INTERNSHIP TRAINING

At

IIHMR DELHI

Assessment of antenatal IFA consumption compliance and factors associated with non-adherence in selected Aspirational Districts of India: A mixed-method Hospital Based Cross-Sectional Study

By

MIMANSHA

PG/21/059

Health Management

Under the Guidance of: Dr. Sumant Swain

POST GRADUATE DIPLOMA IN HOSPITAL AND HEALTH MANAGEMENT

2019-21

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT AND RESEARCH

NEW DELHI

To whom it may concern

(Completion of Dissertation from respective organization)

The certificate is awarded to

MIMANSHA

in recognition of having successfully completed his/herInternship in the department of

IIHMR

and has successfully completed his/her Project on

Assessment of antenatal IFA consumption compliance and factors associated with non-adherence in selected Aspirational Districts of India: A mixed-method Hospital Based Cross-Sectional Study

Date – 1st March 2023- 15th June 2023

ORGANISATION-IIHMR

He/She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning.

We wish him/her all the best for future endeavors.

Training & Development

Zonal Head-Human Resource

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **MIMANSHA** a student of PGDM (Hospital & Health Management) from International Institute of Health Management Research, New Delhi has undergone internship training at IIHM from 1st March 2023 to 15th June 2023.

The Candidate has successfully carried out the study designated to him during internship training and his/her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfilment of the course requirements.

I wish him all success in all his/her future endeavours.

Dr. Sumesh Kumar

Associate Dean, Academic and Student Affairs

IIHMR, New Delhi

Dr. Sumant Swain

Mentor

IIHMR, New Delhi

Certificate of Approval

The following dissertation titled **"Assessment of antenatal IFA consumption compliance and factors associated with non-adherence in selected Aspirational Districts of India: A mixed-method Hospital Based Cross-Sectional Study"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **PGDM (Hospital & Health Management)** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name's	Signature's
PRAVEEN KUMAR	
VINAY	
SUKESH BHARDWAJ	

Certificate from Dissertation Advisory Committee

This is to certify that **MIMANSHA,** a graduate student of the **PGDM (Hospital & Health Management)** has worked under our guidance and supervision. He/ She is submitting this dissertation titled **"Assessment of antenatal IFA consumption compliance and factors associated with non-adherence in selected Aspirational Districts of India: A mixed-method Hospital Based Cross-Sectional Study"** in partial fulfilment of the requirements for the award of the **PGDM (Hospital & Health Management).**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Dr. Sumant Swain

ASSISTANT PROFESSOR

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CERTIFICATE ON PLAGIARISM CHECK

Name of Student (in block letter)	Dr./Mr./Ms.: MIMANSHA		
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Course Specialization (Choose one)	Hospital Management	Health Management	Healthcare IT
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Title of the Dissertation/Summer Assignment	Assessment of antenatal IFA Consumption compliance and factors associated with non-adherence in selected Aspirational District of India: A mixed-method Hospital based study		
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NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **"Assessment of antenatal IFA consumption compliance and factors associated with non-adherence in selected Aspirational Districts of India: A mixed-method Hospital Based Cross-Sectional Study"** and submitted by **MIMANSHA**, Enrollment No. **PG/21/059** under the supervision of **Dr. Sumant Swain** for award of PGDM (Hospital & Health Management) of the Institute carried out during the period from **1ST March 2023** to **15th June 2023** embodies my original work and has not formed the basis for the award of any degree,diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Mimansha

Signature

Certificate from Dissertation Advisory Committee

This is to certify that **MIMANSHA,** a graduate student of the **PGDM (Hospital & Health Management)** has worked under our guidance and supervision. He/ She is submitting this dissertation titled **"Assessment of antenatal IFA consumption compliance and factors associated with non-adherence in selected Aspirational Districts of India: A mixed-method Hospital Based Cross-Sectional Study"** in partial fulfilment of the requirements for the award of the **PGDM (Hospital & Health Management).**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Dr. Sumant Swain

ASSISTANT PROFESSOR

IIHMR DELHI

FEEDBACK FORM

Name of the Student	:	MEMANSHA
Name of the Organisation in Which	:	IIHMR DELHI
Dissertation Has Been Completed		yes
Area of Dissertation	:	IIHMR DELHI
Attendance	:	Regular
Objectives achieved	:	yes
Deliverables	:	yes
Strengths	:	As per project guideline (delivered) Hard working, Flexible, Dedicated, Enthusiastic, Honest.
Suggestions for Improvement	:	Work on analytical skills.
Suggestions for Institute (course curriculum, industry interaction, placement, alumni)	:	

Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation

Date: Place:

Acknowledgement

I am extremely thankful to every one of the experts at IIHMR for sharing generously their valuable insight and precious time which motivated me to do my best during summer training. My learning and valuable insights regarding Dissertation Internship report would not have been possible without in-depth discussions. I express my gratitude towards them for providing timely guidance, inspiration & unconditional support during my study.

Mentors in IIHMR

I am highly grateful to **Dr. Sumant Swain** and all the faculty members and staff for giving me thisopportunity to lean1 and to add to my phenomenal experience. Without their cooperation and guidance, it would not have been possible to conduct my study and complete my training successfully.

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ABOUT IIHMR DELHI

The International Institute of Health Management Research (IIHMR), New Delhi is allied to the 'Society for Indian Institute of Health Management Research' which was established in October 1984 under the Societies Registration Act-1958. IIHMR-Delhi was setup in 2008 in response to the growing needs of sustainable management and administration solutions critical to the optimal function of healthcare sector both in India and in the Asia-Pacific region.

We are a leading institute of higher learning that promotes and conducts research in health and hospital management; lends technical expertise to policy analysis and formulation; develops effective strategies and facilitates efficient implementation; enhances human and institutional capacity to build a competent and responsive healthcare sector. Our multi-dimensional approach to capacity building is not limited to academic programs but offers management development programs, knowledge and skills-based training courses, seminars/webinars, workshops, and research studies. Our four core activities are…

- Academic courses at masters and doctoral level in health and hospital management to meet the growing need of skilled healthcare professionals.
- Research that has high relevance to health policies and programs at national and global level.

- Continued education through management development programs and executive programs for working professionals to help them upgrade their knowledge and skills in response to the emerging needs of the industry.
- Technical consultation to the national and state-level flagship programs to address the gaps in planning as well as implementation.

International Institute of Health Management Research, New Delhi (IIHMR-Delhi)

Over the years IIHMR-Delhi has emerged as an institute of repute both nationally and globally for producing socially conscious, skilled and vibrant top-class health care management professionals. Our graduates are well-matched for the ever-changing health care sector and evolving social milieu. The institute has progressed as a leader in research, teaching, training, community extension programs and policy advocacy in the field of health care. IIHMR has carved out a niche for itself through its cutting-edge academic curriculum, infrastructure, accomplished multi-disciplinary faculty and research.

The Institute as an autonomous body of international stature has been developing leaders for several years to shape tomorrow's healthcare by equipping the students in the fields of health, hospital, and health information technology.

The Institute's dynamic health care research programs provide

rigorous training in management, health systems, hospital administration, health care financing, economics, and information technology.

Commitment to Inclusive Excellence

As an institute, IIHMR-Delhi is committed to creating an environment of higher learning that can serve as the model for the kind of society it strives to build – one of equity, social justice and mutual support. We have also made a concerted effort to promote the ethos and philosophies amongst today's students and nurture them into growing as effective managers, to think both critically and ethically, to learn to cope with ethical dilemmas and apply systems-thinking approaches to serious and complex societal problems. Our internationally renowned faculty lead multidisciplinary health research in multifarious areas such as public health, health services, health economics, hospital management, social determinants of health, mental Health and other topics of global and national interest.

The IIHMR is invited by various governmental and civil society organizations to provide technical support for capacity building and policy research needs that culminates in developing innovative and equitable health care strategies and provide advocacy support for health policy and planning. The institute also responds to the global health threats, natural disasters, conflict and related humanitarian crisis. In addition to the Masters and doctoral level programmes, IIHMR-D also offers several

highly specialized and popular Management Development Programmes (MDP) to wide range of health professional in the country and overseas which largely addresses educational needs amongst in-service aspirants.

Career as a health care management professional

A health management professional cardinally serves humanity and offers excellent opportunities to those who wish to make a difference in the world. Issues in public health are complex and common to all communities at local, national and global levels; hence the demand of health care managerial professionals are rising tremendously. These programmes prepare the graduates for executive and leadership roles in respective professional fields and train them to execute high quality work and conduct policy research on diverse health issues. The courses also are skillfully designed to develop a holistic understanding of the core issues and enables practical applications of the same through internship opportunities. The specializations would develop key competencies in specific areas of interest of the students and would enable the incumbents to grow into accomplished and multifaceted professionals.

Career opportunities are abundant for our students to explore connections between health care and other academic disciplines across the IIHMR campuses. We offer practical and meaningful internship experiences through partnerships with governmental agencies, hospital sector, civil society organizations, local

businesses and industry, and a global network of governmental and non-governmental organizations. Our students at IIHMR-Delhi have life-changing opportunities to BE WORTHY and MAKE A POSITIVE CHANGE IN THE WORLD! Come join us!

