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Original article

Design and Development of a Public Health Information Service Model for Rural Inhabitants of Balasore District of Odisha: A Case Study

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Abstract

Introduction: The government of India has started concentrating on developing rural health infrastructure to provide primary health care services to most of the rural population, which had been by and large remained neglected. Though the government provides healthcare facilities to rural people, they are not effectively reaching them. The purpose of the study is to explore the public health information services, which ascertain the information needs of the Balasore district's rural inhabitants, and to develop an integrated Public Health Information Service (PHIS) model for health communication that promotes public health.

Methods: A survey was conducted with the help of a structured questionnaire developed to gather information regarding public health communication infrastructures and services rendered by the medical officers, rural inhabitants, and the librarians of the medical college and public libraries of the Balasore district of Odisha.

Results: The authors found a situation that demands an assessment of a suitable PHIS model to fulfill the health information requirement of the rural inhabitants of the Balasore district of Odisha.

Conclusion: This integrated public health information service model is conceptualized and is based on the suitability of health information exchange for rural people.

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Introduction

In the present era, information has become essential for progress in society, and individuals face different types of problems regarding retrieving information in routine life. Health is a basic need of every individual and plays a vital role in educational, social, and economic development. Every individual needs to lead a happy life. Good health is a prerequisite for a healthy community upon which an economically viable society can build up. The progress of society dramatically depends on the standard of health of its people.

Health information is a fundamental resource for the welfare of human beings. Additionally, speedy, accurate, and pinpointed health information retrieval at all levels of public health is essential. Health information is an essential commodity for health communication. Health care consumers depend on the quality of the health information they can access to make important healthcare choices. Various sources of health information are available in the market nowadays. In addition to gathering health information directly from their healthcare

providers, consumers can consult their public libraries (or, if available, a local university or medical library) that have access to reference books, journals, and computerized sources, like the National Library of Medicine's Medline database. An outsized and growing list of health information services is available to consumers via the web, which has rapidly become a potent source of health information for both consumers and health care providers. India is the monumental democratic country in the world. According to the 2011 census most people (83.3%) live in rural areas. Most of the rural people are illiterate. Good health is essential for their social, economic, and educational development.

The government of India has started concentrating on developing rural health infrastructure to provide primary health care services to most of the rural population, which had been by and large remained neglected. Healthcare delivery is the foundation of the rural healthcare system and forms an integral part of the national health system.

Though the government provides rural people with healthcare facilities, they are not effectively reaching them. They are not utilizing the health services efficiently due to a lack of awareness of the health services provided by the government. It may be due to some factors, namely illiteracy, poverty, customs and traditions, and lack of proper public health information service infrastructures.

The study focuses on public health information services, which ascertain the information needs of the rural inhabitants of the Balasore district: their various approaches of use pattern, gathering habits, seeking behavior, channels used, resources accessed, analyzing existing public health information infrastructures and facilities, finding out problems encountered by the rural people of the district, and suggesting solutions of health awareness, as well as enables to design and develop a strategic conceptual model of Public Health Information Service (PHIS) to fulfill the needs of the users thereby supporting in achieving "**Health For All**."

Thus, the present study assessed and depicted a suitable Integrated PHIS model for the rural people of the Balasore district of Odisha. The proposed model should be considered an interactive network of Health Information Centers (HIC), Public Health Centers (CHCs and PHCs), and medical and public libraries in the district. The HIC would function as a Central Hub or Server.

The model would be a collaborative venture of the stakeholders of health knowledge, which would focus on the need for capacity building by increasing participatory health communication, ensuring reliable and tailored health information, equable access, and empowerment to it —building collaborative health networks, adopting and implementing realistic goals to balance the digital health information divide. The objective is to design and develop a strategic conceptual model of PHIS for rural inhabitants of the Balasore district of Odisha for health promotion.

Methods

Study Design and Participants

A survey was conducted with the help of a structured questionnaire developed to gather information regarding public health communication infrastructures and services rendered primarily by the medical officers of the PHC or CHC, doctors, and health professionals of the district medical college; secondarily, public health awareness among the rural inhabitants of the Balasore district of Odisha; and tertiarily, the librarians of the medical college and public libraries serving to the communities.

