Combating the Child Malnutrition Paradox

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Child Malnutrition

- The Problem:

  - **Global child malnutrition:** Poor nutritional outcomes of children around the globe continues to be an issue of concern (Coleman-Johnson, 2015).

  - **India's child malnutrition paradox:** Despite steady economic growth and investment in child and maternal health, India continues to suffer from high rates of child undernutrition (Dreze & Sen, 2013; Johnson & Rohde, 1996)

CHILD UNDERNUTRITION

100 million undernourished children (UNDP 2015)

Maternal Autonomy & Child Nutritional Status

- **Definition:**

  - Maternal caregiver's ability to make decisions, have mobility & control resources (Arulampalam et al, 2015)

- **Multidimensionality:**

  - Financial independence; Decision making power; Education; Family planning

- **Impact:**

  - Lower odds of stunting in children (Shroff et al, 2009)

  - Increased chances of positive nutritional status (Imai et al, 2014)

  - Improves quality of food and care provided (Johnson & Desai, 2005)

  - Positive effect on child overall wellbeing (Engle et al, 1999; Sethuraman et al, 2006)

Maternal Health Related Awareness & Child Nutritional Status

- **Definition:**

  - To have knowledge and ability to use health related information for improvement of health outcomes (Nutbeam, 2000)

- **Measurement:**

  - No formal measurement of 'informal' health related awareness.

  - Proxy measures 'literacy', 'educational achievement' & 'visit to hospital'
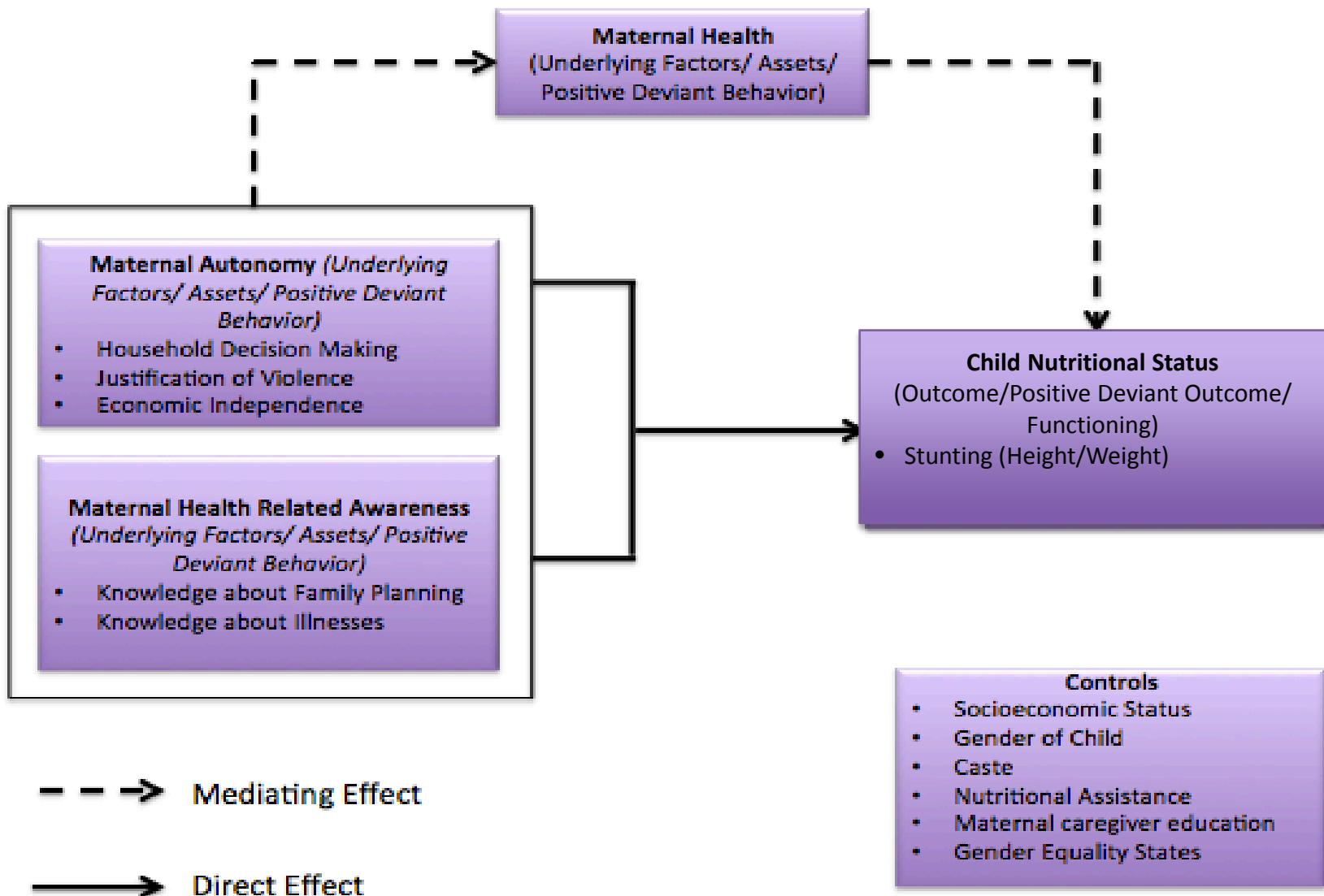
- **Impact:**

