

Health Information System in Odisha: An Evaluative Study of the Public Health Information Service Infrastructures for Rural Inhabitants of Balasore District

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Abstract:- Health is one of the basic needs that require special attention in developing nations like India. This paper comprises different facets of rural health, various levels in rural healthcare, and several aspects of health planning and health management. Information technology provides tools that facilitate the linking of information about the public's health with data specific to the care of an individual patient and public and provides health professionals with access to the knowledge that they need to ensure optimum health outcomes. If the government provides adequate funds for adopting digital health solutions for public health communication in diverse rural areas, the rural inhabitants and the public, in general, will greatly benefit.

Keywords:- Public Health, Health Communication, Health Information System, Community Health Centers, Primary Health Centers, Health Information Service.

I. INTRODUCTION

Health is a basic need of every individual and plays a vital role in their educational, social, and economic development. An individual must lead a happy life by sustaining healthy. Good health is a prerequisite for a healthy community upon which an economically viable society can build up. The progress of society greatly depends on the standard of health of its people.

Health is fundamental to national progress in any sphere. In terms of resources for economic development, nothing can be considered of higher importance than the health of the people. Even the ancient proverb 'Health is Wealth' also confirms this fact.

The nature of rural health is necessarily interdisciplinary. In the broad field of health and medicine, it is touched by nearly every discipline or area of study. It involves clinical healthcare like primary care, obstetrics, pediatrics, surgery, maternal-child nursing, psychological

counseling, etc., and non-clinical areas relating to the physical facility, where rural healthcare is centered, usually a hospital or clinic or primary health center, etc. Rural health is a significant contributory factor for the nation's overall development.

Rural health status is dependent on the following factors:

- Supply of drinking water,
- Sanitation,
- Control of infectious diseases,
- Medical education, training, and research,
- Medical care, including hospitals, dispensaries, and health centers,
- Public health services,
- Indigenous system of medicine.

In addition to the above factors, health is also influenced by other factors such as adequate food, housing, basic sanitation, health, lifestyles, protection against environmental hazards, and communicable diseases.

The health status of the rural inhabitants may be improved by proper healthcare, which again needs proper health planning and management. The effectiveness of health information in this direction is well accepted.

A. Healthcare for rural inhabitants

Health services are designed to meet the health-related needs of the rural inhabitants through the use of available knowledge and resources. It is impossible to define a fixed role for health services when the socio-economic pattern of one society differs so much from another. The health services are delivered by the health systems which constitute the management sector and involve organizational matters. Community participation is now recognized as a significant component in the approach to the whole system of healthcare – treatment, promotion, and prevention [1].

It is customary to describe healthcare services at three levels: primary, secondary, and tertiary care levels.

a) Primary Care Level

PHCs are the cornerstone of rural health services – the first port of call to a qualified doctor of the public sector in rural areas for the sick and those who directly report or are referred from sub-centers for curative, preventive, and promotive health care.

The health planners in India have visualized the PHC and its Sub-Centers (SCs) as the proper infrastructure to provide health services to the rural population.

It is the first level of contact of individuals, the family, and the community with the national health system, where primary healthcare is provided. As a level of care, it is close to the people, where most of their health problems can be dealt with and resolved. At this level, healthcare will be most effective within the context of the area's needs and limitations.

In the Indian context, primary healthcare is provided by the complex of primary health centers and their sub-centers through the agency of multipurpose health workers, village health guides, and trained midwives. Besides providing primary healthcare, the village health team bridges the cultural and communication gap between the rural people and the organized health sector.

b) Secondary Care Level

The next higher level of care is the secondary (intermediate) healthcare level. At this level, more complex problems are dealt with. In India, this kind of care is generally provided in district hospitals and community health centers (CHCs), serving as the first referral level.

c) Tertiary Care Level

The tertiary level is more specialized than the secondary care level and requires specific facilities and the attention of highly specialized health workers. The regional or central level institutions provide the care.

Among the three healthcare levels mentioned above, the primary healthcare level is essential and suitable for rural communities. To improve the health of the villagers' different health-related schemes, viz., village health guide scheme, training of local dais, ICDS, etc., are in operation.