Instruments

Three tools were used for data collection: questionnaire, interview, and observation.

A. Questionnaire: The questionnaire method was used to collect data from the sample respondent, a fairly reliable tool for gathering data from a large and diverse social group. The questionnaires used to collect data in this study are attached in the appendices. Each questionnaire is again divided into some sections of open and close-ended questionnaires. In this study, three separate questionnaires were intended for three separate entities.

Questionnaire – I: It is intended to collect data from the medical officers of the district hospital, PHCs or CHCs, doctors, and other healthcare professionals regarding the public health communication infrastructures available to disseminate health information to the rural people of the district.

Questionnaire – II: It is intended to collect data from rural people of the Balasore district to know their various approaches toward health information.

Questionnaire – III: It is intended to collect data from the medical library and public library librarians to know their role in disseminating health information to the rural people of the district to create public health awareness and health promotion.

B. Interview: The interview schedule was prepared for primary data collection based on the comprehensive study of the various works of literature related to the research. The interview was held with the medical officers, doctors, healthcare professionals, rural people, and librarians of the medical and public libraries in the district.

C. Observation: The investigator observes the group and individual activities of the participants from a close distance.

Data Collection

The researcher himself did the data collection and met every sample respondent to collect relevant information. Those respondents were unavailable due to their busy schedules, such as medical officers and librarians; they were requested to fill up the questionnaires by sending the questionnaires accompanied with a requesting letter through speed post to their address. Two blocks viz., Balasore and Jaleswar, were randomly selected out of 12 blocks in the district for the study.

Data Collection from Medical Officers

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 PHCs and CHCs in the selected blocks of the district (N=30).

Data Collection from Rural People

A questionnaire was prepared both in English and Odia languages to get information from rural people. It consists of questions to know their social status, healthcare information needs, awareness and satisfaction with health services and

programs, reading habits, channels used to obtain health information, the use of the library in getting health information, and health information-seeking behavior. The data was collected with the help of a questionnaire from the heads of households selected (N=240; 120 from each Block).

The questionnaire in Odia language was written with the help of Microsoft Indic Language Input Tools, and copies of the questionnaire (Odia version) were given to those heads of households who are literates and able to fill up the questionnaire. The investigator clarified the doubts while filling up the questionnaire by the respondents and collecting the filled-in questionnaires. The illiterate heads of households were interviewed with the help of a questionnaire, and the investigator recorded the replies to the questionnaire.

Data Collection from Librarians

The questionnaire intended for librarians consisted of questions relating to library budget, health information policy, healthcare books, and kinds of literature, CDs/DVDs collection, conducting talks on health topics, organizing health information exhibitions, online health information services, and networking. In addition, other services were provided by the library in promoting healthcare delivery by disseminating health information to rural people.

Copies of the questionnaire were given to the librarians of the medical and public libraries to collect the information (N=5; 1 medical library and 4 public libraries).

Data Analysis

After collecting the data from the respondents, the data were analyzed according to the objectives and hypotheses stated. First, the data were re-coded on the datasheets and analyzed using the SigmaPlot software package. However, percentages and other necessary calculations were done with the help of a calculator. Both descriptive and inferential statistical techniques were employed. Chi-Square ($\chi 2$) test is one of the inferential statistics used to formulate and check the interdependence of two or more variables. The $\chi 2$ test is used to test the significance of the data collected from rural people.

Development of PHIS Model

After analyzing the data from three sources of information such as medical officers, librarians of public and medical libraries, and rural people of the Balasore district of Odisha; a suitable public health information service model was developed by accessing the health information system architectures, health communication network, and rural inhabitant's approaches with the help of Microsoft Visio software package to disseminate public health information services for health promotion and quality healthcare delivery in rural areas in the district.

Results

Based on findings from three sources of information such as medical officers, librarians of public and medical libraries, and rural people of the Balasore district of Odisha, the overall findings of the present study can be generalized as follows:

i. There is a demand for health information from rural people in the Balasore district of Odisha.

ii. Hospitals in the district do not have adequate human resources to provide public health information services to rural people.