Advantages of Studying in IIHMR-Delhi

- State-of-the-art architectural infrastructure, campus facilities
- Internationally renowned multidisciplinary faculty team
- Placement assistance in reputed organizations
- Range of scholarship opportunities for meritorious students
- Leading collaborations and networking with global health organizations
- Professional affiliation of students in National/International forums
- Centrally located campus & easy accessibility/connectivity by road/Metro
- Numerous national and international awards won by students
- Excellent academic curriculum for overall professional development and growth of students

With health management degrees, our graduates become health care executives in many public health and medical settings, including international health organizations, research organizations, Government and non-governmental organizations, hospitals, IT and Consulting, Insurance, and other sectors. The comprehensive academic curriculum of all programs integrates

theory with internships in different health and hospital settings over a period of two years along with a research dissertation of publishable quality. The talented, socially conscientious and dedicated Alumni of IIHMR-Delhi are making significant contribution to health care sector in all states of India and overseas.

PGDM (Hospital and Health Management)

Specializations:

- Health Management
- Hospital Management
- Health Information Technology

Specialization in Hospital Management:

A comprehensively packaged course for hospital professionals providing an in-depth understanding of hospital operations, quality management, patient safety, management information systems, planning and legal framework. The program trains students in relevant subjects which, together with intensive internships, equips students to acquire leadership positions in hospitals and allied healthcare organizations. The job profiles range from – human resources management, project planning and implementation, quality management, operations management, costing and financial management, business development in the allied sectors, health IT, health insurance in hospital sector etc.

Specialization in Health Management:

The program includes a detailed and systematic study of the health systems, understanding and implications of national health programs, health policy and planning, program implementation and management. It also orients the students to important areas of public health such as health systems research, epidemiology, quality assurance in healthcare and global health. It prepares students to take on managerial positions in the national health programs, civil society organizations and other national and international health care organizations. They are also prepared to be competent professionals having sufficient knowledge and practical exposure in various fields such as health insurance, consulting, CSR, healthcare IT.

Specialization in Health Information Technology:

It combines health informatics with information technology that encompasses data mining and data Warehouse Bioinformatics, Clinical Information Systems, Health Insurance and Managed Care, Designing for Healthcare Information Technology and Artificial Intelligence. The course focuses on enabling students to use technology for allowing healthcare organizations to safely deliver services, communicate with citizens and protect data. The course aims at improvement in healthcare quality and effectiveness, increase in healthcare efficiency and increasing administrative efficiency.

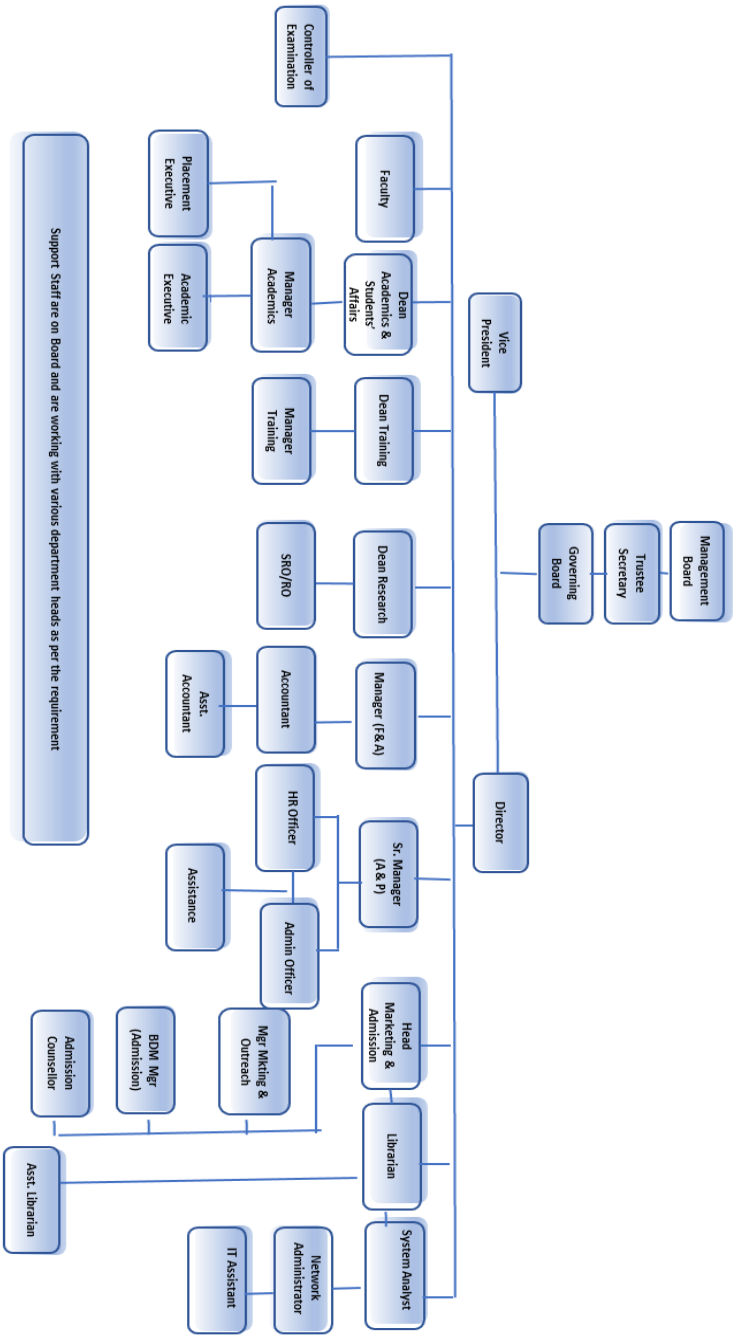
Mission

IIHMR Delhi is an institution dedicated to the improvement in standards of health through better management of health care and related programs. It seeks to accomplish this through management research, training, consultation and institutional networking in a national and global perspective.

Vision

IIHMR is a premier institute in health management education, training, research, program management and consulting in the health care sector globally. The Institute is known as a learning organization with its core values as quality, accountability, trust, transparency, sharing knowledge and information. The Institute aims to contribute to social equity and development through its commitment to support programs aiming at poor and the deprived population.

Organogram of IIHMR Delhi



CORE ACTIVITIES

Research

Our research contributes to the advancement of science and technology in the domain of health and welfare. Evidence and new knowledge from our research studies have informed health and population policies, strategies, program monitoring and evaluation. Lately, there has been an expansion in the nature and scope of research studies and projects undertaken by the Institute. The broad spectrum of research activities at IIHMR encompasses surveys, exploratory analysis of health services access, impact studies of health programmes, as well as health policy analysis at the state, central, and global level.

Training

A distinct activity of our Institute is to offer continued advanced managerial and leadership capacity enhancement courses to young as well as seasoned health and hospital professionals. Over the years, the Institute has acquired the distinction of being an apex health leadership training institute in the country. The Institute's capacity building programme emphasizes upon strengthening the technical and managerial capacity of programme officials and researchers working at different levels in the government sector, academia, and with philanthropies/NGOs in India and in the South-Asia region.

Teaching

The Institute offers several academic programmes. These include full-time regular on campus programmes, doctoral programmes, executive programmes, and certificate courses. We offer, Postgraduate Programme in Hospital and Health Management (PGDHM), two-year duration full-time programme; Fellowship in Program Management (FPM) of three-year duration; Supply Chain Management certificate course of three-months duration; Hospital Management executive course of ten-months duration; and Public Health Financial Management executive programme of one-year duration.

These educational programmes enhance the knowledge and skills of health and hospital professionals in planning and operating management techniques; diagnosing and solving management problems; and acquiring domain specific competencies to efficiently manage and maintain the quality of care at public and private hospitals and healthcare institutions in India and other developing countries.

FACILITIES

- Gym
- IIHMR Library
- IIHMR Hostel
- Cafetaria

- Media Room
- Smart Classrooms
- Computer/Language Lab
- Field Practice Area
- Counselling

ACADEMICS

ABOUT PGDM

Program Educational Objective (PEO)

The Post Graduate Program in Hospital and Health Management at IIHMR is designed to provide the graduate students with appropriate knowledge, attitude and skills to enable them to perform as effective leaders and managers in healthcare industry"

Additionally, the program seeks to fulfil the following specific objectives:

- To understand concepts and techniques of management and their application in hospital and healthcare organizations.
- To develop skills in diagnosing and solving management problems in healthcare.
- To apply the management skills in planning, operationalizing and managing healthcare organizations.
- To focus on strategic responsibilities for capacity building and human resource development for healthcare delivery.

- To understand and apply the principles of research to identify healthcare problem and provide solutions.
- To explore and implement new technology and innovations in health sector.

Program Outcome

Upon completion of the program the student will be able to "Function effectively as leader and/or manager in a healthcare set up". In order to achieve this, the following program outcomes have been defined:

- Internalize the concepts of management such as healthcare delivery system, strategic planning, Human Resources, marketing, finance and operation
- Apply knowledge of research and management techniques and functions in an integrated manner in healthcare set up
- Use appropriate skills to support healthcare organizations to take informed decision in planning, building and managing healthcare organizations
- Utilize learning acquired from trainings and practical exposures in real time situations
- Utilize the technical skills of research and development for effective implementation of programs in health care sector
- Creating relevant skills and vision for effective implementation of programs and policies in the health care sector.

EPGDPHFM (Executive Post Graduate Diploma in Public Health Financial Management)

The Executive Post Graduate Diploma in Public Health Financial Management course is a one-year program jointly offered by IIHMR Delhi and IIHMR University for NHM Odisha personnel sponsored by NHM Odisha. It especially designed for working professionals to enhance their financial management skills for better decision making under public health environment. Enhanced understanding and knowledge of financial management and its approaches are pivotal for efficient and effective utilization of resources. To achieve this objective, a course in public health financial management with an overall goal to provide a fundamental understanding of key issues in financial management, health economics, public health for informed decision-making and implementation is designed.

