SUMMER TRAINING REPORT

Presented
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MBA HOSPITAL AND HEALTH MANAGEMENT
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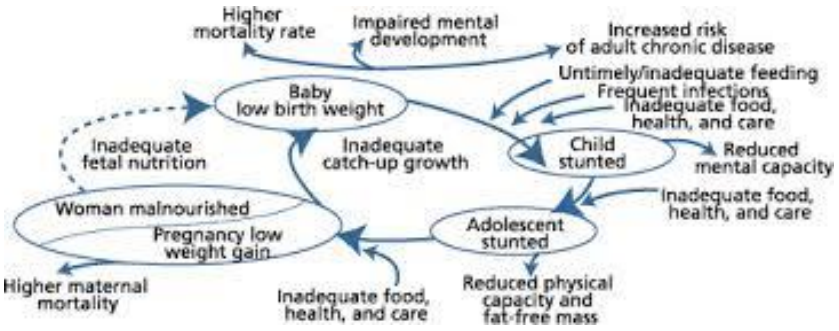
IIHMR UNIVERSITY

Contents

PART-1

RESEARCH PAPER
ON

FACTORS AFFECTING IMR OF RURAL, URBAN & WHOLE INDIA



Overview

INTRODUCTION

LITERATURE REVIEW

GAP

RESEARCH QUESTION

METHODOLOGY

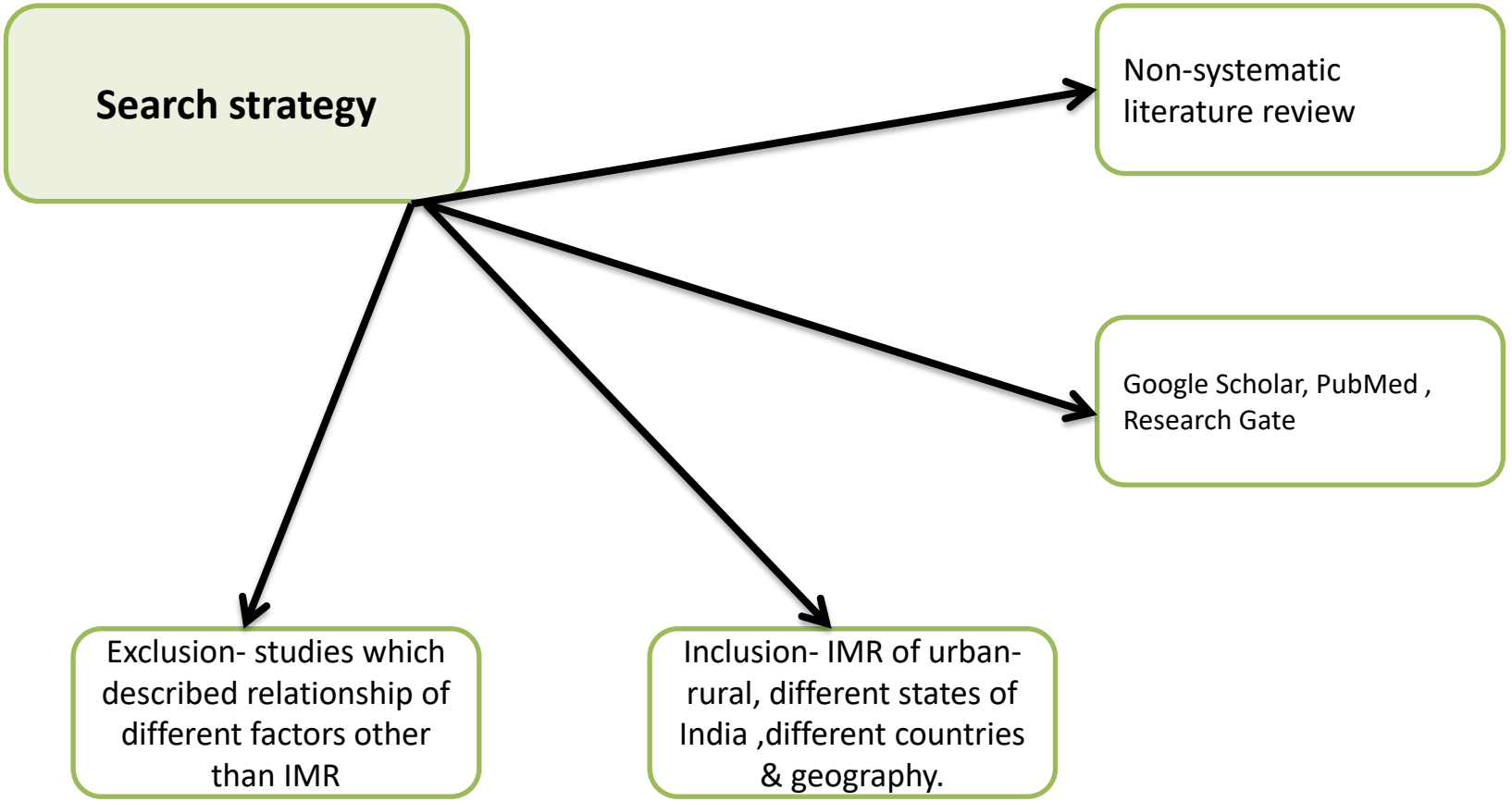
FINDINGS

CONCLUSION

Introduction

- Early childhood indicators explain the well-being and healthcare system of entire nation. In developing country like India, high infant mortality is a major public health priority.
- According to UNICEF, Infant Mortality is defined as the probability of dying between birth and exactly 1 year of age, expressed per 1,000 live births.
- NFHS reports that Infant mortality rate has declined from 79 deaths per 1,000 live births (NFHS, 1993) to 41 deaths per 1,000 live births (NFHS, 2016).
- **Decline in infant mortality rate can be clearly appreciated ;** however this is far beyond satisfactory results.
- This study aims to focus on determinants of IMR of urban, rural and entire India.