  - Influences care quality & type of food and health services (Victoria et al, 2010)

  - Engagement in social action for health, change in health behavior practices, and participating in changing social norms and practices (Nutbeam, 2000)

Theoretical Framework
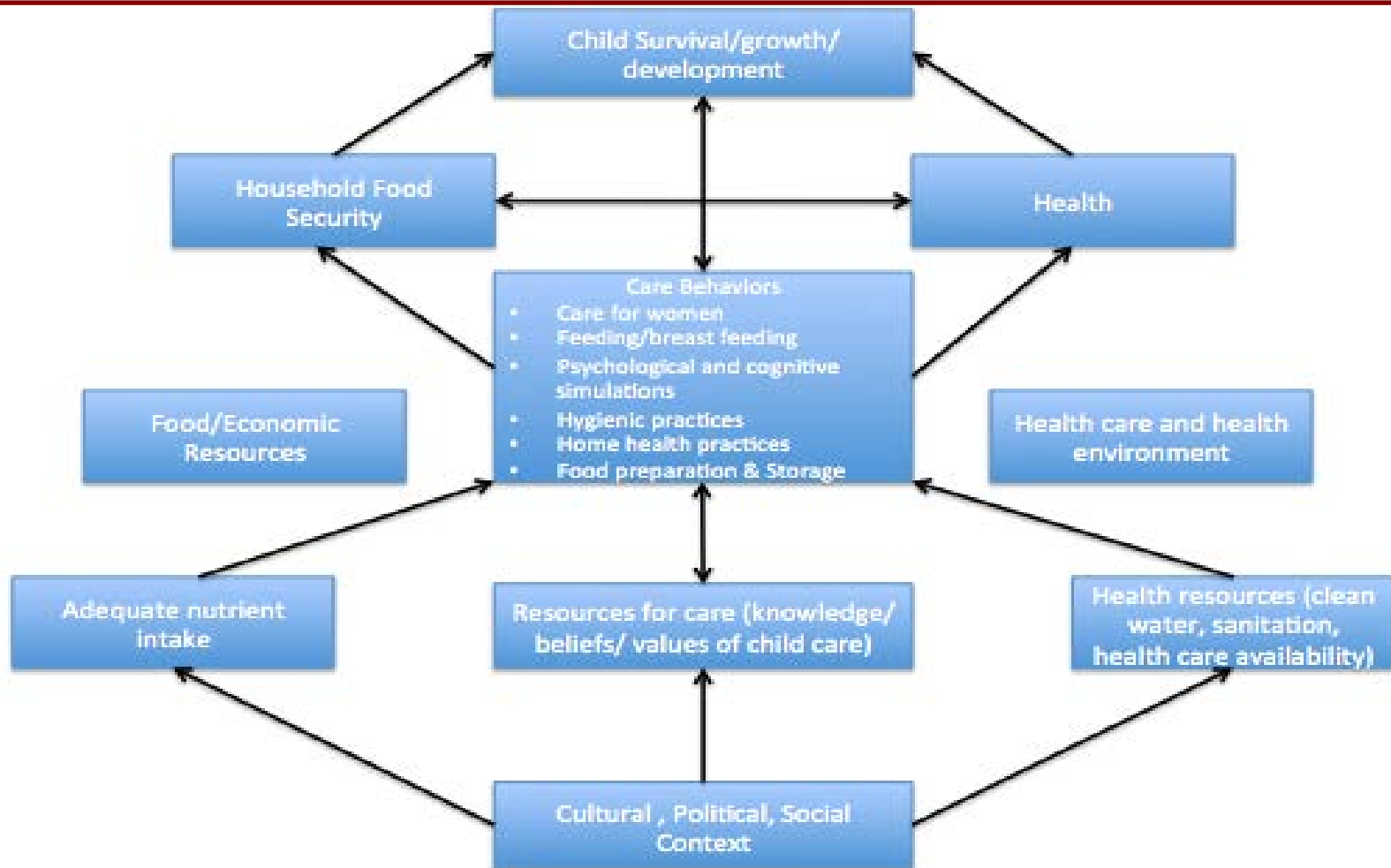
Geographical Location: Urban India