Program Educational Objectives (PEO)

At the end of the program the participants would be able to:

- Impart financial skills relevant to the public health systems
- Enhance understanding and knowledge of financial management and its approaches are pivotal for efficient and effective utilization of resources.
- Enhance the leadership skills

Programme Learning Outcomes (PLOs)

At the end of the course the participants would be able to:

- Demonstrate understanding about the principles, concepts and theoretical foundation of public health financing.
- Show in-depth knowledge about the influence of health care financing and health policy linkages the given context.
- Apply the tools and techniques for Budgeting, Planning and Monitoring of public health financing at block/district level.
- Design and integrate financial management systems for overall public health performance system.
- Develop and interpret financial reporting system in public health
- Display leadership competencies required for District/Block level public health finance management.

FPM (Fellow Program in Management)

Health sector is one of the largest growing sectors in the country in terms of opportunities, employment and revenue. This is backed by the focussed structural and policy level reforms in the health sector, rapid digital advances, huge investments, changes in population demographics and disease epidemiology. Sustainability of the health sector growth also depends on the availability of trained resource with requisite technical and managerial skills. While acquiring technical knowledge is easy, knowledge pertaining to management requires collation of real-world experience and research. Fellow Program in Management (FPM) conducted at IIHMR Delhi is an attempt in this direction

to develop best healthcare management talent. It is specially designed for individuals working in Healthcare Industry, Government, and Social Sector and interested in pursuing research in the health sector. Upon successful completion of the Program, the participant will receive the degree of Fellow Program in Management.

Program Educational Objective

PEO1: Contribute synergistic and experiential learning as futuristic healthcare professionals and promote quality and evidence-based research in healthcare.

PEO2: Gain higher practical healthcare management skills and contribute as a skilled academic pool for healthcare capacity building.

PEO3: Be involved in exploring and implementing new technology and innovations in health sector with emphasis on emerging public health challenges.

Program Outcome

PO1: Domain Knowledge: Internalize the knowledge of healthcare management, research methodology, analytical, scientific writing and use of digital technologies to develop evidence-based solutions.

PO2: Problem Analysis: Identify, formulate, research literature and analyze the emerging public health challenges.

PO3: Research Skills: Utilize the principles of scientific enquiry, analytical thinking, apply knowledge of research and management techniques in an integrated manner in healthcare.

PO4: Research Ethics: Use, apply ethical frameworks and commit to professional ethics and responsibilities and norms while conducting research, implementing solutions, and sharing of knowledge in the society in the context of healthcare domain.

PO5: Professional Identity: Understand, analyze, communicate the values of their professional role in the society and utilize the skills gained to effective capacity building and sharing of knowledge.

EPHM (Executive Program on Hospital Management)

- To provide hospital management program as weekend course, for developing requisite managerial and business skills in hospital management.
- To give opportunity to the working individuals who seek higher education while working to further their career in hospital management healthcare.

Course Benefits

By completing this executive program, the individual will develop the ability to understand the roles and responsibilities of hospital managers and gain the requisite skills for completing their assignment successfully. This course will orient them towards

corporate culture, situational analysis, strategic planning, and decision-making in various domains of hospital management.

SCM (Supply Chain Management)

Introduction:

Patient care depends on timely availability of drugs, consumables, and other materials. As compared to developed world, the supply chain in developing countries continues to be weak. In spite of the fact that 25 -35% of expenses are incurred on materials in health institutions, the well-developed techniques to manage supply chain as a scientific system are lacking. The total system requires critical information on need, demand, consumption, regulations, and related issues to be dealt with in an integrated manner. There is need to consider affordability, quality, and timely availability of materials. Further the efficiency of a health institutions partly consists in maximizing the quality of patient care per unit of cost for which supply chain management has an important role to play. With the fast-changing technology, there is an urgent need to acquire required skills to ensure timely supplies consistent with upgraded technology.

The three months certificate program has been designed to train the participants from developing countries for appropriate methods in demand estimation, procurement, stocking distribution, inventory control and maintenance of supplies and equipment's.

Objectives:

On completion of the course, students should be able to:

- understand the supply chain management cycle right from production to consumption of materials

- deal with day-to-day problems and issues in supply chain production, transportation, and warehousing
- understand supply chain management at primary, secondary and tertiary care facilities
- discuss and formulate action plans for reforms in supply chain management for efficient healthcare delivery

Course Benefits:

Organizations:

- Optimal use of resource and minimization of wastage of materials
- Enhanced patient satisfaction through availability of right supplies and equipment

Individual:

- Acquiring skills in appropriate methods for procurement, distribution and maintenance of supplies and equipment
- Participants will be able to make use of proper inventory management techniques to avoid over-supplies or stock out
- The knowledge acquired will be helpful in handling higher management responsibilities in future

Expected Outcomes after Completing the Course:

At the end of the course, the participants should be able to draw out a roadmap for improvement of supply chain management in their institution for providing efficient medical care at an optimum cost.

Target Group:

Professionals dealing with materials in various health institutions, Directors, Medical Superintendents, Store officers, HODs of various clinical and diagnostic services,

Specialists and Senior Medical officers, Senior Nurses, Chief /Head Pharmacists, Healthcare Consultants, Pharmaceutical Industrial Mangers and PhD/MHA/MPH students.

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RESEARCH / PUBLICATIONS

Area of Research / History

In the area of research, the International insitiute of health management research, Delhi is contributing to the development of health and population policies, strategies, programme monitoring, evaluation and generation of new knowledge. Over the years there has been an expansion in the nature and scope of projects and research studies undertaken by the Institute. The range is wide; from studies involving survey and data generation to exploratory and impact studies of health services and programmes. The Institute entered into policy research and development in a major way, influencing policy making at the state and central government levels. Some of the projects are interpretative in nature and have come up with new interpretations of ground reality.

Publication

Faculty of the institute are widely published, and have several peer-reviewed journal articles, books, conference proceeding to their credit. Additionally, to disseminate knowledge generated through various research projects, IIHMR also publishes working paper, policy briefs and newsletters.

Research Team

The interdisciplinary teams of faculty and research staff constitute an enabling

environment for learning and professional growth and development. The multi-disciplinary faculty members with strong research competencies have boosted evidence-driven and program-relevant research in the recent years. IIHMR Delhi also involves the students in the research projects during their internship and dissertation period.

TRAINING

About Training and MDP's

Today's health sector demands a multidisciplinary team of professionals' adept at creating a cross sectoral collaborative environment. International Institute of Health Management Research, Delhi has renowned faculty members who have expertise in health, hospital, and health information technology.

Management Development Programs(MDPs)

MDPs are organized for a period of three to five days by individual faculty in their respective expertise. Different organization i.e., Governmental, Non-Government Organizations, Corporate sector , at national and international level are approached for nominations. Since the inception of IIHMR Delhi in 2008, a total of 56 MDPs were organized.

WHO Fellowship Program

WHO has been regularly deputing health functionaries from India and South- East Asian Regional countries for fellowship programs in Project Management, Health Information System, Organisation Development, Human Resource in Health, International health etc.

Customized Trainings

Customized Trainings are organized on the basis of request received from different National and International healthcare organizations. The training contents are finalized in consultation with respective organization. 39 customized programs have been organized for national and international participants from agencies like the Government of National Capital Territory, Delhi, World Health Organization- SEARO, ESIC, Indian Railways, Urban Health Initiative, United Nations Development Programme, IL&FS Education & Technology Services Limited, various Corporate hospitals, Urban Primary Health Care Services Delivery Project- Bangladesh, Ministry of Health and Family Welfare – Bangladesh, Ministry of Public Health, Afghanistan, Rokyan Management Consultancy-Afghanistan Ministry of Health-Sri Lanka, Ministry of Health and Welfare- Myanmar, Jigme Dorji Wangchuck National Referral Hospital- Bhutan, to name a few.

Centers

CENTER FOR CLIMATE, ENVIRONMENT AND HEALTH (CCEH)

(Recognized by Government of India as Centre of Excellence under the National Programme on Climate Change & Human Health)

India Universities and Institutions Network for Disaster Risk Reduction (IUINDRR-NIDM)

Why focus on Climate Change & Environmental Health?

The fate of the Earth and the vulnerability of human society are intrinsically linked to the way humans impact the environment and influence climate change. According to WHO,

climate change is the single biggest health threat facing humanity. It is estimated that between 2030 & 2050, climate change will cause approximately 25 0,000 additional deaths annually, from malnutrition, malaria, diarrhea, and heat stress etc.

Intergovernmental Panel on Climate Change (IPCC) report says that action on climate change must include both adaptation and mitigation simultaneously. There is a critical and immediate need to act towards mitigating greenhouse gases (GHG) and protect people & infrastructure from the inevitable impact of climate change.

To address the challenges in health, environment, and climate change, IIHMR Delhi established the Center for Climate, Environment & Health in the year 2019. The center aims to bring together academicians, scientists, policymakers, industry, health care providers and civil society with a mission to reduce the health impacts from climate change, especially in our most vulnerable populations.

Vision

CCEH aims to develop into a world recognized learning hub to promote evidence synthesis and capacity building in the field of climate change and environmental health.