Literature review



Literature review

S.NO	TITLE	AUTHOR & YEAR	FINDINGS
1.	The contribution of gestational age, area deprivation and mother's country of birth to ethnic variations in infant mortality in England and Wales: A national cohort study using routinely collected data.	Yangmei et al 2018	Higher proportions of very premature infants appear to explain increased risks in Black infants but not in South Asian groups.
2.	Primary care physicians and infant mortality: Evidence from Brazil	Russo et al 2019	This study established the negative association between primary care physicians and infant mortality rates in Brazil. Also, reduction of illiteracy among woman contributed to the decline of infant mortality.
3.	A population-based study of neonatal mortality and maternal care utilization in the Indian state of Bihar.	Anil Kumar et al 2014	This study focused on the need of institutional delivery by skilled staff & proper facility for controlling the neonatal & infant mortality in that region.
4.	The Role of Empowerment in the Association between a Woman's Educational Status and Infant Mortality in Ethiopia: Secondary Analysis of Demographic and Health Surveys	Alemayehu (2015)	Female education and empowerment were inversely associated with infant death. The results indicated mediation by empowerment in the education-infant death association, and effect modification by household wealth.

Literature review

S.NO	TITLE	AUTHOR & YEAR	FINDINGS
5.	Risk factors of neonatal mortality and child mortality in Bangladesh	Maniruzzaman et al 2018	Comparative study (2011 & 2014) found that household factors like toilet, drinking water, birth order, parental education was found to be significant for infant mortality.
6.	Infant and Child Mortality in India in the Last Two Decades: A Geospatial Analysis	Singh, Pathak, Chauhan and pan, 2011	This study found that underprivileged geographic regions in child nutrition/wealth/female education were likely to be disadvantaged in terms of infant and child survival irrespective of the state to which they belong.
7.	Maternal anaemia and underweight as determinants of pregnancy outcomes: cohort study in eastern rural Maharashtra, India.	Patel et al 2018	This study resulted that even mild anaemia at time of delivery & at time of pregnancy increased the risk of stillbirth, neonatal mortality
8.	Women's Marriage Age Matters for Public Health: A Review of the Broader Health and Social Implications in South Asia.	Marphatia et al 2017	Marriage is the "gateway" to the multiple health consequences associated with the timing of childbirth as well as for infant mortality.

Why this study?

Earlier research has focused on rural or urban area with socio-culture similarities but not exclusive effects of same variables on urban, rural and entire India.

GAP

Therefore,

This study aims to explore the determinants of IMR & there affect on combined urban, rural and entire India.