Table 1. Apportionment of medical officers according to their replies regarding public demand for health information service

Reply	Number of Respondents	Percentage
Yes	29	96.67
No	01	03.33
Total	**30**	**100.00**

Table 2. Apportionment of medical officers according to their replies regarding the adequacy of human resources in their hospitals

Reply	Number of Respondents	Percentage
Yes	13	43.33
No	17	56.67
Total	**30**	**100.00**

iii. Lacks of modern equipment, skilled workforce, and public cooperation from the villages are some problems the medical officers face in providing health information services to rural people.

Table 3 shows that most medical officers (76.67%) face the challenges of inadequate financial capital to provide rural people with public health information. Apart from this, the other challenges they confronted were:

- Lack of state-of-the-art equipment (56.67%)
- Lack of support from rural people (43.33%)
- Lack of skilled personnel (36.67%)
- Government's indifference & Lack of public faith (30.00%)
- Lack of conveyance (06.67%)

Table 3. Apportionment of medical officers according to their replies regarding difficulties they are confronting in the provision of public health information services to the rural inhabitants (in Percentage)

SL. No.	Difficulties in the Provision of PHIS to the Rural Inhabitants	Total Respondents	Response by Difficulty	
1	Lack of financial capital	30	23	76.67
2	Lack of skilled personnel	30	11	36.67
3	Lack of state-of-the-art equipment	30	17	56.67
4	Lack of conveyance	30	02	06.67
5	Lack of support from rural people	30	13	43.33
6	Government's indifference & Lack of public faith	30	09	30.00

iv. Most medical officers believe that health information web portals and mobile health (mHealth) information services (76.67%), wall posters (66.67%), and personal talks by health workers or Accredited Social Health Activist (ASHA) (56.67%), can be the best options for health information dissemination. (Table 4)

Table 4. Apportionment of medical officers according to their replies regarding suitable means of health information dissemination to the rural inhabitants (in Percentage)

SL. No.	Means of health information dissemination	Total Respondents	Response by means of health information dissemination	
			Number	Percentage
1	Personal Conversation	30	17	56.67
2	Pamphlets or Wall Posters	30	20	66.67
3	Radio	30	03	10.00
4	Television	30	05	16.67
5	Audio-Video Materials	30	08	26.67
6	Library and Information Center	30	04	13.33
7	Newspapers and Magazines	30	12	40.00
8	eHealth (including mHealth)	30	23	76.67

v. Rural people belong to higher-income groups, and literates are more conscious than the lower-income groups and illiterates regarding the impact of health information to sustain a healthy life.

vi. Most rural people use smartphones and internet services.

vii. Most people use the Allopathy system of medicine for their treatment.

viii. There is no cooperation between the public and medical libraries regarding health information dissemination to rural people.

ix. Public libraries do not provide online library services for accessing e-resources and DDS for healthcare personnel

or multimedia services on healthcare due to library's lack of computer and multimedia systems.

x. Public libraries do not provide community information service portals to disseminate health information services to rural people.

xi. No public library is available at the district's village council (Gram Panchayat) level.

xii. The situation demands an assessment of a suitable PHIS model to fulfill the health information requirement of the rural inhabitants of the Balasore district of Odisha.

xiii. The Administrative Model of Public Health Information System and the Integrated Public Health Services Model for Rural Inhabitants were designed and presented in Figures 1 and 2.