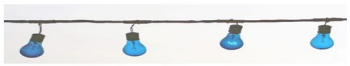
It aspires to contribute to the creation of a sustainable and resilient world where diverse ecosystems can thrive, thus equipping communities with the means to both mitigate and adapt to climate change.

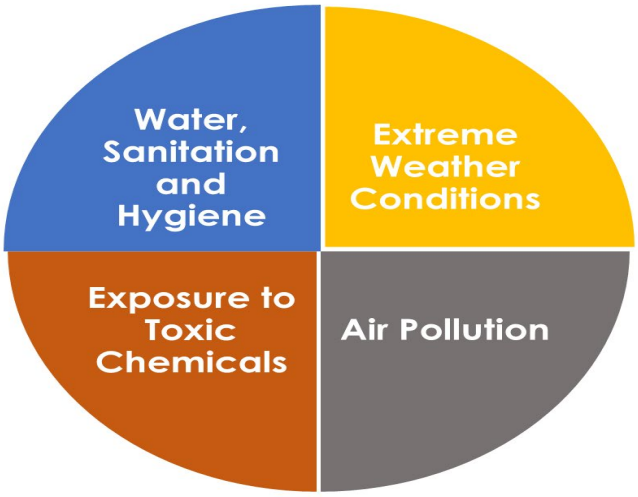
CCEH works to

- establish comprehensive networks and expand the knowledge base among institutions engaged in research and development related to climate science, encouraging research in the areas of climate change.

- conduct policy gap analysis and to measure the effectiveness of current policy on climate change.
- provide a comprehensive educational program in climate change and health that trains future leaders.
- carry out capacity building programs for states to increase their understanding of climate risks and vulnerability.

Our Initiatives-Focus Areas





What We Do

Academics

- Sensitize students about the effects of climate change on human and environmental health.
- Draws faculty from across academia, industry, policy sector, etc. to undertake teaching and research in the field of climate change.
- Works with national & international universities to bring together researchers, policymakers, practitioners, and local businesses to serve as a focal point for innovators looking to bring about global change through ground-breaking, usable solutions.

- Provide platform for hosting National and International conferences related to Climate change and Environmental Health.

Training

- Conduct capacity building programs to increase an understanding of climate risks and vulnerability.

Research

- Revolves around a multi facet dimension catering to the thematic areas of the Centre. Research activities focus on issues such as climate change, rise of infectious diseases, exposure to toxic chemicals to name a few.
- Create new partnerships/collaborations to advance knowledge on human health effects of climate change.
- Policy papers on emerging issues related to climate change & Environment health.

Services

- Sensitization of institutions and hospitals through mock drills like fires, chemical disasters, floods, cyclones, earthquakes, or any other unforeseen events that could result in harm or even death.

Glimpses of Work Done

Some Research Projects Undertaken by CCEH in the last 5 years

- 2013-2016 Climate change and malaria in sub-Himalayan region and central India; Funded by DST
- 2017-2020 Climate Variability and Tribal Communities; Funded by DST
- 2018-2019 Health Impact Assessment of Delhi Metro; Funded by DMRC

- 2019-2020 Assessing the Knowledge & Awareness about COPD among healthcare providers and Community; Funded by Chest Research Foundation
- 2019-2020 Developing a Climate Vulnerability tool for health for state of Rajasthan, India Funded by WHO
- 2021-2022 The National Action Plan for Climate Change and Human Health; Funded by NCDC

Collaboration- With National Centre for Disease Control for Vulnerability Assessment for Climate Change for 18 States/UTs in the country in December 2021

Trainings & Capacity Building workshop- Organized "Training of Trainers" for 30 states with TERI on Climate change & Health Vulnerability Needs Assessment under National Program on Climate Change and Human Health, NCDC, Ministry of Health and Family welfare, Government of India.

Participated at the State level TOT for State and District Nodal Officers under National Program for Climate Change and Human Health (NPCCHH) organized by Directorate of Public Health, Government of Odisha in February 2022.

Advisory Role- Participated as civil society stakeholder in NDMA meetings with Ministry of Home Affairs, Government of India.

Webinars- International Webinar on "Health Vulnerability for Climate Change" with experts from WHO Geneva, Belgium, Nepal on February 2022.

Presentations- Presented India Case Study at Regional training on 'Advancing health-climate action through improved vulnerability and adaptation assessment and planning' organized by WHO/SEARO in August 2021

IIHMR Delhi in collaboration with partner institutes organized Environmental Health e-conference on “Environmental determinants of Infectious Diseases in India in Dec 2020

Innovation Cell

IIHMR- Delhi

IIHMR, since inception has successfully produced highly skilled industry ready health professionals with managerial capabilities and innovative blend of mind through its well-crafted course curriculum and knowledge dissemination around emergent technologies and data analytics (DA), having high significance to modern healthcare systems.

Innovation Cell

IIHMR set up its incubation and entrepreneurship cell in 2020 to promote this culture. Discussions were held on several occasions with Senior Management to initiate activities. We had an MOU with EDII to foster such an environment. Webinars were organized where our students also participated. To further provide a boost to such activities, we had another MOU with IIHMR Foundation housed in Jaipur that was created solely to support startups and incubators.

As per the directives from Ministry of Education (MoE) under Institution’s innovation council (IIC 5.0) initiatives, the incubation cell was upgraded to innovation councils and has been registered in year 2022. It has members represented by faculty, students and industrial consultants with specific roles and responsibilities. It is with an aim to provide a common platform to interact, besides nurture the budding entrepreneurs towards innovative avenues and various other opportunities in healthcare industry.

Vision: To evolve into a platform that brings together students, alumni, faculties, working healthcare professionals, industry experts, policy makers and investors towards

innovation in healthcare and nurture a sustaining entrepreneurship culture in the country.

Mission: To contribute to the healthcare ecosystem by providing a focused education, training and mentorship to the participants that would ignite generation of new innovative ideas.

To support healthcare innovations that address healthcare needs of India and promote social equity and development.

Objectives:

- To establish an innovation and incubation cell catering health system and healthcare.
- To promote education and research in the domain of healthcare using modern and advance technologies.
- Knowledge dissemination in the area of Cognitive science using artificial intelligence, machine learning and deep learning technologies.
- To promote innovation in students and providing a conducive ecosystem for new development in healthcare.

Few of the IIC initiatives like entrepreneur talks, online sessions on design and innovative thinking with innovation in mind and start-up innovators interaction were organized during our placement drives so as to inspire and make our students understand the start-up culture.

Few of our Associations and innovation handholds with start-ups: Our association with industrial representatives and consultants has helped in establishing a centre for innovation with industrial collaborate like working with:

- A start-up in MedTech domain having developed the emerging technologies driven Mobile App and web portal to measure the vital parameters of a person using camera

sensors and AI, wherein we are supporting in the field test and helped them to recalibrate it further. This association has further helped in establishing a industry-academia bonding and creating jobs for healthcare professionals from our institute.

- Another Startup in digital measurement equipment in medical diagnosis to measure the blood parameters. In single invasive use, one can find out the anemia and other blood related diseases using small digital measuring device developed and produced in India.
- A collaboration with IIHMR to develop AI based solutions for anthropometric measurements for early detection of malnutrition in child 0-6 years.

The student council of our innovation cell is actively participating in incubation centre establishment, with an objective to handhold budding entrepreneurs and start-ups specially from healthcare domain. Our effort is to establish a cohesive ecosystem to nurture new innovations in our institute. Therefore, our futuristic stride is to attract best talents and innovators by establishing an incubation centre. We are also planning to establish the social-media campaigns with an objective to help our students get best technology interface in our institute and make them understand its various utility in healthcare domain. Our course work includes industrial and field visits to facilitate knowledge and innovation to our students, as it drives a way to think innovative and creative, it also will align the students towards new implementations across the industry.

Innovation Facilities:

Artificial Intelligence Laboratory (AI-Lab): with over 150 latest workstation and server infrastructure for experimenting on the cutting-edge technologies and tools.

Discussion and meeting Rooms: For conducting of presentations and brain-storming sessions we have Media, Entrepreneurship, and Board rooms for the students and member of IIC council members.

Industrial Collaboration and experts empanelled: To support and guide students, we have exclusive collaborated with industrial consultants and experts from innovation and technology sector.

Community Outreach Program

Community Outreach Program which has been added to its work portfolio as a fifth pillar of the institute activities. The Institute had a felt need of having a community outreach area or a demonstration site in order to develop and ensure that the students of IIHMR Delhi, who are future health management professionals, have a connect with the community and are able to identify, manage and address key individual and community health needs in the real settings. The program not only facilitates in imparting hands-on experience to the students but also facilitates in learning of skills beyond the four walls of an institute and also serves as a platform to hone the skills of students. This program started in Goyla Dairy, South-west District, New Delhi after obtaining due approval from the Directorate General of Health Services, Govt. of NCT of Delhi on 04th February 2022. The Goyla Dairy area is a peri urban aera covered an approximate population of 55000. The health care needs are catered by two Aam Aadmi Mohalla Clinics (one in Goyla Khurd and other in Qutub Vihar), one urban PHC, one TB clinic and one leprosy clinic. A group of 21 ASHA workers and five ANMs act as an interface between the community and health services, catering to needs related to comprehensive primary healthcare of the populace. There are two medical officers in UPHC and two in each Mohalla clinics. The TB clinic and leprosy clinic are managed by Damien Foundation India Trust (DFIT) in Qutub Vihar.

General Objective: –

To develop a connect between future health management professionals and the community to enable them to identify and manage key individual and community health needs by mobilizing locally available resources.