B. Health information system

Health is a complex area involving the interaction of information from various sections of knowledge and reactions of common people. This puts the health provider and health seeker in a unique position demanding currency and relevance of facts, thinking, and activities. Health information is an integral part of the national health system. It is an essential tool of management and a key input for the progress of any society. A health information system is defined as "a mechanism for collection, processing, analysis and transmission of information required for

organizing and operating health services, and also for research and training" [1].

The health information system should cover all main health activities, i.e., healthcare delivery, health planning, research, education, training, etc., which are interlinked with ever-changing patterns of diseases and health.

The primary objective of a health information system is to provide reliable, relevant, up-to-date, adequate, timely, and complete information for health managers at all levels (i.e., central, intermediate, and local), and the sharing of technical and scientific (including bibliographical) information by all health personnel participating in the health services of a country; and also to provide at periodic intervals, data that will show the general performance of the health services and to assist planners in studying their current functioning and trends in demand and workload[1].

C. Objectives

- To find the suitability of health communication infrastructures to fulfill the users' needs.
- To determine the relative priorities of each attribute corresponding to each of the core organizational capabilities and health information system strategies required for public health communication in the rural area.

II. METHODOLOGY

In this study, a structured questionnaire was developed to gather the information regarding public health communication infrastructures and services rendered in the Balasore district from the medical officers of the Primary Health Center (PHC) or Community Health Center (CHC), doctors and health professionals of the district medical college; meant for rural health communication in the district. Out of 12 CD-Blocks, two blocks are selected for study randomly, viz. Balasore and Jaleswar. The questionnaire intended for medical officers consists of questions on the type of information provided to rural people, the availability of health information to the libraries, receiving of various types of materials on healthcare, difficulties faced in providing health information, and channels used to provide it. Copies of the questionnaire were given to the medical officer of the Fakir Mohan Medical College and Hospital, Balasore, and all the primary health centers (PHCs-17) and community health centers (CHCs-03); 05 Ayurvedic government dispensaries, and 04 Homeopathic government dispensaries in the selected blocks of the district.

III.RESULTS

The following findings are drawn from the data collected from medical officers.

- The majority of the rural inhabitants of the Balasore district demands health information services on maternal and child health (75.86%), immunization (68.97%), sanitation (58.62%), family planning (51.72%), and communicable diseases (55.17%).
- Most medical officers (90%) provide health information regarding various healthcare programs to rural people.
- Most of the medical officers (56.67%) have conducted surveys on the healthcare information needs of rural people.
- All the medical officers replied that they are not providing any training on health information services to rural people.
- Most medical officers (70%) are conducting training programs to train their subordinates to provide public health information services to rural people.
- Most of the medical officers (56.67%) replied that CHCs/PHCs do not have adequate human resources to provide health information services to rural people.
- The majority of the medical officers (96.67%) replied that no medical libraries are attached to the hospitals to meet their information needs.
- CHCs and PHCs provide health information through Wall Posters and Billboards, Health Camps/Meetings with the help of health workers.
- Most of them (93.33%) replied that they are getting health information materials from the Directorate of Health Services, Ministry of Health and Family Welfare, Government of India.
- Lack of financial capital, lack of state-of-the-art equipment, and lack of support from rural people are some of the challenges the medical officers face in providing health information services to rural people.
- Most medical officers (76.67%) believe that apart from personal conversation and Pamphlets or Wall Posters distribution, eHealth (including mHealth) communication system will be the most suitable means of health information dissemination to the rural people.

IV.DISCUSSION

The following are the suggestions made by the investigator based on analysis of the data collected from medical officers.

A. Delivery of health information service

The majority of the medical officers (96.67%) replied that there is a demand for public health information services by the rural people. They also replied that the rural people seek information on maternal and child health, immunization programs, sanitation, communicable diseases, family planning, human nutrition, and environmental pollution to remain healthy.

Most medical officers (90%) provide health information on the areas mentioned earlier to the rural people. Few medical officers also replied that they were not providing rural healthcare information. The reasons for the

non-provision of health information services are to be investigated.

They must be trained, well equipped, and motivated by the higher authorities to provide health information services to rural people. The medical officers who are already providing health information services should be encouraged to deliver health information services innovatively and effectively. The medical libraries should be established in addition to the existing medical library to assist and provide the information required by the medical officers to deliver reliable, evidence-based, and real-time health information services to rural people.