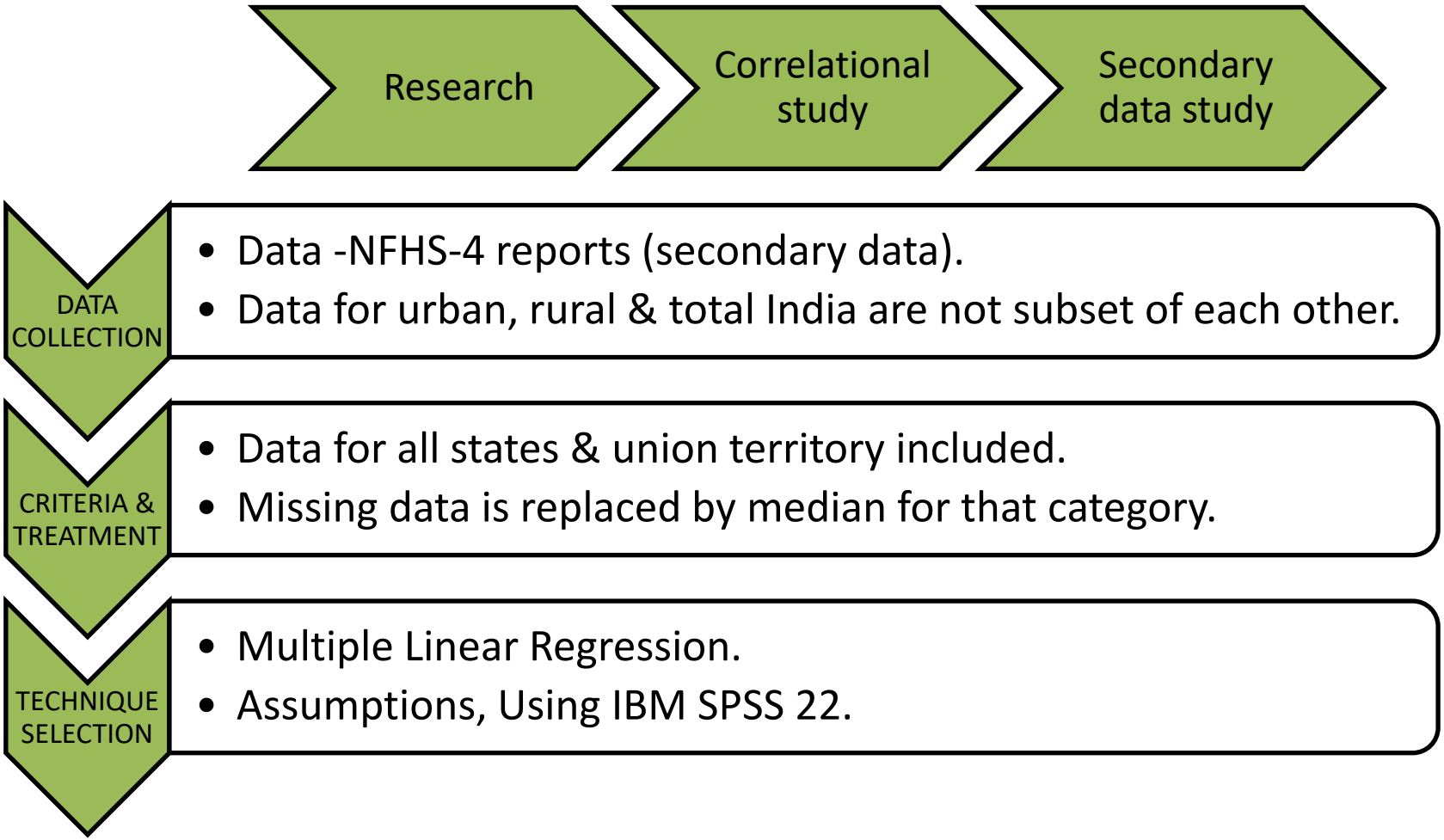
Objectives

What are the different factors; affecting IMR for Urban, Rural & entire India?

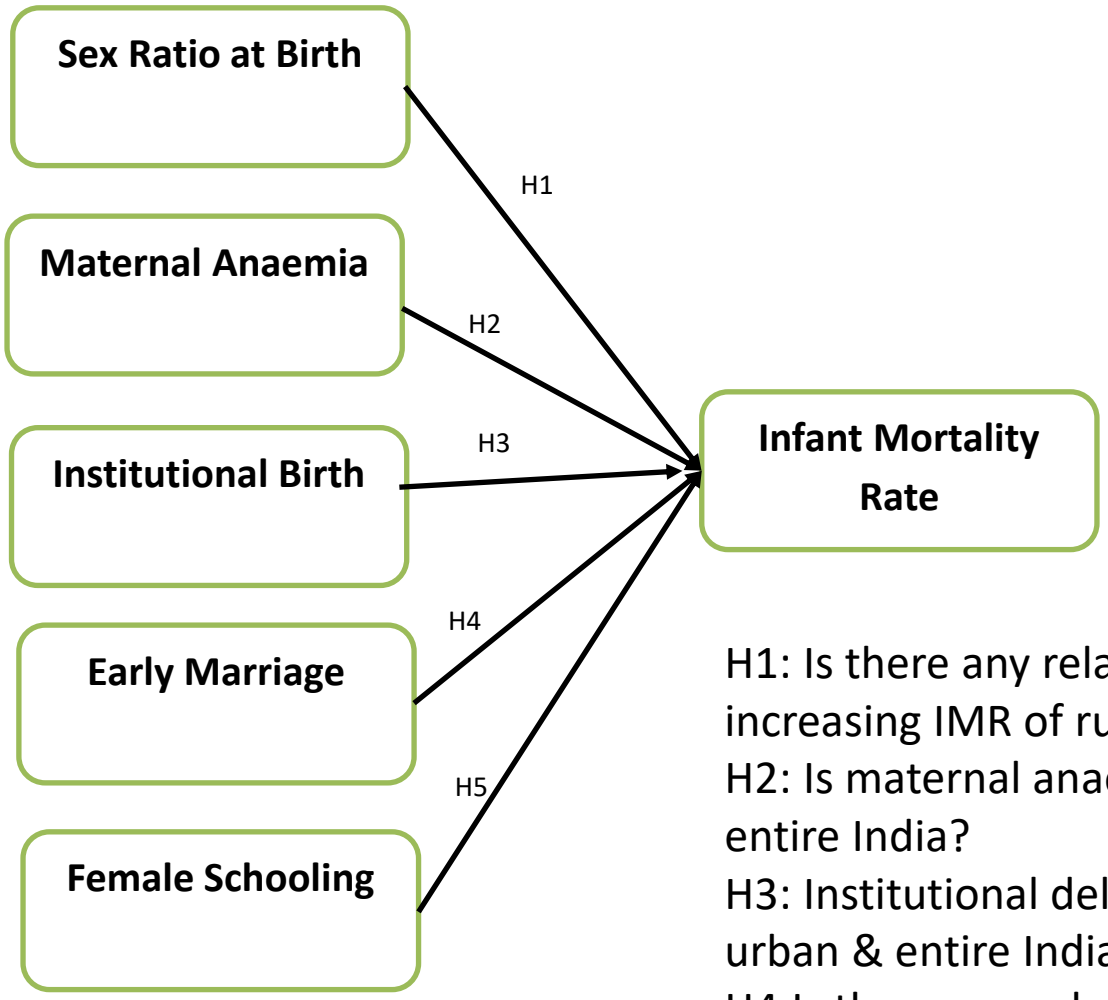
Sub-Objectives

- To assess the relationship between early marriage with the changing IMR of urban, rural & entire India.
- To assess the relationship between sex ratio at birth with IMR of urban, rural & entire India.
- To establish relationship between institutional delivery & IMR of urban, rural & entire India.
- To establish relationship between maternal anaemia & IMR of urban, rural & entire India.
- To establish relationship between schooling of women more than 10 years & IMR of urban, rural & entire India.

