by an assessment of knowledge and information needs inferred by an assessment of health care practice.

Information needs of health workers in developing countries were varied and are constantly under the influence of multiple factors-professional, institutional, cultural and infrastructural. Meeting these needs required a clearer and better understanding of the complex interrelationships between these factors. Thus, no single method was ideal in evaluating health information needs. A snapshot of the published literature highlighted progress, challenges and opportunities, in particular,

the availability of health information provides confidence in clinical decision-making, improves practical skills and attitudes to care. Serious and widespread deficiencies in the existing knowledge and practice of health practitioners is a reminder of the crucial importance of improving the availability of relevant, reliable health care information – and its potential to radically improve health care worldwide.

The review of studies suggested a gross lack of knowledge about the basics on how to diagnose and manage common diseases, going right across the health workforce and often associated with suboptimal, ineffective and dangerous health care practices.

None of the studies gave an overall picture of the level and type of information resources currently available to health workers. Need was also felt to distinguish between reference materials at the point of patient care and learning materials to upgrade knowledge. Studied had not touched the relative availability and user preferences for different media (eg. Print, CD-ROM, internet).

2.6 Trend Analysis

2.6.1 *Category wise trend analysis*

2.6.1.1 Studies Related to Healthcare Workers and their Awareness, Knowledge, Perceptions, Role Performance *etc.* Studies were undertaken from India were of the duration from 2011 to 2017. These studies were from Rajasthan, Uttarakhand, Maharashtra, Uttar Pradesh, Gujarat and Haryana. Moreover, selected studies by international researchers and institutions from Kenya, the United Kingdom and the Netherlands conducted during 2015-2019 are considered for the review under present research.

The Indian researches **aimed** at studying Socio-Economic Status, communication competence, Knowledge-Awareness-Practices about roles and responsibilities as an Accredited Social Health Activist (ASHA), Female Health Workers (FHW), Village Health Sanitation and Nutrition Committee (VHSNC) and International studies focused on role performance and effectiveness of intervention designs

influencing work performance. The designs used were cross-section design, explorative cum descriptive, survey, a mix of qualitative design, multiples case studies and meta-analysis (review) were adopted.

Tools used were-Questionnaire, semi-structured interview schedule, interview schedule, Theme guide for FGD, adaptation of readily available tools (Octapace), NHM guidelines and FAMCOM (Farmers Communication) and data analysis was done through percentages and frequency distribution.

Samples approached to elicit data varied from members of VHSNC, ASHAs, FHWs, supervisors and officers, community leaders district level officers and patients through random, population proportion, purposive sampling and stratified sampling techniques and sample size ranged from as small as 20 to large as 2773 participants and 140 studies for review purpose.

The Major findings reflected (1) No Synergy was found between VHSNCs and health care service providers at primary level. (2) Motivation, capacity building, monitoring and supervision are essential for strengthening the national health programmes. (3) Health workers (ASHAs and FHWs) faced problems related provision of proper facilities, incentives, recognition and priority treatment of cases referred by them to Medical Officer/ANM. (4) ASHAs needed to be sensitised towards their critical role of effective communication and provided training for health communication. (5) All of the supervisors, officers, VHSNC members and beneficiaries acknowledged ASHAs' efforts at the community level which they believed had brought a drastic change in health-seeking behaviour and awareness level of community members. (6) There was a need to review and revise the scope of practice to reflect the varied duration of the training and in-country legislation. (7) CHWs' contribution in achieving health goals was evident but the factors contributing to success were not well recognised.

2.6.1.2 Studies Related to Health Communication used under Health Programmes/ Activities. Trends of reviews related to Health Communication derived from 5 Indian and 4 International types of research were taken up during 2006-2018

in Karnataka, Haryana, Manipur, West Bengal in India and international all from the United States of America. This includes five studies and three review articles. These studies focus upon Health Communication which aimed at analysing, checking effectiveness, evaluate, identifying deficiency areas, develop and test evidence-based tailored Health Communication strategies amongst CHWs and overall health care programmes.

The **research design** adopted by all of the Indian researchers were quantitative-community randomised trial, quasi-experimental design, survey, cross-section survey and also qualitative approaches like the content analysis. International researchers adopted a meta-analysis approach and one research was participatory in nature.