B. Surveys on health information-seeking behavior

It is found from the survey that most of the medical officers (43.33%) did not conduct surveys to know the health information needs of rural people. A considerable percentage of medical officers (56.67%) replied that the hospitals did not have adequate human resources to provide health information services to rural people.

It is suggested that all the medical officers conduct surveys to know the health information requirements of rural people. It is also suggested that all the medical officers conduct training programs on effective use of health information sources, equipment to obtain health information for rural people. The medical officers and healthcare personnel who have not undergone any training in public health communication are to be given such training for successful interactive, interoperable, real-time health communication with the rural inhabitants of the district.

C. Medical and public library services

The majority of the medical officers replied that the requisite health information indispensable by them is unserviceable and unavailable to them due to the lack of medical libraries attached to the hospitals and public libraries in the district. Information required by them is not fulfilled by only one medical library, and they need cooperation from the public libraries in this regard. Hence, the following suggestions are made by the investigator in this concern:

- Government should establish medical libraries in the CHCs and PHCs of the district for easy accessibility and information retrieval.
- Health information materials should be made available in both medical and public libraries.
- The public library in every CD-Blocks¹ in partnership with the medical libraries and health care organizations functions to meet the health information requirement of medical officers.
- Well-equipped computers and internet facilities should be made available in these libraries.
- Document delivery services should be made available to meet the health information requirements between the cooperating medical and public libraries.

¹Community development blocks.

D. Health information materials

Medical officers provide health information to rural inhabitants of the district by conducting camps and meetings with the rural people. The health information materials they are getting in the form of books, magazines, pamphlets, wall-posters, and audio-video DVDs supplied by the Ministry of Health and Family Welfare Department should be utilized for the health promotion of rural people by providing health information.

The Ministry of Health and Family Welfare should provide health information materials to all Community Health Centers, Primary Health Centers, medical and public libraries, and village councils (Gram Panchayats) to establish an effective public health communication system for rural people. It should also provide health information materials in regional language, *i.e.*, in Odia, for accessible communication and understanding among rural people.

The Directorate of Health of state should publish a district handbook of healthcare services for each district about hospitals and its services available in the district concerned. The same should be distributed among healthcare agencies and organizations such as CHCs, PHCs, medical and public libraries, and village councils (Gram Panchayats).

The Directorate of Health should take the digital initiative to establish health information kiosks in hospitals, CHCs, PHCs, and village councils (Gram Panchayats) for e-health communication interactively between rural people and health care personnel.

E. Challenges of medical officers

The challenges faced by medical officers in providing health information services are lack of financial capital, skilled healthcare personnel, state-of-the-art equipment, conveyance facilities, and cooperation from the rural people. It is also worth mentioning that there is the government's indifference & lack of public faith in the Indian system of medicines such as Ayurveda. The majority of the medical officers opined that *eHealth* (including *mHealth*) is the most suitable means of disseminating health information to rural people.

Digital or e-health solutions will be a boon for rural people in the era of digital communication since most of them use smartphones with internet connectivity.

Mobile health communication will be a suitable application for health information dissemination for rural inhabitants. Government should take initiatives formHealth solutions by developing mobile applications for health information dissemination, as given as the '*Arogya Setu*²' [2] mobile application in COVID – 19³ pandemics for the people in India.

The government should allot adequate funds to CHCs and PHCs to modernize with essential equipment to provide health information services efficiently.

V. CONCLUSION

Information technology provides tools that facilitate the linking of information about the public's health with data specific to the care of an individual patient and public and provides health professionals with access to the knowledge that they need to ensure optimum health outcomes. If the government provides adequate funds for adopting digital health solutions for public health communication in diverse rural areas, the rural inhabitants and the public, in general, will greatly benefit.

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²AarogyaSetu (bridge to liberation from disease) is an Indian COVID-19 "contact tracing, syndromic mapping, and self-assessment" digital service, primarily a mobile app, developed by the National Informatics Centre under the

Ministry of Electronics and Information Technology (MeitY).

³ Coronavirus disease (COVID-19) is an infectious disease caused by a coronavirus.