Methodology



Hypothesis Model



H1: Is there any relationship between sex ratio at birth & increasing IMR of rural, urban & entire India?
H2: Is maternal anaemia related to IMR of rural, urban & entire India?
H3: Institutional delivery related to changing IMR of rural, urban & entire India?
H4:Is there any relationship between marriage before 18 years & increasing IMR of rural, urban & entire India?
H5:Is there any relationship between schooling of women more than 10 years & IMR of rural, urban & entire India?

Operationalization of variables

S.NO	Variables Used	Variables from NFHS-4
1.	**Sex ratio**	Sex ratio at birth for children born in the last five years (females per 1,000 males)
2.	**Maternal Anaemia**	Pregnant women who were anaemic in the age group 15-49 yrs (<11.0 g/dl) (%)
3.	**Institutional Delivery**	Institutional births (%) ,
4.	**Early Marriage**	Women married before marriageable age of 18 years (%)
5.	**Female Schooling**	Women with 10 or more years of schooling (%)
6.	**Infant Mortality rate**	Probability of dying between birth and exactly 1 year of age, expressed per 1,000 live births

Assumptions (Normality)

Tests of Normality-URBAN						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual	.092	36	.200*	.976	36	.621

Tests of Normality-RURAL						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual	.077	36	.200*	.976	36	.617

TEST OF NORMALITY-TOTAL						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual	.082	36	.200*	.985	36	.892

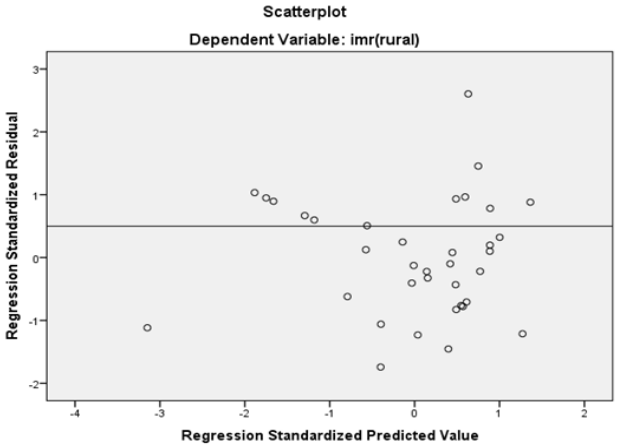
Assumptions (Autocorrelation)

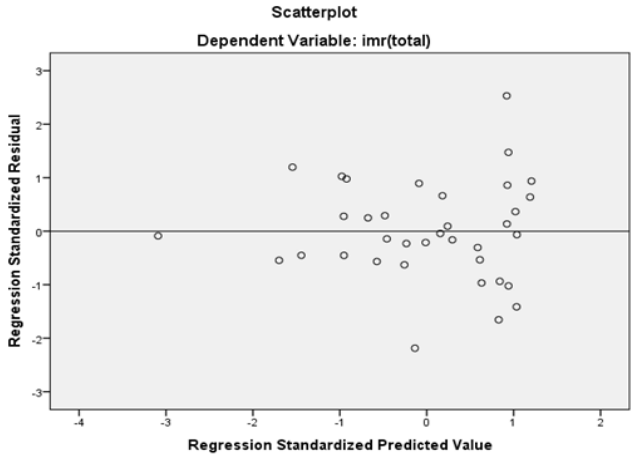
Model Summary-URBAN					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.664[a]	.441	.348	8.4137	2.212
b. Dependent Variable: imr (urban)					

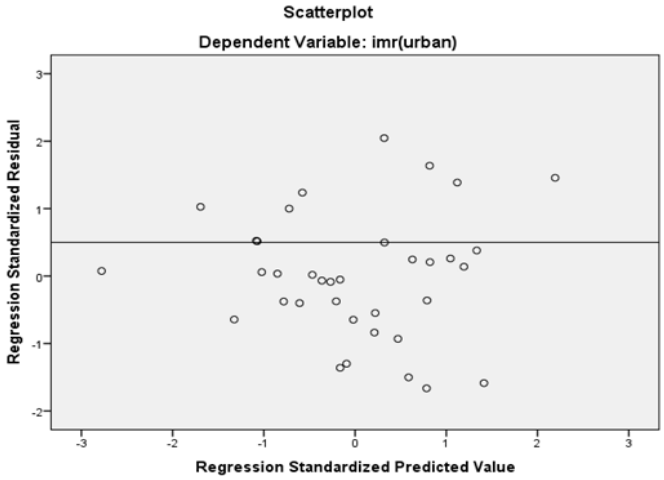
Model Summary-RURAL					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.556[a]	.309	.193	10.2330	2.234
b. Dependent Variable: imr (rural)					