Conceptual Model

RESEARCH QUESTIONS

Q1. Does location of household in a high gender equality state have a significant effect on child nutritional status?

Q2. Does maternal autonomy and health related awareness have a significant effect on child nutritional status?

Q3. Does maternal health mediate the relationship between maternal autonomy, health related awareness and child nutritional status?

Methodology

Data & Sample

- India National Family Health Survey (Round III)- 2005-06

- Urban married women (15-49 years, N= 9092)

  - Has at least one living child (0-5 years)

  - Resides in one of the 14 major states of India

- Information on women and their children's demographics and biomarker measurements

Measurement

- Outcome Variable: Child Nutritional Status

  - Stunting (height-to-age ratio)

Categories	Measurement
Good Nutritional Status	Z Score > -2
Moderately Poor Nutritional Status	Z Score -2 ≤ -2.99
Severely Poor Nutritional Status	Z Score < -3

Measurement

Predictor Variables

- Maternal Autonomy

  - ➢ Household Decision Making

  - ➢ Justification of Violence

  - ➢ Economic Independence

Model Specification				
X^2(df)	RMSEA (90% CI)	CFI	TLI	SRMR
603.87**(69)	.030	.982	.976	.027

Measurement

Predictor Variables

- Maternal Health Related Awareness

  - ➢ Family Planning Awareness

  - ➢ Illness Awareness

| Model Specification				
X^2(df)	RMSEA (90% CI)	CFI	TLI	SRMR
163.80**(13)	.042	.966	.945	.021

Measurement

Predictor Variables

- Maternal Health (Hemoglobin Level)

  ➢ Poor Health: < 10 g/dl

  ➢ Good Health: ≥ 10 g/dl

- Gender Equality States (GII scores)

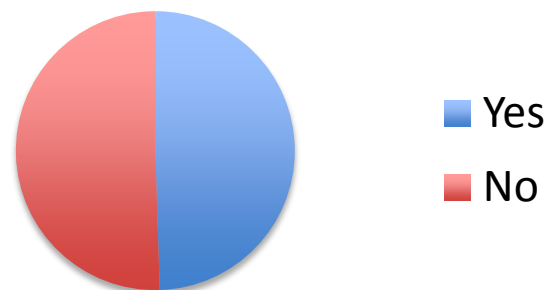- Demographic variables: Caste, socioeconomic status, education, sex of child, nutrition assistance
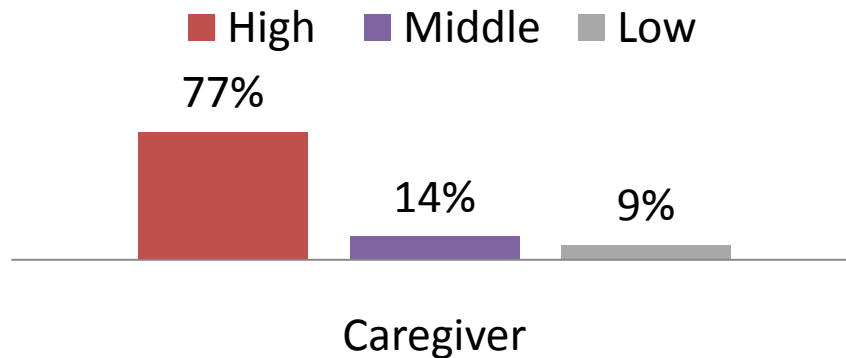
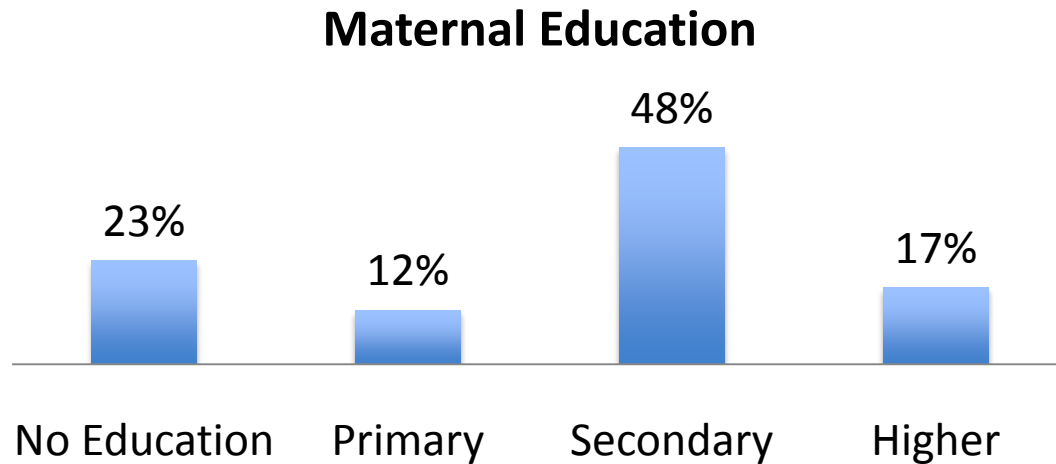# *Results*