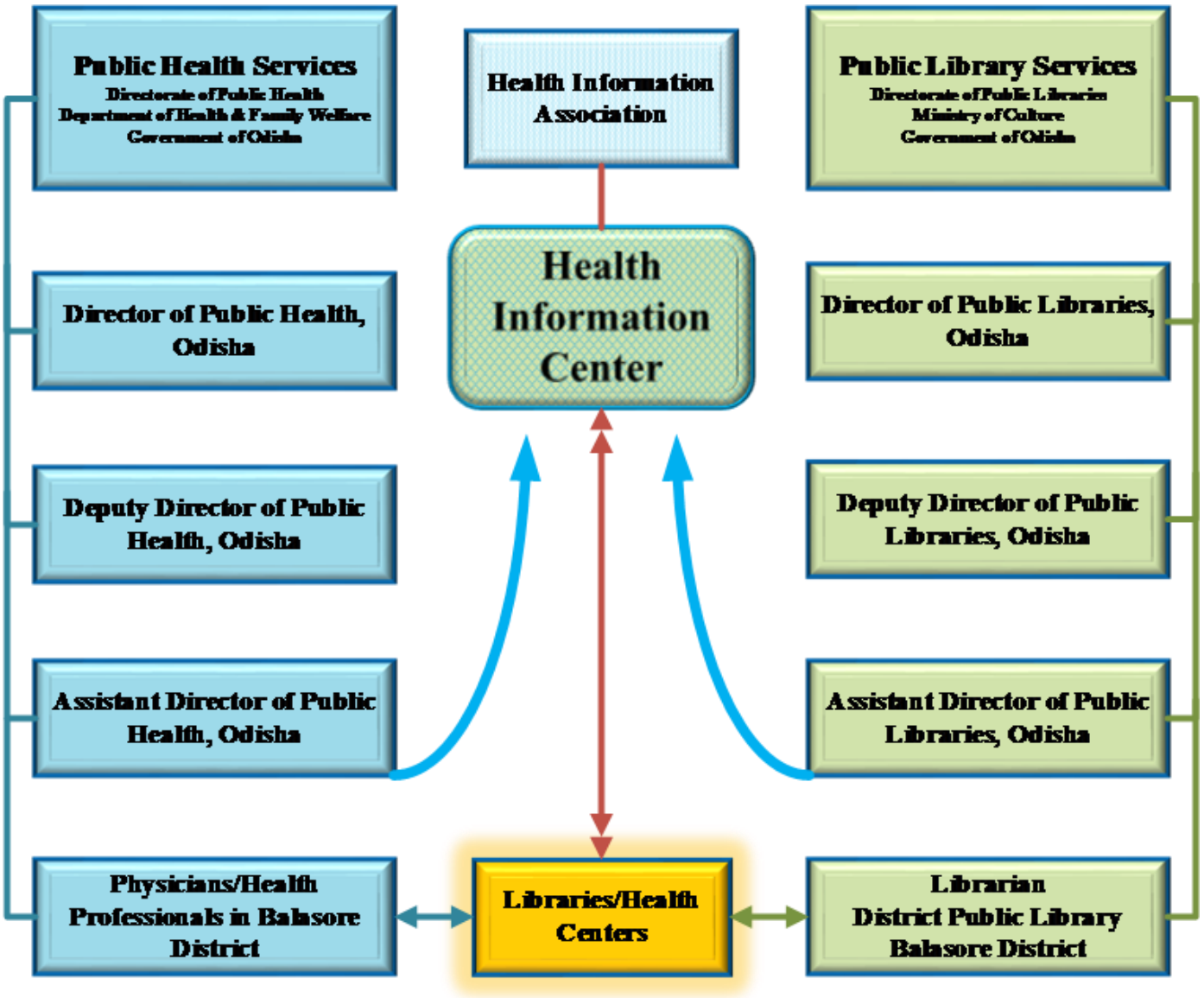

Figure 1. Administrative Model of Public Health Information System

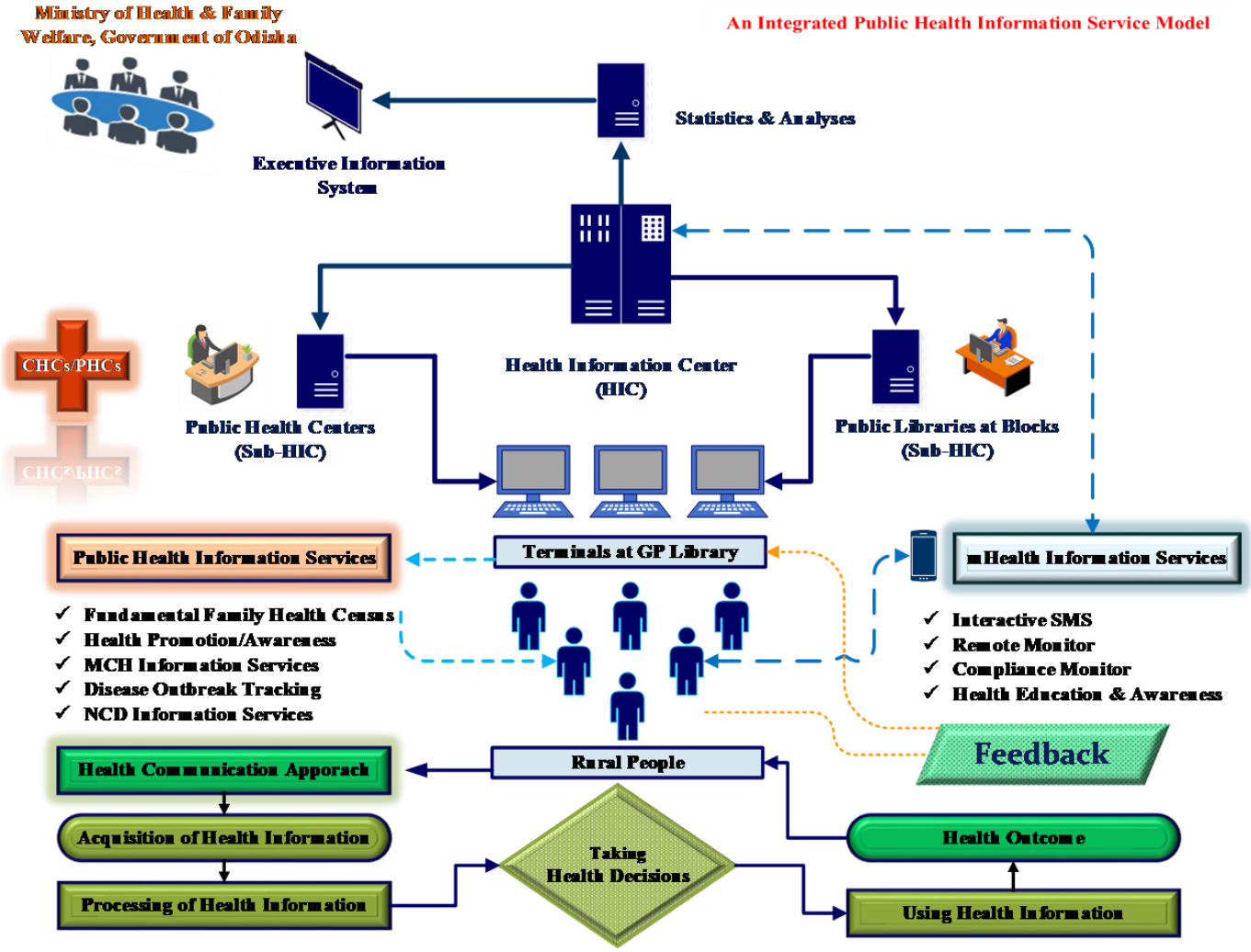

Figure 2. An Integrated Public Health Services Model for Rural Inhabitants

Discussion

The public health information service model for rural inhabitants of the Balasore district of Odisha developed strategically and conceptually is discussed below.

The Integrated Public Health Information Service Model – The Proposed Model

The survey indicates that the rural inhabitants of the Balasore district preferred to access health information about the causes and symptoms, prevention, and cure of their diseases. The health information needs varied with the mode of therapy, preferred system of medicine, and belief. The rural people deliberately wanted to access the information on maternal and child health, nutrition, family planning, and communicable and non-communicable diseases. They also wanted to access the health information regarding medical emergence situations like trauma, poisoning, and poisonous bite, as well as the foremost healthcare cost. It depends on various factors such as current health conditions, healthcare infrastructure and facilities available in their area, financial health, sources of health information, and their social and cultural belief. People who have been newly diagnosed with a medical condition most likely need health information about their condition so that they could make informed and appropriate health decisions.

The various stakeholders in this model must establish multiplatform collaboration and affiliations by which they could participate in imparting health information services to rural inhabitants.

The following objectives were kept in mind for defining the collaborative model of the public health information system:

- To transfer the healthcare knowledge to rural people.
- To facilitate public health communication in terms of healthcare needs in day-to-day life.
- Collaboration of the various stakeholders of health communication.

• To train the human resources needed in the areas concerning public health communication and health informatics, and
• To identify and implement the supportive and directed public health information services by the public and medical libraries in collaboration.
• To promote health consciousness and healthy habits and environment; and
• To support people in the cure and prevention of diseases and ensure immediate treatment.