Model Summary-TOTAL					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.677[a]	.458	.368	9.6152	2.013
b. Dependent Variable: imr (total)					

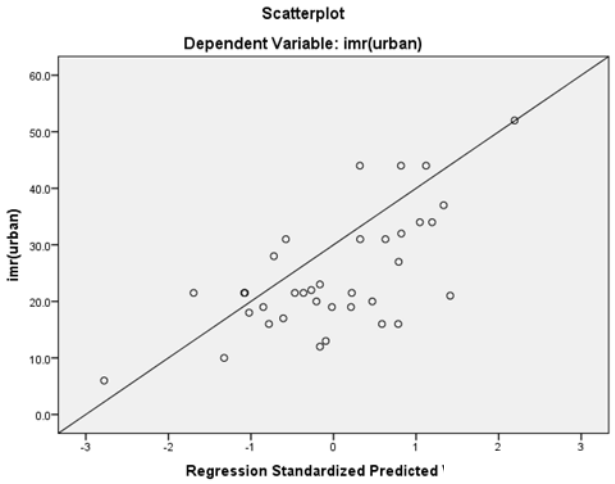
Assumptions (Linearity)

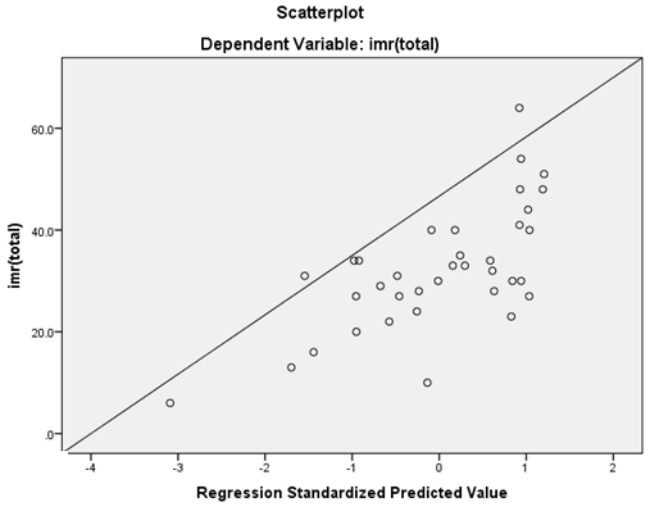


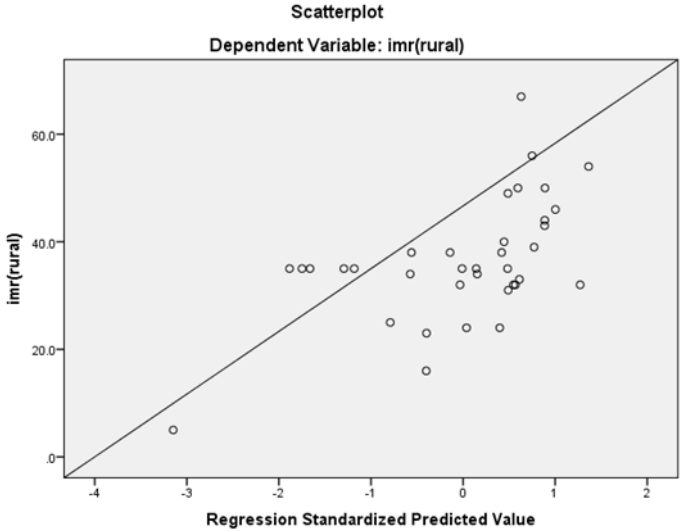




Assumptions (Homoscedasticity)







Assumptions (Multi-collinearity)

Coefficient-RURAL			
MODEL		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	married before age 18 years(rural)	.367	2.725
	Institutional births(rural)	.630	1.586
	Pregnant women age 15-49 years who are anaemic(rural)	.696	1.437
	Sex ratio at birth last 5 yrs (f/1,000M)(rural)	.973	1.028
	schooling more than 10 year(rural)	.332	3.009
a. Dependent Variable: imr(rural)			

Coefficients-URBAN			
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Sex ratio at birth last 5 yrs (f/1,000M)(urban)	.961	1.040
	married before age 18 years(urban)	.503	1.988
	Institutional births(urban)	.882	1.134
	Pregnant women age 15-49 years who are anaemic(urban)	.569	1.758
	schooling more than 10 year(urban)	.567	1.764
a. Dependent Variable: imr(urban)			

Coefficients-TOTAL			
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Sex ratio at birth last 5 yrs (f/1,000M)(total)	.936	1.069
	married before age 18 years(total)	.318	3.144
	Institutional births(total)	.604	1.657
	Pregnant women age 15-49 years who are anaemic(total)	.637	1.571
	schoolsing more than 10 years	.281	3.558
a. Dependent Variable: imr(total)			

Result-Urban India

Adjusted R Square	0.348

	Coefficients	P-value	Lower 95%	Upper 95%
Intercept	84.050	0.001	35.593	132.508
Sex ratio urban)	-0.015	0.276	-0.041	0.012
Early marriage (urban)	-0.759	0.009	-1.313	-0.205
Institutional births(urban)	-0.305	0.071	-0.638	0.028
Maternal anaemia(urban)	0.485	0.025	0.065	0.906
Female Education (urban)	-0.512	0.034	-0.981	-0.042

This results in rejection of null hypothesis & states that

- There is a significant relationship between marriage before 18 years and increasing IMR of urban India.
- There is a significant relationship between maternal anaemia and increasing IMR of urban India.
- There is a significant relationship between schooling of women more than 10 years and increasing IMR of urban India.