Specific Objectives: –

A. A Health Needs Assessment would be conducted in the first phase with the following objectives:

1. To assess the health needs of the community through a population-based family health survey.
2. To assess the preparedness of the health system to meet the population needs.

B. Based on the findings from family health profile, we would develop and implement interventions to address the problems of the community with the following objectives:

1. To reduce the out-of-pocket expenditure in health by households through information sharing (reducing information asymmetry) and mobilizing available resources at individual and community level (public and private).
2. To improve use of clean fuels, safe drinking water and toilets at the household and community level.
3. To develop capacity of care givers in family for providing care for providing MCH and selected NCD care (Hypertension, Diabetes and Cancer)

Approaches: -

The students who are enrolled in the PGDM course are getting good exposure to field-based practicum training and is strengthening student's skills in terms of following

skillsets:

1. establishing communication with various stakeholders including medical officers, health care functionaries and community.
2. orientation on different national and state health programs.
3. eliciting information from beneficiaries through formal and informal interactions and interviews on a particular topic.
4. use of technology to collect, manage and analyze data.
5. organizing events at community level for a specific purpose such as general health checkup, screening of diseases, dissemination of health-related messages.
6. liaising with care providers, beneficiaries, management team and decision makers; and
7. conducting periodic reviews of specific health programs with reference to health, hospital and health IT management to understand the process of health management information system.

1. Abstract

Title: Assessment of antenatal IFA consumption compliance and factors associated with non- adherence in selected Aspirational Districts of India: A mixed-method Hospital Based Cross- Sectional Study

Abstract:

Background: Iron and Folic Acid (IFA) supplementation during pregnancy is a critical intervention to prevent anemia and associated adverse outcomes. However, non-adherence to antenatal IFA consumption remains a significant challenge in many low-resource settings, including aspirational districts in India. This study aims to assess the compliance of antenatal IFA consumption and explore factors associated with non-adherence in aspirational districts ofIndia.

Methods: A mixed-method hospital-based cross-sectional study was conducted in

selected aspirational districts across India. Quantitative data were collected through structured interviewswith PNC mothers delivered in DH, PHC or SC. Additionally, qualitative data were obtained through in-depth interviews with PNC mothers delivered in DH, PHC or SC.

Results: In summary, the survey results underscore the pressing need for improved awareness and understanding of anemia and the importance of iron supplementation during pregnancy. Efforts should focus on addressing the knowledge gaps among the general population, ensuringbetter access to IFA tablets, managing perceived side effects, promoting consistent adherence, and providing clear instructions on dosage and duration. By addressing these challenges,

healthcare providers and policymakers can work towards improving maternal health outcomes

and reducing the burden of anemia during pregnancy.

Conclusion: Lack of awareness about anemia among the majority of the respondents, Only 25 outof 57 respondents were aware of anemia, indicating a significant knowledge gap. High school level education showed the highest level of awareness about anemia, highlighting the role of education in disseminating information 40 individuals lacked knowledge about the effects of anemia, emphasizing the need for broader education on its impact and consequences. Encouragingly, 92.9% of respondents reported taking iron and folic acid (IFA) tablets. 84.2% of respondents were aware that IFA tablets are red in color, indicating basic understanding of the medication. Accredited Social Health Activists (ASHAs) and Auxiliary Nurse Midwives (ANMs)play a crucial role in providing IFA tablets.

Many anemic respondents are unable to complete the full course of IFA tablets due to various reasons, indicating the presence of barriers.

Communication gap observed between health workers and respondents, particularly in Chhattisgarh, regarding dosage and timing of IFA tablet consumption.

Family members provide support by including fruits, vegetables, and other nutritious foods in theanemic individuals' diet.

Overall, targeted awareness campaigns, improved communication, and comprehensive support systems are needed to address anemia effectively.

2. INTRODUCTION

Anemia is a health condition characterized by insufficient red blood cells or a deficiency of hemoglobin within the red blood cells. On a global scale, approximately 41.8% of pregnant women experience anemia, with half of the cases attributed to a shortage of iron .(3) In India, iron deficiency is the primary underlying cause of anemia, often resulting from insufficient dietary intake of iron to meet the body's physiological requirements. Additionally, infections cancontribute to anemia by causing intestinal blood loss or disrupting the absorption and metabolism of iron. (1)

In an effort to combat iron deficiency anemia, the Indian government has advised the usage of Iron and Folic Acid (IFA) supplements for pregnant women and nursing mothers. These tablets contain adequate amounts of iron and folic acid, playing a crucial role in preventing maternal anemia, puerperal sepsis, low birth weight, neural tube defects, and preterm birth. However, the effectiveness of these interventions greatly depends on adherence to the recommended supplement regimen. The National Nutritional Anaemia Prophylaxis Program (NNAPP) was initiated in 1970 and has been implemented nationwide for the past 50 years. Despite these efforts, approximately 50% of women in their reproductive age group still experience anemia. (7)

According to the National Family Health Survey (NFHS) data, the occurrence of anemia in pregnant women rose from 49.7% in NFHS-2 to 52.2% in NFHS-5. Similarly, among women ofreproductive age, the prevalence increased from 53.1% in NFHS-2 to 57.0% in NFHS-5. These findings indicate that despite various modifications and adjustments made to the National Nutritional Anaemia Prophylaxis Program (NNAPP), the rates of anemia have continued to rise. (5)

Iron deficiency anemia has significant implications for the health of both mothers and their babies, resulting in adverse outcomes such as postpartum hemorrhage, low birth weight, pretermdelivery, and fetal growth restriction. To tackle this issue, the healthcare system in India recommends the administration of Iron and Folic Acid tablets to pregnant women and nursing mothers. These tablets contain the necessary amounts of iron and folic acid and are typically prescribed from the second trimester of pregnancy until 180 days after delivery. However, ensuring widespread adherence to these supplements has proven to be a difficult task.(4) Pregnant women and nursing mothers (with infants aged 0 to 6 months) are advised to consume a single Iron and Folic Acid tablet starting from the fourth month of pregnancy (second trimester) and continuing throughout the pregnancy (for at least 180 days). The supplementationshould also be continued for 180 days after delivery. These tablets, which are sugar-coated and red in color, contain 60 mg of elemental iron and 500 mcg of folic acid (3).

Regular intake of iron and folic acid supplements (IFAS) during pregnancy helps prevent maternal anemia, puerperal sepsis, low birth weight, neural tube defects, and preterm birth. When taken daily throughout the pregnancy, IFAS significantly reduces the risk of all forms ofmaternal anemia at full term by 70% and reduces the risk of iron deficiency anemia at full termby 57%.(6) The effectiveness and positive outcomes of interventions involving Iron and Folic Acid tablets are closely linked to the level of compliance with the recommended regimen.

Compliance refers to the extent to which patients adhere to medical advice. Some experts attribute the failure of national iron supplementation programs to women's "noncompliance." Compliance is influenced by various factors, including both health system-related factors andpatient-related factors, although these factors have not been

extensively studied. There are no specific thresholds to define non-compliance, but typically, missing two or more consecutivedoses is generally considered an indication of non-compliance. (8)

Addressing Iron Deficiency Anemia (IDA) becomes crucial for India to make progress towards achieving the Sustainable Development Goals (SDGs) by 2030. The significant maternal morbidity and mortality associated with IDA, along with its impact on infants, highlight the urgentneed for intervention. By combating IDA, India can improve maternal health outcomes and reducethe adverse effects on infants, thereby advancing its efforts towards the SDGs. (5)

Iron Deficiency Anemia (IDA) in India is influenced by a range of context-specific challenges, including limited family resources, lack of awareness, personal preferences, improper food preparation and consumption habits, worm infestations, and non-compliance with Iron and Folic Acid Supplements (IFAS), among others. It is essential to thoroughly examine these factors contributing to non-compliance and develop effective strategies to enhance adherence to iron andfolic acid supplementation among pregnant women and nursing mothers in India. By addressing these challenges comprehensively, significant progress can be made in combating iron deficiency anemia, reducing its associated health consequences, and positively impacting the achievement ofSustainable Development Goals (SDGs) and the overall well-being of the population. This requires addressing the gaps and shortcomings under the National Iron Plus Initiative (NIPI) and implementing appropriate measures. (2)

3. LITERATURE REVIEW

Eva Belingon Felipe-Dimog et al in the Philippines used National Demographic and Health Surveydata and found that Filipino pregnant women of Islam religion or non-Indigenous Muslim ethnicitywere less likely to be compliant. On the other hand, Filipino pregnant women who were aged 25–34 years, had secondary and higher levels of education, had higher wealth index, were rural residents, had an early ANC visit initiation, and had frequent ANC visits had increased odds of complying with the IFA recommendation.

Fikadu Waltengus Sendeku et al found that Educational status, early registration of ANC, anemia

in the current pregnancy, good knowledge of IFAS, number of ANC visits, good knowledge of anemia, and receiving health education about the benefit of IFAS were factors associated with theadherence of IFAS among pregnant women and concluded that iron and folic acid deficiency anemia can be prevented by delivering and implementing strategies to improve the adherence of iron and folic acid supplementation.

Haile et al Found that attention should be given to mothers of younger age and those with large family sizes. The promotion of ANC services based on the WHO standard can be used as an intervention for improving iron supplementation during pregnancy.