The model entrusts on public health information center, which will dispense all possible types of health information to rural people. This integrated, conceptualized, and strategically developed public health information system model will deliver health information services to rural people in an electronic environment. The model would link the health knowledge resources, i.e., the government agencies with the medical and public library, with the healthcare needs of rural people. The model would require a multidisciplinary team to coordinate, collaborate, and facilitate the health information exchange with the rural people to accomplish the objectives. As a public service establishment, the library needs to be linked to the public health information system as an auxiliary hub of information exchange between the health information center and rural people. It is pretty evident from the review that libraries are directly and indirectly involved in the health information transfer to the public. The public library would work as an interface between the rural people and health professionals. Hence, the suggested model would build up a public health communication platform and promote public health for diverse and vulnerable rural people.

Administration of the Integrated PHIS Model

To encompass a user-centered health information system, the Directorate of Health, Ministry of Health and Family Welfare and Directorate of Public Libraries, and Ministry of Culture of Odisha state need to develop a HIC collaboratively at the district level to support and facilitate rural people to navigate health information sources and systems for themselves, their families and the public in general.

Leadership and Organizing Responsibility

At the state level, the health information system would jointly rely on the Directorate of Health Services and the Directorate of Public Libraries for its overall administration and management of contents, language, information technology and systems, operation, finance, and human resources.

The local administration bodies need strong support to run the proposed model efficiently and for its establishment, operational inputs, and overall management. The administration should be decentralized for managing this integrated PHIS model so that responsibility would eventually be distributed.

Executive Information System (EIS)

The Executive Information System is a Decision Support System (DSS) that supports health information executives in decision-making by providing easy access to essential healthcare data required in the directorate to accomplish the strategic goals. It will provide critical healthcare information from a broad category of internal and external sources in user-friendly intuitive displays to the top executives in the directorate. Top executives like CMOs and CMIOs may use touch-screen terminals to view text and graphics presentations straight away, highlighting critical areas of healthcare organizational competitiveness. It can be used to monitor the HIC and health communication management decision-making by identifying opportunities and challenges (1).

Establishment of Health Information Association (HIA)

Establishing the Health Information Association (HIA) will take care of the HIC at the district level is necessary. A delegate body would require establishing HIA by the Directorate of Health Services, which will manage the HIC. Chief Medical Officer (CMO) and Chief Medical Information Officer (CMIO) would lead the HIA that will solely be responsible for the administration and management of the HIC. The delegation body would allocate funds and human resources to run the HIC through HIA. The HIC would be the central point at the district level to disseminate health information to rural people and be the hub of interactive health communication for rural people.

Training of HIA personnel

The HIA would work under the aegis of CMO, and CMIO comprises health professionals, health informatics professionals, and library and information science professionals. They must be trained by the authority to accomplish the objectives of public health communication. They would develop programs for health information exchange that will work seamlessly between the health professionals and rural people to establish a health communication platform.

Action Plans for Implementation of IPHIS Model

Realizing the potentiality of verbal and nonverbal health communication to modify the beliefs and behavior of rural people, public health professionals should work with the medical and public libraries to develop a strategy of public health communication to disseminate health information to rural people.

The design and development of effective health communication strategies have become more invaluable with the development of state-of-the-art, unproven, proposed technologies that could have the tremendous potential for disseminating health information across the diverse and medically underserved rural inhabitants. However, this potentiality to affect public health through communication is agitated that not all groups benefit equally from it, as exemplified by the "digital divide" in access to and using the internet.

Solutions to the digital divide of rural people

Ensuring rural populations access to the internet represents an essential challenge to using it for public health purposes. Access to the internet presently requires computer equipment that may be out of reach for persons with marginal income levels. Majority-language literacy and the physical capability to type and read present additional requirements for effective internet use. Preventing unequal access to healthcare resources delivered via the internet will require that healthcare agencies work with other social service and educational groups and public libraries to make available the technology necessary to capitalize on this electronic environment for health care. For a less technical savvy person that may be skeptical of technology, the public library will serve as a "trustworthy" location to view and dictate access to the health information they need.

Many of the essential benefits of communication strategies may be obtained across the diverse rural population through a generic approach that capitalizes on their similarities in beliefs and behaviors. In setting the scope, the investigator purposely

attempted to include public health strategies such as internet-based communication by the providers (health organizations andcollaborating medical and public libraries) to rural inhabitants of the Balasore District of Odisha.