Result-Rural India

Adjusted R Square	0.193

	Coefficients	P-value	Lower 95%	Upper 95%
Intercept	62.686	0.014	13.681	111.691
Early marriage(rural)	-0.126	0.616	-0.636	0.383
Institutional births(rural)	0.009	0.945	-0.246	0.263
Maternal anaemia (rural)	0.159	0.433	-0.250	0.569
Sex ratio at birth (rural)	-0.017	0.406	-0.059	0.024
Female education(rural)	-0.455	0.037	-0.880	-0.030

This results in rejection of null hypothesis & states that:
There is a significant relationship between schooling of women more than 10 years and increasing IMR of rural India.

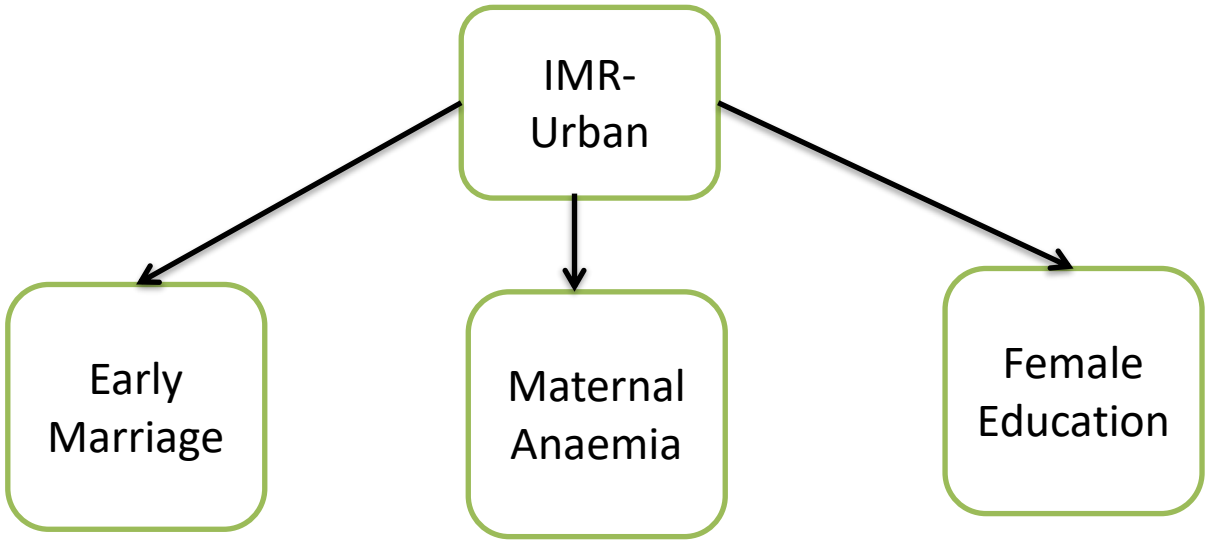
Result-Total India

Adjusted R Square	0.389

	Coefficients	P-value	Lower 95%	Upper 95%
Intercept	108.185	0.003	39.926	176.443
Sex ratio at birth total)	-0.037	0.245	-0.100	0.026
Early marriage(total)	-0.164	0.520	-0.679	0.351
Institutional births(total)	-0.077	0.564	-0.348	0.193
Maternal anaemia (total)	-0.068	0.182	-0.171	0.034
Female education	-0.735	0.005	-1.231	-0.239

This results in rejection of null hypothesis & states that:
There is a significant relationship between schooling of women more than 10 years and increasing IMR of entire India

Urban population



Early Marriage

- Increase Early marriage to decrease IMR
- Early Motherhood(Raj, et al., 2010)
- Socio-economic factor, undernourishment & poor maternal health(Ganchimeg, et al., 2014).
- In Metro like Mumbai- Urban Slums (Worrall, et al., 2011)

Urban population

Maternal Anaemia

- Decrease maternal anaemia to decrease IMR
- Severe Anaemia during Pregnancy has major affect (Parks , et al., 2019)
- Socio-economic factor, undernourishment & poor care during pregnancy(Rosas et al, 2015)
- Betterment in condition Like LBW, congenital disorders, poor infant & maternal outcomes.
- Lack of Awareness & Healthcare expenditure

Female Education

- Increase female education to decrease IMR
- Health seeking behaviour & overall health outcomes(Saurabh, Sarkar, & Pandey, 2013)
- Female autonomy & empowerment with better decision making power

- Sex Ratio at birth & Institutional delivery were insignificant for urban population but still have impact on increasing infant mortality.