Tools used were interview schedule, questionnaire and semi-structured questionnaire.

Majorly, **sample selection** was done through randomised way however in one study purposive and convenient sampling method was used. The sample comprised of in most of the studies were-service providers, community healthcare workers across the system and in few of them had beneficiaries, officers and beneficiaries altogether. Variables like Knowledge, attitude, practices, educational level, training received, monitoring of Health care providers/workers and source of information and treatment, awareness, reporting of illness *etc.* for beneficiaries.

Data analysis was done by calculating percentages, paired t-test, chi-square, multiple, binary logistic and multi-nominal logistic regression. Review researches (meta-analysis) carried out by international scholars used systematic and thematic meta-analysis which ranged from 48 to 441 kinds of research.

Major key findings were: (1) Health communication was a promising approach (2) Health communication should be included in all levels of health curriculum also as 'discipline' of its own. (3) Special tailored efforts were needed for promoting health services and encouraging beneficiaries for adopting healthy behaviours. (4) Reviewed articles suggested that Health Communication campaigns ranged from multinational initiatives to programmes in line with local areas and also reflective of the MDGs

stated by UNO. (5) A strong association was found between the process meant to promote effective interventions (Home visit and advice), reported practices of desirable health behaviours and service use. (6) Suggestions for future research included- planned media intervention on health consciousness, health literacy, family-Community and Policy level intervention *etc.*

2.6.1.3 Studies Related to IEC/BCC Under Health Programmes/Activities. Reviewed researches on were done during 2008 to 2017 with varied objectives like situational analysis, checking supply chain management, assessing effectiveness in a short-term project to longitudinal impact, preparing blueprint, documentation and exploring experiences of CHWs regarding IEC, BCC and strategic communication for health behaviour and promotion of health services. Studies were done in Punjab, Haryana, Uttar Pradesh, Gujarat, Andhra Pradesh of India and Cambodia, South - Africa, Uganda of Africa.

Regarding **methods,** it was observed that majority of the researchers adopted mix methods like longitudinal intervention study, survey, situational and behavioural analysis with a variety of tools like SWOT, photo documentation, FGDs, observation, semi-structured interview, in-depth interview as well as KAP surveys tools.

Samples such as ASHAs, programme officers, medical officers, health workers, counsellors, community women, households, adolescent girls, service providers and stakeholders *etc.* were selected by multi-stage, proportionate, systematic random sampling, random sampling method which ranged from small to large size representative sample. For data analysis Pre-Post test scores, rates, ration, proportion and Chi-square statistics were applied, for variables like exposure to media, interaction with CHW, a distance of health facility, knowledge, practices and attitudes *etc.*

Major findings revealed that (1) Government efforts towards IEC/BCC activities under National Health Mission have marked significant presence in public health care be it urban or rural areas. IPC with mid-media intervention, BCC forums and electronic media (TV, Radio *etc.*) for information dissemination were effective. (2) ASHAs have

been recognised as a 'Source of Information' when it comes to health care need and information. However, the Government has put in a special budgetary arrangement for multi-media *i.e.* print, electronic and mid-media to reach out to the maximum number of beneficiaries. (3) There existed lacunae in monitoring-mentoring, coordinating between and amongst officials and grass-root level health workers. (4) Need for periodical training and mentoring of community health workers were emphasised by the researchers for the handling of IEC/BCC activities and enhanced IPC skills for better performance. (5) Some of the researchers have documented insufficient supply of printed media like posters and brochures for IEC/BCC activities. (6) CHWs played an important role in IEC activities on generic health tasks, HIV-Specific information, facilitation in availing health services *etc.* IEC activities require focus, flexibility and forward-thinking which is open for innovative thinking and gradation.

2.6.1.4 Studies Related to ICT, Mobiles and New Media Under Health Programmes/Activities. Trends in reviewed researches under this category shown that they were undertaken after the emergence of technology, in India during 2010 to till date with different objectives like checking applicability, the role of technology, Health Care Delivery model, information need, its flow, management, use and effectiveness with CHWs *etc.* International researches specifically developed countries are found to be ahead of the Indian scenario. They have crossed the try and application phase of ICT in health care, at present, they are focused on further technological advancement for virtual patient care, critical patient management system, health care information sharing and monitoring. Therefore, only two relevant studies were included in the present review chapter.