The principles of health communication strategy:

• It should be efficient, cost-effective, and improve the population's health, mainly for the people in need versus a broader range of people.

• A health communication strategy that incorporates should function effectively and appropriately for every population segment.

• A health communication strategy should succeed in dealing with unintended consequences among the diverse rural population, which creates confusion about the meaning of a message, unwarranted anxiety resulting from implicit individual guilt, or the stigmatizing of certain cultural practices.

The only method for dealing with these kinds of concerns is to seek and maintain mutual collaboration with the rural populations during all phases of the communication intervention process. This method will increase the likelihood that the health communication strategies of the intervention will unfold in a manner that is significant for the intended rural people (2).

Establishment of Health Information Center

The HIC will be installed on the premises of the district public library. The Sub-Centers shall be installed within the libraries located at CD-Blocks and the premises of the CHCs and PHCs near the entrance. The access terminals would be available at every Gram Panchayat (GP) library in the Balasore district. The Directorate of Public Libraries, Ministry of Culture, and Government of Odisha need to establish a public library at every Gram Panchayats or Village Council. The HIC and its Sub-Centers would be networked with the terminals of the GP Libraries for the health information exchange.

The main advantage of the proposed model is that the health information center would run as an extension center of the medical library under the aegis of the directorate of health services and directorate of public libraries of the government of Odisha.

Functions of HIC and Sub-HIC

The HIC would function as a health information referral service for disease prevention and health promotion. It will put health professionals and rural people with health questions in touch with those organizations that can provide answers. Using a database that contains descriptions of health-related organizations, HIC staffs refer people to the most appropriate resource. The public library should include all the health-related information available in the district for the public on its website as a part of community information services. That information should be available at the terminal of GP Library through the HIC server network to rural people. The Sub-Center of HIC would be installed at the CHCs and PHCs as well as public libraries at CD-Blocks. The staff in the Sub-HIC will help the rural people who face difficulty in obtaining health information due to their ignorance or illiteracy. The less technical savvy rural people will find this trustworthy as the personnel deployed in Sub-HIC will interact and help them in this regard.

The statistical and analytical report on health communication will be sent to the ministry and top executives for necessary action and decisions by the HIA team through HIC. The Executive Information System (EIS) will work as DSS for the top executive officers like CMO and CMIO.

The HIC would provide every type of health information to rural people. However, some of the services should be included on a priority basis as per the health information needs of rural people, as evident from the surveillance. The services include health education and awareness for health promotion, health information services on family planning, MCH, nutrition, disease outbreak tracking of communicable diseases, non-communicable diseases, and emergence healthcare information services for trauma and poisoning.

mHealth Information Services

Mobile health (mHealth) information service is the practice of electronic health assisted by smartphones used to transmit health information through a health information system. There is a communication revolution developing in the modern health care system driven by Health Information Technologies (HITs) for enhancing health care delivery and health promotion. These tools must be designed to effectively communicate the right health information needed by rural people at the right time, in the right place, and in the best ways to guide health care and health promotion (3).

Since the present study reveals that most rural people use smartphones in their daily lives, it will be pretty easy to disseminate healthcare information through it. The proposed model focuses on the mHealth applications, which need to be easy to use, adaptable, interactive, interoperable, engaging, and accessible for the diversified rural population. Effective and humane mHealth applications strategically developed and implemented will improve the quality of healthcare and promote rural health.

The mHealth has tremendous potential to encourage the adoption of healthy behaviors by rural people to promote disease prevention, health promotion, and early detection. A mHealth can supplement and reinforce healthcare information disseminated via HIC.

Advantages of mHealth Information Services

• Computer-automated SMS reminders or alerts about public health conditions and health care appointments can be communicated.

• Health care organizations accompanied by the public and medical libraries through HIC can send tailored health information to the people who can, at their own "24/7" convenience, respond, ask questions, request services, and even transmit their views and advice.

• Remote Health Monitoring services that track and report public health conditions.

• Interactive SMS chat between the rural people and health care providers over the network of the HIC is possible.

• Compliance monitoring is possible. It refers to the quality assurance tests that the health information services provider can perform to check how well their operations meet their regulatory and internal process obligations.