Household Demographics

Gender Equality States

54%

46%

Nutrition Assistance

- Yes
- No

Socioeconomic Status

- High   - Middle   - Low

77%

14%

9%
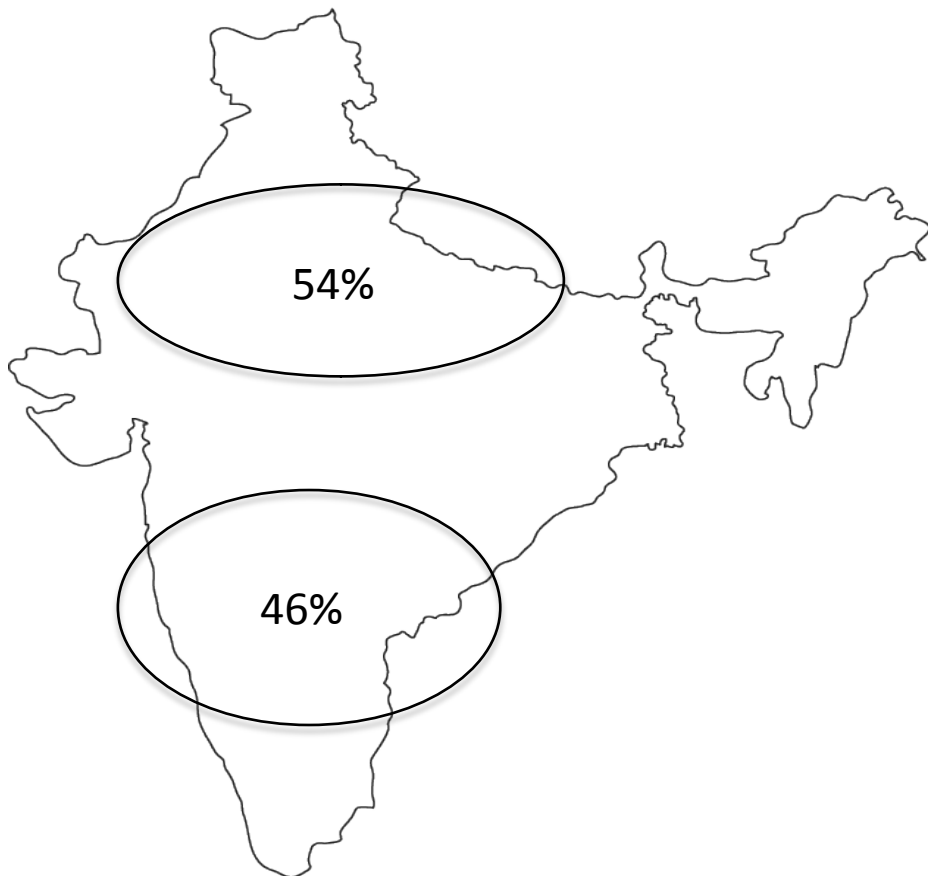
Caregiver

Maternal Caregiver Demographics

Maternal Education

Characteristics	Mean (S.D.)/%	Range
Good Health	84%	
Upper Caste	39%	
Age	26 (5)	15 - 49