Vishnu Khanal et al found that about one in five women complied with the recommended iron- folate supplementation for 45 days of postpartum. Mothers who have lower education did not attend any antenatal care visit, had their delivery at home, and did not attend any postnatal care were likely not to comply with iron-folate supplementation. Increasing antenatal and postnatal visits, facility delivery, and educational intervention might increase the rate of postnatal iron-folate

compliance rate.

Tsegaye Molla et al found that there was a low level of adherence to iron folate supplementation among pregnant women who had less than four ANC visits, anemic during the then pregnancy, and had poor knowledge about anemia and iron folate supplementation. Therefore, the preventionof prenatal anemia, improving the knowledge of women about anemia and iron folate supplementation, and increasing the coverage of ANC services are essential to increase adherenceto iron folate supplementation.

Yadav et al found that anemia was 24 times more likely to be found in those women who were non-compliant with IFA supplementation during pregnancy than their counterparts. The IFA supplementation program needs to be strengthened combined with dietary improvements, micronutrient supplementation, and food fortification to address nutritional anemia which might in a visible change in the target population.

Naveen Paudyal et al found that Nepal has achieved considerable success in increasing the coverage of and compliance with IFA supplementation during pregnancy nationwide. We arguedthat this was achieved by using respected and trusted FCHVs to reach pregnant women with IFAsupplements at the community level, together with information and counseling to encourage adherence to IFA and early and regular ANC visits.

Mithra P et al found that the reasons for non-compliance as given by the patients in our study include: the experience of side effects that they associated with the tablets, misunderstanding thatthey needed to continue taking the tablets throughout pregnancy, and forgetfulness which are like the previous studies.

4. Rationale

There is limited information regarding the compliance of post-partum females on antenatal consumption of Iron and Folic Acid Tablets and other traditional iron preparation for consumption in aspirational districts of India. After 50 Years of implementation of NNAPP, thecases of anemia have decreased and the compliance of iron folic acid is increased but still, the goal of the program has not been achieved. Therefore, a mixed-method Hospital Based Cross- Sectional Study is required to gain insights regarding the topic.

By conducting a mixed-method hospital-based cross-sectional study, this research aims to provide a comprehensive understanding of the problem. Quantitative data will offer insights intocurrent adherence levels, allowing for comparisons with national and international guidelines.

This information will help identify districts or regions with particularly low adherence rates, enabling the implementation of targeted interventions. Moreover, qualitative data will capture the experiences, perspectives, and beliefs of pregnant women, healthcare providers, and key stakeholders, shedding light on the contextual barriers to adherence. By uncovering socioculturalfactors and traditional beliefs that influence adherence patterns, the study will guide the development of culturally appropriate interventions. Ultimately, this research will contribute to evidence-based decision-making, policy formulation, and the improvement of maternal and childhealth outcomes in resource-constrained aspirational districts of India.

5. Objectives

General objective: To assess the compliance of antenatal IFA consumption and factors associatedwith non-adherence in Aspirational Districts of India.

Specific objectives:

1. To assess knowledge about IFA consumption during the antenatal period among post-partumwomen.
2. To understand the perception of post-natal women about the compliance of IFA consumptionamong pregnant women.
3. To assess the compliance of antenatal consumption of IFA tablets.
4. To explore barriers and enablers related to the consumption of IFA tablets during theantenatal period.
5. Use of the traditional iron preparation is consumed during the antenatal period among post-partum women.

6. Methodology

STUDY SETTING:

Study design: The study design is a mixed-method design, which includes collecting and analyzing quantitative (cross- sectional) and qualitative (IDI) data in two simultaneous phases. Thepurpose of this design strategy is to use the qualitative results to corroborate the quantitative study's findings.

The study will be conducted in two phases: Quantitative and Qualitative.

- In the Quantitative phase, a cross-sectional survey will be done to examine the association of a socio-demographic profile, status of anemia, consumption of IFA tablets, and questions on knowledge, attitude, and practice related to IFA consumption during the antenatal period.
- In the Qualitative phase, in-depth interviews will be conducted with post-partum women to explore the perspectives of the post-partum women regarding traditional iron preparation which is consumed during the antenatal period.

Study Method: Quantitative data: A semi-structured questionnaire will be developed including

a socio-demographic profile, status of anemia, consumption of IFA tablets, and questions onknowledge, attitude, and practice related to IFA consumption during the antenatal period.

Qualitative data: An open-ended thematic area will be developed. In-depth interviews will be

conducted with the postpartum women to check what other traditional practices they did to take

iron other than IFA supplementation. The sessions will be recorded and hand-made notes will betaken.

Sample size: A total of 57 participants were interviewed, which consists of all PNC mothers. Thesample was sufficient to reach the data saturation.

Search Strategy: the data was collected using electronic media like Google scholar, PubMed andnews articles references were collected.

1. Compliance
2. Antenatal
3. Iron and Folic Acid (IFA) consumption
4. Factors
5. Non- adherence
6. Mixed- method
7. Hospital-based
8. Cross- sectional study

Inclusion and Exclusion Criteria:

Inclusion Criteria:

- Post-natal mother present in DHs and PHCs

Exclusion Criteria:

- Any person who doesn't provide consent to be part of the study.
- Not available at the facility.

Quantitative-

1. Inclusion Criteria: Post-natal women who have delivered at DH.
2. Exclusion Criteria:

- Any person who doesn't provide consent to be part of the study.
- Clinically unstable

7. RESULTS:

Socio-demographic information-

A comprehensive analysis of the socio-demographic characteristics of postnatal care women who gave birth in the preceding month was conducted, with data successfully gathered from 57 respondents, resulting in a 100% response rate. The average age of the participants was 27 years(±7), and a significant proportion (16%) fell within the age range of 15-19 years.

Regarding education, 37% of the respondents had completed high school, while 32% had an intermediate level of education. The majority of the participants (77%) identified themselves ashomemakers. In terms of religious affiliation, 84% of the population belonged to the Hindu religion, while 16% identified as Muslims.

Marital status revealed that 61% of the respondents were married between the ages of 20-34, while 39% were married between the ages of 15-19. Furthermore, 74% of the participants had their first child between the ages of 20-34, while 26% gave birth to their first child between theages of 15-19.

In summary, the socio-demographic characteristics of the postnatal care women indicate a diverse population in terms of age, education, occupation, religion, and marital status. These findings provide valuable insights for the report on this population's socio-demographic profile.Overall, the socio-demographic profile of the respondents revealed that a significant proportionwere young mothers, with a substantial number having their first child at an early age.

Background characteristics	Frequency	Percent
Age of PNC mothers (in years) n=59		
15-19	9	16%
20-34	48	84%
>35	0	0%
TOTAL	57	100%
Educational status		
Illiterate (no schooling)	3	5%
Primary (1- 5)	3	5%
Middle (6- 8)	5	9%
High school (9- 10)	21	37%
Intermediate/	18	32%
Graduate	5	9%
Postgraduate & higher	2	4%
Others, please specify	0	0%
TOTAL	57	100%
Occupation		
Unemployed (can work)	4	7%
Unemployed (can't work)	1	2%
Unpaid worker	1	2%
Skilled	2	4%
Homemaker	44	77%

Student	2	4%
self employed	1	2%
semi-skilled	2	4%
Govt	0	0%
TOTAL	57	100%
Religion		
Hindu	48	84%
Muslim	9	16%
Christian	0	0%
Jain	0	0%
Sikh	0	0%
Buddhist	0	0%
No religion	0	0%
Others (specify)	0	0%
TOTAL	57	100%
Age at the time of marriage		
15-19	22	39%
20-34	35	61%
>35	0	0%
TOTAL	57	100%
Age when you had 1st childbirth		

15-19	15	26%
20-34	42	74%
>35	0	0%
TOTAL	57	100%
Number of pregnancy		
Primi	36	63%
Multi	20	35%
Grand Multi (≥4)	1	2%
TOTAL	57	100%

Awareness about maternal anemia-

The survey results paint a concerning picture of the respondents' knowledge and understanding of anemia and the importance of iron supplementation during pregnancy. A significant portion ofthe respondents, approximately 32.0%, had not even heard of anemia, indicating a lack of basic awareness about this common health condition. Furthermore, a staggering 70.0% of the participants lacked knowledge about the effects of anemia, highlighting a major gap in understanding its potential consequences.

However, there were some positive signs of awareness within the surveyed group. Around 24.0% of the respondents were able to identify at least one major symptom or effect of anemia,

such as low birth weight (LBW) and feeling tired. While this figure is relatively low, it suggeststhat there is some level of understanding among a minority of individuals.

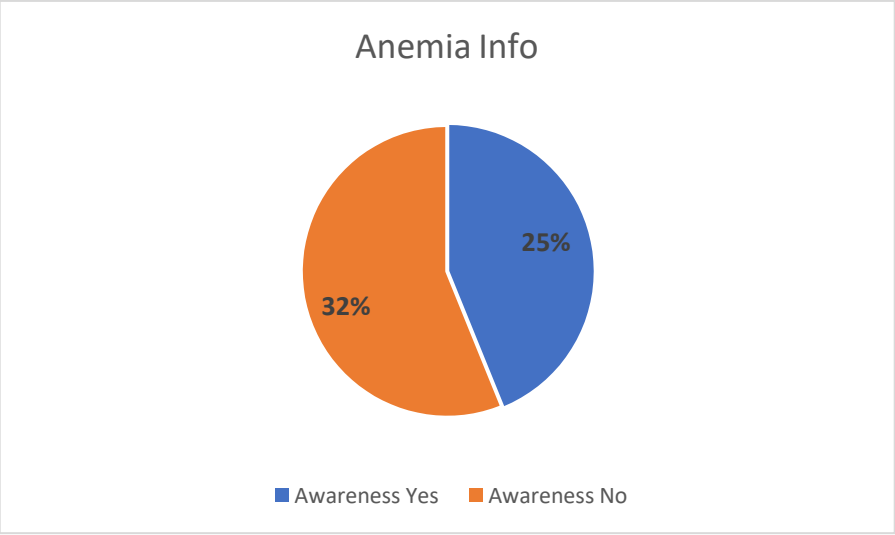
Regarding information dissemination, a majority of respondents (93%) claimed to have received information about the significance of iron supplementation during their recent pregnancies. The principal sources of this information were Auxiliary Nurse Midwives (ANMs) (56%) and Accredited Social Health Activists (ASHAs) (26%). This indicates that frontline healthcare workers play a crucial role in delivering vital information to pregnant women. Additionally, family members, neighbors, and doctors were mentioned as sources of information by 18% of the respondents.