A mHealth information that is interactive, interoperable, personally engaging, and contextually tailored, with the ability to be delivered to the mass public, can make a difference in enhancing the quality of health care and health promotion efforts. It can reach a diverse population with information that matches their health needs and communication orientations. Health information can be easily updated and adapted

to changing public health situations. It can foster greater participation between HIC and rural people and ensure thatall crucial stakeholders in the public health communication have access to timely and accurate information to guide their decisions (4, 5).

Establishment of GP Libraries

As per the 2011 census, there are 12 CD-Blocks, 289 Gram Panchayats (Village Councils), 2953 villages, and 4,77,434 rural households in the Balasore district of Odisha. The proposed model focuses on establishing Sub-HIC within the premises of block-level libraries, which will work as mediating servers in the health communication network intended to serve the terminals at GP Libraries and help the rural people in case of communication difficulties. The public libraries need to be established at every Gram Panchayats level so that the rural people will find it handier because of their proximity to their households. The health communication terminals will be installed at every GP library so that rural people can obtain the required health information and communicate interactively. The Directorate of Public Libraries, the Ministry of Culture, and the Government of Odisha should establish public libraries at 289 Gram Panchayats to benefit rural people. It will be cost-effective for the state government to establish public libraries at the GP level rather than the village level.

The terminals at the GP library will work as Health Communication Kiosk to be available without any cost for the rural people for which the state government should allocate funds, a computer system, and a well-furnished environment.

Health Communication Approaches of Rural People

The Integrated Public Health Services Model depicts rural people's health communication approaches in a flow chart. Information flows from acquiring healthcare information to the public health outcomes for the rural people.

- **Acquisition of Health Information:** The rural people of the Balasore district go to the terminals available at the GP Library in their locality and put queries regarding their healthcare needs. The information will be available online from the server of the HIC at the interface of the terminals they are using.
- **Processing of Health Information:** The users would analyze the healthcare information they have acquired based on their healthcare needs, socioeconomic status, and belief to use it for themselves, families, and the public, in general, to control and prevent diseases and disorders.
- **Taking Health Decisions:** This is the crucial moment when the users have to make the decisions that will be appropriate for their health. It depends on the user's satisfaction, convenience, and effectiveness of the health information.
- **Using Health Information:** Now, the user will use the health information after making the right decision for their health, either by taking appropriate measures to prevent the diseases or getting treatment for their illness.
- **Health Outcome:** The health outcome for rural people is obtained from health professionals and doctors in the hospitals. The follow-up reminder alert will be provided "24/7" from HIC through users' registered smartphones in the form of the mHealth information service.

At last, the feedback would be demanded further reference and improvement of the health communication program. This would incorporate the user-focused, active user-oriented health communication program and activities for democratizing the public health communication environment for the rural inhabitants of the Balasore district of Odisha and the public in general in India (6-9).

Conclusion

Information communication technology provides tools that facilitate linking health information with public data for healthcare and provides health professionals with access to the knowledge they need to ensure optimum health outcomes.

This study has provided a conceptual framework and strategically developed Integrated Public Health Information Services Model that, if implemented correctly, significantly impact how healthcare data is stored, shared, and, most importantly, owned. The integrated service model will allow rural people to view and authorize access to the health information they need to make healthcare decisions.

The model is purely an output of qualitative and quantitative results of the study, introducing a collaborative public health information service model that could be adopted by the rural people of the Balasore district of Odisha. This model would substantially promote public health for rural inhabitants of the Balasore district of Odisha. Providing the health information center within the public library would help the public health system assist health information seekers in being a one stop health information hub.

Declarations

Acknowledgement

The authors of the research paper thank all the participants in this study.

Conflicts of Interests

The authors declare no conflict of interest.

Ethical statement

This study results from the Ph.D. thesis of the First Author entitled "Developing a Public Health Information Service Model for Rural Inhabitants of Balasore District of Odisha" under the Department of Library and Information Science, University of Calcutta, Kolkata, India.

The researcher assured the participants that their responses were solely for academic purposes and that information from the study would remain confidential.

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None

Authors' contributions

Both the authors contributed to designing, developing, and writing all parts of this study.

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