Rural population

Female Education

- Social stigma
- Lack of accessibility of services & awareness.
- Presence of cultural, social & varied practices major contribution.
- Improving their family and child health status.
- Right knowledge in home based care during pregnancy
- Prompt referral of a child in any illness whenever required. (Saurabh, Sarkar, & Pandey, 2013)
- Better social standing of women
- Decision making roles with regard to nutrition, immunization, vaccination, thereby improving child health and uplifting infant mortality

- Results are not satisfactory as these variables contribute less towards the Infant mortality of rural India.
- Other selected variables may not be the affecting factors but there are exist other factors in literature affecting like Infection, lack of skilled manpower in rural setting, birth asphyxia, prematurity and many more.

Total Population of India

Female Education

- Better education is reflected by higher literacy rates, further associated with higher incomes and better health indicators such as lower infant mortality rates (IMRs) (Saurabh et al, 2013)
- States and UTs with higher literacy rates were found to have lower birth rates and IMRs.
- Education brings independent income for women who can spend it on essential and required child care
- Data released in relation to female education claims significant increase in enrolment of females for primary, secondary and higher education but the result in development is still not achieved.
- Social standing of women & better decision making capability

- Sex ratio at birth, institutional delivery, early marriage among women & maternal anaemia were insignificant for urban population but still have impact on increasing infant mortality.

Conclusion

- Study aimed to explore the factors affecting infant mortality of urban, rural and entire India.
- Study revealed the significance of female literacy for urban, rural and entire India ; early marriage and maternal anaemia for urban India.
- Several policy and regulations have been already introduced by Government for female education like National Program for Education of Girls at Elementary Level, Mahila Sangha (rural), Rahstriya Madhyamik Shiksha Abhiyan, Dhanlakshmi scheme.
- It's recommended that efforts on increasing the number of educational schemes and institutes should be encouraged for empowering females with higher education, better decision making capability in terms of health.
- Initiatives need to be taken to reduce child marriage, delay childbirth among those married as minors, and support nutritional vulnerabilities of young mothers important for decreasing infant mortality in form of strict legal actions & Iron supplementation programme respectively.
- To ensure improvement in infant mortality rate of urban, rural and total India, institutional deliveries should be promoted, maternal anaemia needs to be treated, sex ratio need to be improved, female education need to focus and marriage before 18 years to be monitored.

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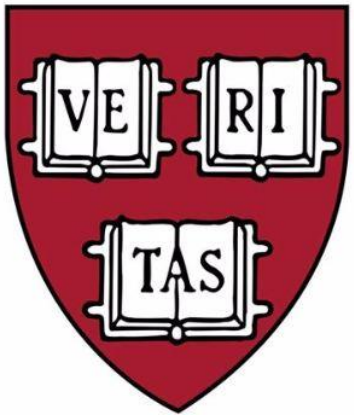
PART-II
ONLINE COURSE

IMPROVING GLOBAL HEALTH
FOCUSING ON SAFETY & QUALITY
(PH555x)