However, despite the information received, there were several barriers to the effective implementation of iron and folic acid (IFA) supplementation. Approximately 28% of the respondents did not complete their IFA supplementation course due to non-availability of the tablets, indicating a lack of access to necessary healthcare resources. Additionally, 23% reportednot taking the tablets due to perceived side effects, highlighting the need for better understandingand management of potential adverse reactions. Another 7% simply forgot to take the tablets, emphasizing the importance of reminders and support systems to ensure consistent adherence.

Furthermore, 42% of the respondents cited other issues as reasons for not completing the IFA course. These issues ranged from family members advising against IFA supplementation due tothe concurrent use of other medications to various unspecified concerns. These findings underline the complexity of the challenges faced in promoting proper IFA supplementation andsuggest a need for more comprehensive education and support systems.

Additional insights reveal that 33.0% of the respondents took IFA tablets more than once, indicating a lack of clear instructions or guidance on the appropriate dosage. Moreover, therewas a significant knowledge gap, as only 61.4% were aware that IFA tablets should be takenonly during pregnancy. Furthermore, 12.3% of the respondents were not aware of the recommended duration for consuming IFA tablets. These findings emphasize the need for clearer and more extensive education on the correct usage of IFA supplements.

In summary, the survey results underscore the pressing need for improved awareness and understanding of anemia and the importance of iron supplementation during pregnancy. Efforts should focus on addressing the knowledge gaps among the general population, ensuring better access to IFA tablets, managing perceived side effects, promoting consistent adherence, and providing clear instructions on dosage and duration. By addressing these challenges, healthcare providers and policymakers can work towards improving maternal health outcomes and reducingthe burden of anemia during pregnancy.



Traditional Practices-

The traditional practices observed among family members in providing dietary support for anemic individuals include incorporating specific fruits like Pomegranate, Apple, Beetroot, andBanana, along with vegetables such as Green leafy vegetables, chickpeas, banana flower, turtleleaf, and Pulses. Additionally, non-vegetarian options like Fish, Eggs, Chicken, Mutton, and snails are also considered beneficial for improving blood health. These practices reflect the cultural beliefs and knowledge passed down through generations, with family members recognizing the importance of certain foods in addressing blood deficiencies.

The statements shared by family members, such as "We don't feed turmeric when someone has a blood deficiency," "My mother-in-law advises me to eat raisins and discourages excessive medication," and "We eat Pomegranate and Indian snails, which are very good for blood formation," further demonstrate the traditional understanding and preferences for specific foods in combating anemia.

While these traditional practices hold cultural significance and may provide some nutritional benefits, it is essential to note that they should be supplemented with evidence-based medical advice and interventions. Healthcare providers should acknowledge and respect these traditionalbeliefs, engaging in culturally sensitive discussions to ensure a holistic approach to managing anemia and promoting overall maternal health. By combining traditional practices with evidence-based interventions, healthcare providers can work towards addressing anemia effectively and improving the well-being of individuals affected by this condition.

8. DISCUSSION:

The discussion based on the findings of the analysis on anemia awareness and iron supplementation during pregnancy reveals several important points. Firstly, there is a notable lack of awareness about anemia among the majority of respondents, indicating the need for targeted educational campaigns and interventions to raise awareness and promote understanding. Education plays a significant role in influencing awareness levels, as participants with higher education exhibited higher levels of awareness. Therefore, incorporating comprehensive health education into school curricula and promoting lifelonglearning opportunities can help bridge the knowledge gap.The positive finding of a significant proportion of respondents reporting adherence to IFA tablets is encouraging, highlighting the effectiveness of interventions and the impact of healthcare providers in providing access to these supplements. However, challenges related to completing the full course of IFA tablets were identified, including non-availability of tablets, perceived side

effects, and forgetfulness. Improving accessibility to healthcare resources, managing sideeffects through education and support, and implementing reminder systems can enhance consistent adherence to IFA supplementation.The communication gap between health workers and respondents regarding dosage and timing of IFA tablet consumption is a critical issue that needs to be addressed. Clear and effective communication is crucial to ensure accurate instructions and guidance. Enhancing communication strategies betweenhealthcare providers and pregnant women can improve understanding and adherence.

Family-based interventions were found to be supportive in addressing anemia, as family members included nutritious foods in the diet of anemic individuals based on traditional beliefs. Encouraging family support and involving them in educational programs can createa supportive environment for pregnant women and increase the likelihood of successful anemia management.

In conclusion, addressing the lack of awareness about anemia, improving accessibility andadherence to IFA supplementation, enhancing communication between healthcare providers and individuals, and engaging family members are crucial recommendations derived from the discussion. By implementing targeted interventions, educational campaigns, and support systems, we can work towards reducing the burden of anemia during pregnancy, improving maternal health outcomes, and ensuring the well-being of both mothers and their children.

9. CONCLUSION:

In conclusion, the findings of the analysis highlight a concerning lack of awareness aboutanemia among the majority of respondents, indicating the need for targeted educational interventions to improve knowledge and understanding of this prevalent health condition.Education, particularly at the high school level, plays a vital role in promoting awareness,emphasizing the importance of incorporating comprehensive health education into schoolcurricula and promoting lifelong learning opportunities.

While there is a positive trend in the reported adherence to iron and folic acid (IFA) supplementation, challenges such as non-availability of tablets, perceived side effects, and forgetfulness hinder the completion of the full course. Addressing these barriers requires improved accessibility to healthcare resources, better management of side effects through education and support, and the implementation of reminder systems to enhance consistentadherence.

Furthermore, the communication gap observed between healthcare providers and respondents, particularly regarding dosage and timing of IFA tablet consumption, highlights the need for clear and effective communication strategies. Enhancing communication between healthcare providers and pregnant women is crucial for ensuringaccurate instructions and guidance on taking the tablets correctly.

The involvement of family members in supporting anemic individuals through dietary practices is a positive aspect. However, it is important to supplement these traditional practices with evidence-based medical advice and interventions to ensure a comprehensiveapproach to managing anemia. Engaging family members in educational programs and interventions can create a supportive environment and contribute to successful anemia management.Overall, targeted awareness campaigns, improved accessibility and adherenceto IFA supplementation, enhanced communication strategies, and engagement of family members are essential for addressing anemia during pregnancy effectively. By implementing these recommendations, healthcare providers and policymakers can work towards reducing the prevalence and impact of anemia, ultimately improving the health outcomes of pregnant women and their children.

10. RECOMMENDATION:

Based on the findings, the following recommendations can be made:

1. Develop targeted educational campaigns: Implement comprehensive awareness campaigns to improve knowledge and understanding of anemia among the population,with a focus on the importance of iron supplementation during pregnancy.
2. Enhance accessibility to healthcare resources: Ensure the availability and accessibility ofiron and folic acid (IFA) tablets to pregnant women by strengthening the supply chain and addressing issues related to non-availability.
3. Address barriers to adherence: Provide education and support to address perceived sideeffects, forgetfulness, and other barriers to completing the full course of IFA tablets, including the development of reminder systems and strategies to manage side effects.
4. Improve communication between healthcare providers and individuals: Enhance communication strategies to ensure clear and accurate instructions on the dosage andtiming of IFA tablet consumption, facilitating better understanding and adherence.
5. Engage family members: Involve family members in educational programs and interventions, emphasizing their role in supporting anemic individuals by providing awell-rounded diet that includes fruits, vegetables, and other nutritious foods.
6. Culturally sensitive approach: Respect and acknowledge traditional practices while integrating evidence-based medical advice to ensure a holistic approach to managinganemia and promoting overall maternal health.

By implementing these recommendations, healthcare providers and policymakers can worktowards improving awareness, access to healthcare resources, adherence to iron supplementation, and communication, ultimately reducing the burden of anemia during pregnancy and improving maternal health outcomes.

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12. ANNEXURE:

PARTICIPANT INFORMED CONSENT FORM

I have been explained about the study titled “To assess the compliance of antenatal IFA consumption and factors associated with non-adherence in Aspirational Districts of India: A mixed-method Hospital Based Cross-Sectional Study” which is being undertaken to explore and identify the reasons for the compliance of antenatal IFA consumption and factors associated withnon-adherence. The purpose and procedure of the study has been explained to me in detail in a language of my understanding.

I understand that my participation in the study is purely voluntary, and I may choose to withdrawfrom the study at any point if necessary.

I also understand that information provided by me will be kept confidential and will be used for purpose of this research only.

Potential risks and benefits of my participation in this study have been explained to me.I hereby

provide my voluntary consent to participate in the above study.