It was observed that **research design** included methods *i.e.* mix method, qualitative, quantitative and experimental design were used equally with relatively small samples (26 to 296).

In the majority of researches **sample** selected through random, proportionate stratified sampling, convenient and snowball techniques, consisting of health care

providers *i.e.* Doctors, ANMs, ASHAs, FHWs in India and health care personnel and CHWs in international studies. **Tools** like Questionnaires, FGD theme guides, Interview schedules, semi-structured interview schedules were used for data collection. In quantitative and experimental design **variables** like knowledge, skills, priority issue, time pressure and workload were considered for statistical analysis like cross-tabulation, chi-square, multivariate logistic regression, error rate, protocol compliance *etc.*

Findings highlighted that: (1) Mobile phones reflected benefits as opportunity production, capabilities enhancement, Social enabling and knowledge generation, however, researchers have pointed out certain limitations and obstacles in context to present health care system, economic, technological, socio-cultural and infrastructural. (2) ICT and new media especially mobile phones can be useful as a tool for social change and can disseminate information to a large number of people. (3) These studies after calculating error rate, per case and task protocol compliance concluded that easy software packages should be designed and provided to CHWs and other health care providers. Since ICTs have marked influence on service delivery, information and case management, researchers have emphasised upon provision of proper and periodical training on ICT and mobile application for health care staff.

2.6.1.5 Studies Related to Information Needs of Health Care Providers. This category of studies included a smaller number of reviews as compared to others in review chapter. The researcher could find only two studies from India and five from abroad. International researchers worked on meta-analysis, qualitative and one with commentary type review.

Both Indian studies and two international studies adopted mix method-cross-section study with multi-stage, convenient, stratified random sampling for selecting the range of **participants** like ANMs, AWW, NGO members, *Sarpanchs*, Pharmacists, Lady Health Workers, Lady Health Supervisors and participants and two were based on qualitative key informants across the central, state and grass root level health care system was selected.

Study **objectives** were to check information-seeking behaviour, needs, attitudes, barriers/challenges to accessing health information, usage of information and communication technologies (ICTs) and describing innovative strategies to improve knowledge and information sharing.

Tools used were semi-structured questionnaire, questionnaires, interview schedules, questionnaires and FGD theme guides to elicit data.

Major findings revealed: (1) The need for health information in their daily routine (2) emphasise upon five parameters for actionable information- language, timeliness, simplicity, quantity and accessibility-to meet diverse need across the health care system. (3) Need to establish multi-faceted knowledge management systems and approaches (4) Adequate and timely supply of communication aids, strengthening and capacity building of CHWs on communication skills and knowledge (5) Evidence to policymakers about the need to improve access to health information resources for community health workers (6) Innovative strategies to improve knowledge and information sharing (7) Need to invest in multifaceted knowledge management systems and approaches that take advantage of expanding technology, especially mobile phones; support existing professional and social networks; and are tailored to the varying needs of health professionals across health systems (8) Dearth of researches to understand requirements of CHWs and other Public health care providers.

2.6.2 Overall Trend Analysis

- Reviewed researches were categorised among the following:
    1. Healthcare Workers and their awareness, knowledge, perceptions, role performance *etc.*
    2. Health Communication under Health Programmes/ Activities
    3. IEC/BCC under Health Programmes/ Activities
    4. ICT, mobile and new media under Health Programmes/ Activities
    5. Needs of Healthcare Providers under Health Programmes/ Activities