Harvard T.H. Chan School of Public Health

ON edX PLATTFORM



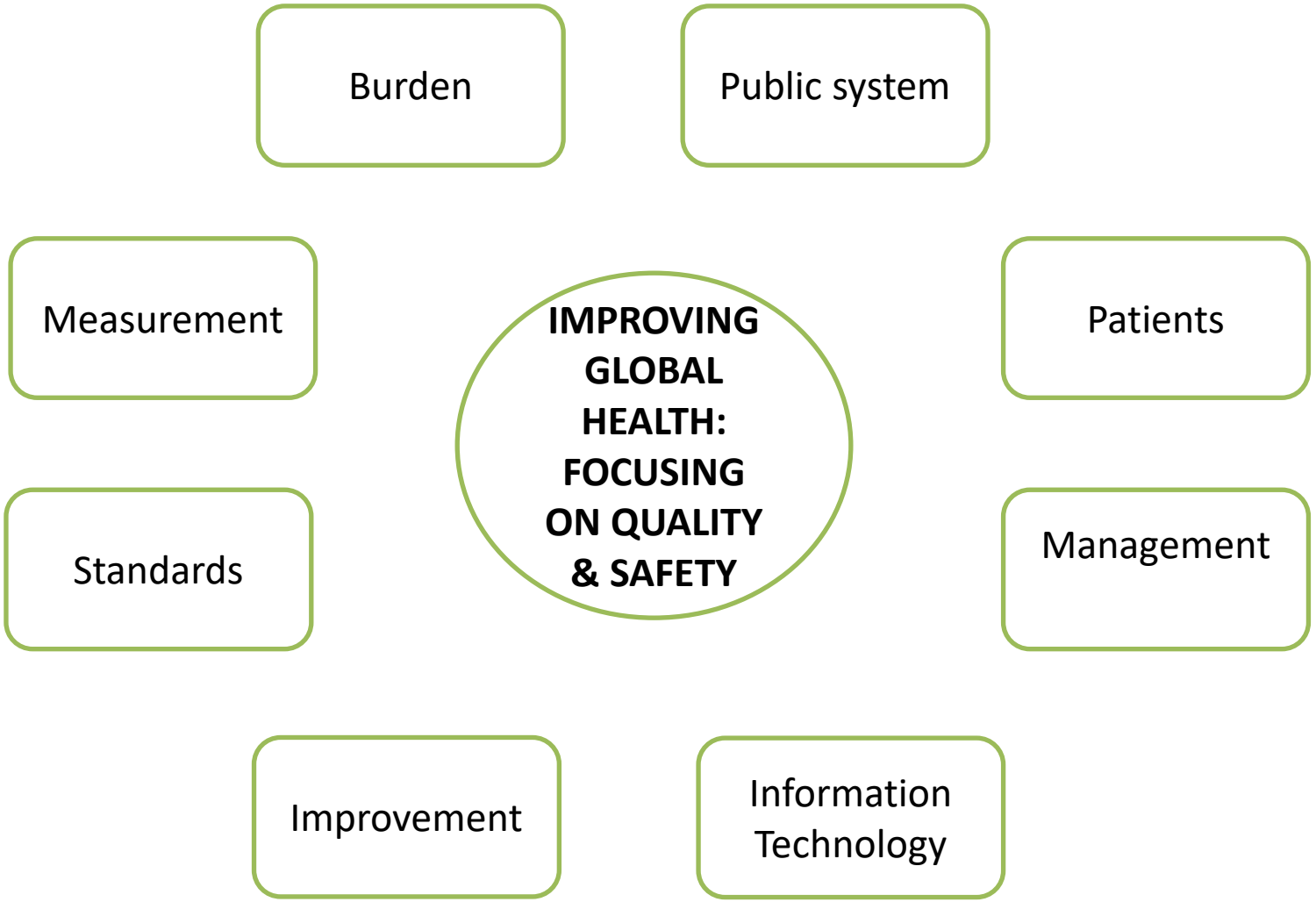
Course Description

- Introduction to the emerging field of global Healthcare quality
- Increasing realization
- Human toll of poor quality healthcare is substantial
- Recent data suggest that poor quality healthcare is likely one of the top causes of morbidity and mortality in the world

Objectives

- The importance of focusing on quality for improving population health
- A framework for understanding healthcare quality
- Approaches to quality measurement
- The role of information and communication technology in quality improvement
- Tools and contextual knowledge for quality improvement

Content


Burden
Public system
Measurement
IMPROVING GLOBAL HEALTH: FOCUSING ON QUALITY & SAFETY
Patients
Standards
Management
Improvement
Information Technology

Methodology

- IMPROVING GLOBAL HEALTH: FOCUSING ON QUALITY & SAFETY (HARVARD: PH555x) is a course available online by Harvard T.H. Chan School of Public Health on edX Platform
- Well explained by different Professors, Health Ministers, Directors and Officers of different Organizations including WHO, OECD, JIPMER.
- Explained with the help of followings
  - Video Lectures
  - Case Study
  - Assignments- Discussion Forums
  - Reading Material- Research Paper
  - Quiz
- Course was well moderated by the public health professor at Harvard T.H. Chan School of Public Health Dr. Ashish Jha

Key learning

S.NO	TOPICS	KEY LEARNINGS
1.	Causes of Burden & Harm a patient can encounter in hospital	• Major 6 types of risk with their preventive measures & proportions • Adverse Drug Events; Hospital acquired infection, fall, Pressure ulcer, surgical complication & deep venous thrombosis • Proper Hand washing Techniques, fall precaution, Regular Manual Check-up for bed sores & proper medication
2.	Causes of Burden & Risk in LMICs & HICs	• Majority risk remain same • Birth Related injuries occur in LMICs
3.	Risk in Ambulatory Care	• Adverse drug event, Lab follow up Surgery, Diagnosis related error & referral issue.
4.	Medication process, error in process & preventive measures.	• 10% pharmacy error, 50% administration error, 10% transcribing error, 30% ordering error • Bar coding, smart pumps, computer order entry.
5.	Tuberculosis	• Causes of death • Public as well as private sector & their working for TB patients

Key learning

S.NO	TOPIC	KEY LEARNINGS
6.	Global metrics- Healthcare Quality Indicators in relation with current & future focus.	• Regulations, legal system, accreditations, compensation, deterrence & negligence for physicians and patient for quality of treatment. • Role of malpractice system and Affordable Care Act.
7.	Defensive mechanism, transparency & patient compensation globally	• Cause of reasons of malpractice test • Compensation process for patients globally
8.	Improvement in the healthcare system	• System issues, responsibility & culture • Leadership skills (Case study- Rwanda)
9.	Need of Information communication technology	• Uses & benefits of Electronic Health records • Need of innovation in future for better & effective quality
10.	Role of management for the better & efficient healthcare system	• Need of management for the better & effective healthcare system • Case study of JIPMER- JQC

Key learning

S.NO	TOPICS	KEY LEARNINGS
11.	Patient centred care, importance of patient experience & consequences of patient experience	• Importance for positive patient experience by physician & hospital in 6 domains of Healthcare quality i.e. safety, effectiveness, efficiency, timeliness, equitable & patient centred
12.	Process for improving the patient experience	• Centre focusing on the patient experience for quality of care & for betterment of the organisation. • Intervention for the gaps present for the better patient experience & explained 4 different levels for changes i.e. personal level, unit level, organisational level & external level
13.	Importance of maternal as well as new born care	• Features of high quality delivery facility for maternal & child care • Women delivery preferences & women experience during delivery
14.	Importance of rating of hospital, social media & efforts on different platforms	• Need & importance of rating doctors as well as hospitals for quality & improvement in system. • Importance of social media for better overview & collection of needed information for future changes & improvement.
15.	Quality movement, triple aim for effective healthcare coverage	• Quality movements including Era 1, Era 2,Era 3

THANK YOU