Signature/ LTI of participantName of participant:

Place:

Date:

<u>Study Title</u>: To assess the knowledge, attitude, and practice related to antenatal consumptionof Iron and Folic Acid Tablets among post-partum women in Aspirational Districts of India: A mixed-method Hospital Based Cross-Sectional Study.

Sr. No.	Question	Response
1.	Name of Post-Natal Mother	
2.	Husband Name:	
3.	Address:	
4.	Interviewer Name:	
5.	Date of Interview:	
6.	Location of facility/ community:	
7.	What is the distance of your home from hospital? (Only applicable for DH deliveries)	
8.	What is your age? Verify from Aadhar card	
9.	What is the monthly Income of your family	
10.	What is your education status?	1.Illiterate (no schooling)2.Primary (1- 5) Middle (6- 8) High school (9- 10) 5. Intermediate/6.Graduate

		7. Postgraduate & higher8.Others, please specify
11.	What is your occupation?	Unemployed (can work) Unemployed (can't work) Unpaid worker Student Homemaker Govt
12.	What is your religion?	Hindu Muslim Christian Jain Sikh Buddhist No religion Others (specify)
13.	What was your age at time of marriage?	
14.	What was the age when you had 1st childbirth?	
15.	How many live kids you have?	
16.	How many abortions you had?	
17.	How many times have you been pregnant? Verify from ANC card	Primi Multi Grand Multi (≥4)
18.	Hb% of the respondent at the time of delivery /post delivery/last mentioned?	3-4g/dl 5-6g/dl 7-10g/dl Above10g/dl Do not know
19.	Have you heard about anemia?If Yes, then by whom?(K)	Yes No
20.	What is the cutoff for anemia?(K)	
21.	Do you know the Reason for anemia?(Multiple choice question)(K)	Decreased dietary iron intake Increased blood loss during themenstrual cycle. Worm infection Do not know Any other

22.	What are the Effect of anemia. (Multiple choice question)(K)	LBW Hemorrhage Death Feeling tired or weak Post-partum depression A baby with anemia A baby with developmentaldelays Don't know Other _____
23.	Did you take any medicine to cure anemia, if yes then what was the colour of that tablet?(K)	Yes No (RED, PINK, BLUE)
24.	From where you get IFA tablets?(K)	ASHA ANM Doctor Other
25.	How many did you taken during your pregnancy?(P)	_____
26.	What is the reason for not consumingan IFA tablet?(Multiple choice question) (A)	Not Available Completely Forgot to take Frequent nausea and vomiting, Blackstool, Constipation & Leg cramps Others
27.	What time did you consumed an IFA tablet? (P)	In the morning After meals At night More than one time Not advised
28.	How long did you consumed IFA tablets during pregnancy? (P)	Do not know Only during pregnancy After childbirth Throughout pregnancy and afterchildbirth for a few months
29.	How you consume IFA ? (P)	With lemon water With tea, coffee With water other
30.	What other measures are taken to complete the amount of iron in the body? (probe-what do you eat to overcome iron deficiency)	

	(ask about relatives and neighbors what they eat or follow traditional practice to overcome iron deficiency)	

PATIENT INFORMATION SHEET

You are being invited to participate in a research study. Before you take part in this research study, all information related to study will be explained to you and you will be given the chance to ask questionsin case of any doubt. Please read carefully the information provided in this sheet. If you agree to participate, please sign the informed consent form.

STUDY TITLE: To assess the compliance of antenatal IFA consumption and factors associated with non-adherence in Aspirational Districts of India: A mixed-method Hospital Based Cross- Sectional Study.

PURPOSE OF THE STUDY: To assess the compliance of antenatal IFA consumption and factors associated with non-adherence in Aspirational Districts of India.

PROCEDURE OF THE STUDY: This study will be conducted in form of a structure interview. Thetotal duration of each interview will be 20-30 minutes.

PARTICIPANT'S RESPONSIBILITY: If you wish to participate in the study, you will be interviewed.

POSSIBLE RISKS/ DISCOMFPRTS: This study involves only interview and the information provided would be kept confidential as financial discussions are being done.

POTENTIAL BENEFITS: The study will help us to understand reasons of non compliance which is important for planning.

CONFIDENTIALITY OF INFORMATION AND MEDICAL RECORDS: All information collected will be kept confidential and used only for the purpose of this research.

PARTICIPANT'S RIGHTS: Your willingness to participation in this study is purely voluntary. If you wish to withdraw from the study at any point, you are free to do so. Kindly inform the investigatorsif you choose to withdraw from the study. If you are willing to participate in the study you will be required to provide your voluntary consent in the section provided below.

COST OF PARTICIPATION AND COMPENSATION: You will not be paid any incentives for your participation in the study.

CONTACT DETAILS OF THE INVESTIGATOR: For any information related to the study and your participation, you may contact.

Mimansha
Research Officer
IIHMR Delhi
Mobile: 9968859773

Mimansha

by Ms Mimansha

Submission date: 27-Jun-2023 02:54PM (UTC+0530)
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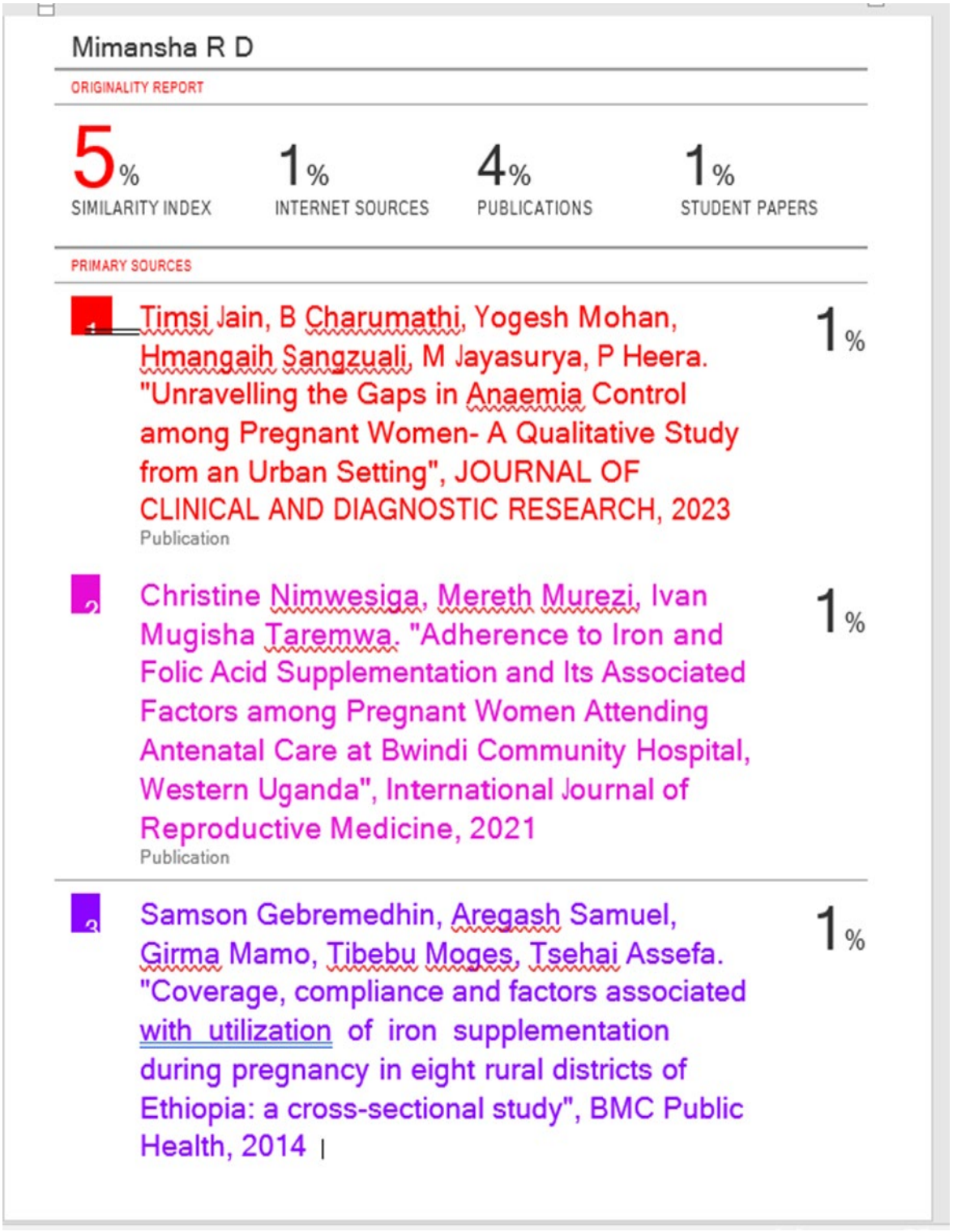

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2	Christine Nimwesiga, Mereth Murezi, Ivan Mugisha Taremwa. "Adherence to Iron and Folic Acid Supplementation and Its Associated Factors among Pregnant Women Attending Antenatal Care at Bwindi Community Hospital, Western Uganda", International Journal of Reproductive Medicine, 2021 Publication	1%
3	Samson Gebremedhin, Aregash Samuel, Girma Mamo, Tibebu Moges, Tsehai Assefa. "Coverage, compliance and factors associated with utilization of iron supplementation during pregnancy in eight rural districts of Ethiopia: a cross-sectional study", BMC Public Health, 2014 |	1%

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