- Reviewed studies were conducted during 2008-2019 and majority were done during the time frame of 2012-2017
- **In India** studies were carried out in Gujarat, Maharashtra, Karnataka, Haryana, Manipur, Assam, Punjab, Uttar Pradesh, Uttarakhand, Chandigarh, West Bengal and **International referred studies** are from United Kingdom, Netherlands, United States of America, South Africa, Nigeria, Pakistan, Cambodia
- Concerning the **method** adopted for research, an almost similar trend was observed for Qualitative, Quantitative and Mix method. Further few of the scholars from foreign countries had carried out their research based on review method and were dependent on secondary/others' data for their research inquiries.
- In the high majority of the researches Structured questionnaire, semi-structured questionnaire, Interview schedule, In-depth Interview Schedule and theme guide were used as a **tool** for data collection.
- **The Data** were analysed with various Qualitative and Quantitative techniques such as frequency distribution, t-test, regression for quantitative research design and thematic analysis for qualitative data.
- **Overall Major findings** suggested the following.
    1. There was no synergy between the functionaries and healthcare workers for community processes.
    2. Concerns related to lack of timely supply of resources, poor/no incentives, lack of recognition and poor respect were reported by healthcare workers.
    3. Health Communication Strategies, IEC/BCC, ICT, mHealth have demonstrated promising results when planned, implemented and monitored in a scientific and need based manner.
    4. Health workers were instrumental in achieving goals of health promotion in promoting behaviour change and health facilities.

5. Review also highlighted upon needs related to conscious and tailor-made Health Communication Strategies; capacity building programmes, constant guidance, support and monitoring of Health workers for their use of Health Communication Strategies.

Overall trends of results can be concluded that Health Communication is a crucial ingredient of any health programme, which remained largely neglected by programme and policy planners, media consultants, programme officers, and health workers although they have realised its significant in community processes for behaviour change and health promotion.

2.6.3 Research Gaps

The thematic analysis of the review of literature has presented previous work done in the area of study. Moreover, trend analysis of reviewed literature has appropriately figured out the quantum of research work already done and revealed the existing ***research gaps*** in this sector.

There exists a huge gap between International studies and local studies in terms of objectives, aspects and methodology related to the study on Health Workers and Health Communication Strategies. Studies have worked on objectives focusing on availability, experimentation and or needs of IEC or Health Communication Strategies. Few of the qualitative studies and need assessment studies have surfaced the on-field realities about the communication aspect of the health care delivery system up to grass-roots. Almost all the researches focused on any one aspect of Health Communication or health programme in the geographical area. All the researches referred have emphasised upon the need for comprehensive research with a special focus on Health communication in the specific geographic area involving all stakeholders.

Further, the review reflected a huge requirement to understand the needs of Healthcare Workers. Only two studies could be found concerning the Indian context and have been included. Indian scholars have lately realised the need to identify gaps

and requirements of Healthcare Workers with regards to knowledge, information, tools and training.

Among referred studies, not a single study could be found to be directly related to the objectives and aspects of Health Communication as designed for the present study in Gujarat. However, only two studies could be found, one on IEC/BCC/HP under National Health Mission in selected two states of India with limitation to the situational analysis of activities only and the other on the use of IEC job aids by the ASHAs in Uttar Pradesh.

2.7 Conclusion

The present study would be a good fit for the urgent need to understand the national level health programme-NHM and its crucial component Health Communication in Chhotaudepur, the tribal district of Gujarat. The adopted research design would provide vertical and horizontal insights into the aspects of the Health care system and Health Communication Strategies available to Health Workers serving to the largely tribal population. The present study would be unique in its objective and methodological framework with special reference to Health care providers in Tribal area of Gujarat.

This would be a benchmark study for future scholars from the field of Public health, Health administration, Behaviour Science, Health Communication and Health Care Information systems since during the course of literature review, not a single study was found wherein such an in-depth investigation having comprehensive, descriptive and analytical yet specific research design studying Health Communication in context to NHM in tribal area with a focus on covering district to grass root level Health care providers.

The present study is focused to understand the Profile of ASHAs and provision, use, perceived benefits, barriers and needs related to Health Communication Strategies. The study is also focused upon selected variables like block (location), occupational skills, knowledge about Health Communication Strategies and training received by the ASHAs.

Addition to this, the research also attempts to qualitatively study ASHAs, ASHA facilitators, Female Health Workers and Chief District Health Officer (CDHO), for the in-depth validation of flaw of health communication from district to grassroots, their monitoring, provision, use, benefits, barriers, needs and other aspects related to Health Communication.

Hence, the study '**Health Communication Strategies under National Health Mission in Chhotaudepur District of Gujarat State'** is well justified and will be contributory in filling up the existing research gaps while applying both quantitative and qualitative methods with ASHAs, ASHA Facilitators and FHWs in the field of Health Communication Strategies, their use, benefits, barriers and needs.