Child Demographics

Child Nutritional Status

Stunted: 12%, 17%, 53%

Female: 46%
Male: 54%
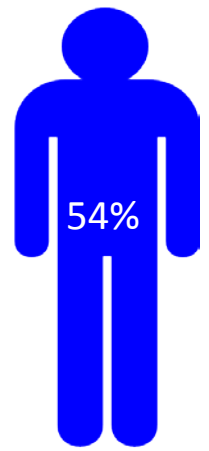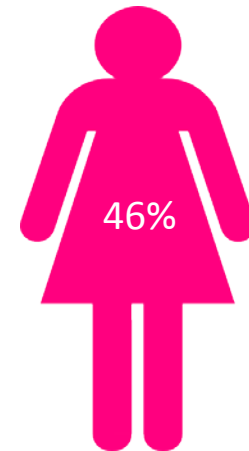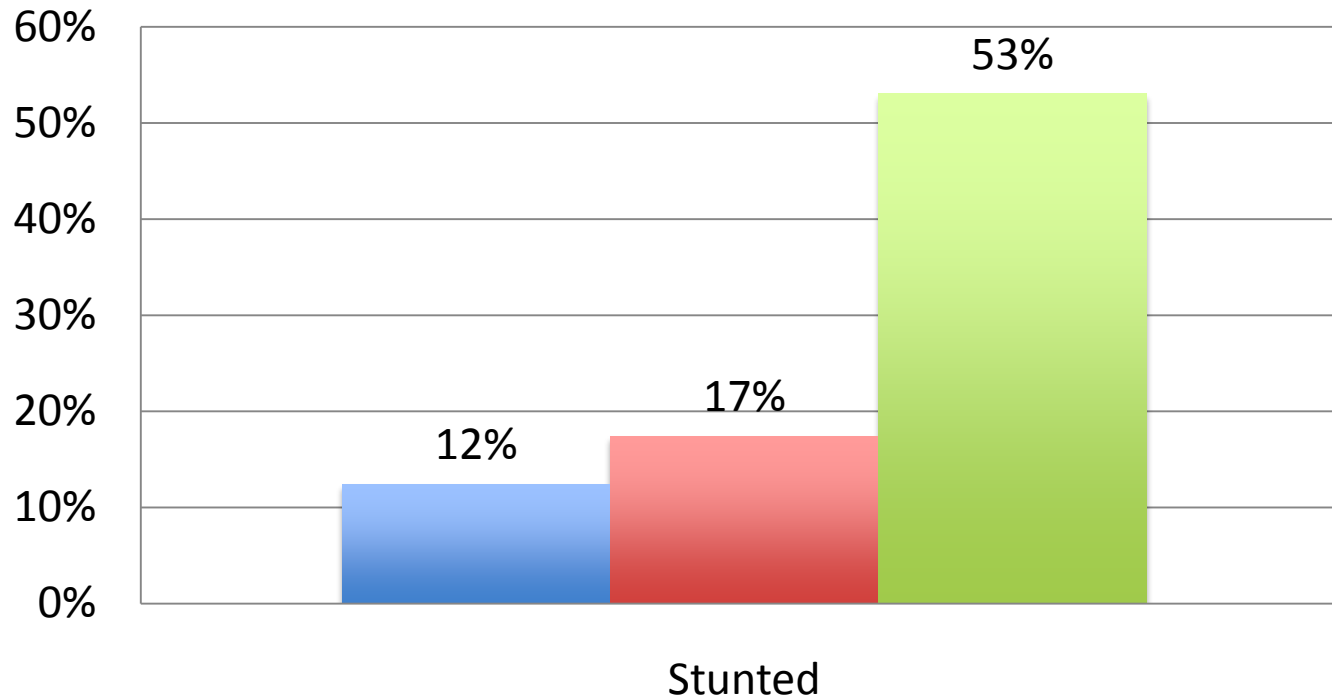
Bivariate Results

- There is a difference in child nutritional status and maternal health based on household location

- There is a difference in child nutritional status based on level of maternal autonomy and maternal health related awareness

- There is a difference in maternal health based on maternal autonomy and maternal health related awareness

Hierarchical Ordered Logistic Regression – Stunting (N = 5110)

	Model 1		Model 2	
	OR	SE	OR	SE
Upper Caste	**1.23****	**.01**	**1.23****	**0.07**
Higher Education	**3.03*****	**.37**	**3.02*****	**.37**
Nutrition Assistance	**1.16***	**0.07**	**1.16***	**.07**
High Income	**1.86****	**.07**	**1.85*****	**.07**
Male Child	**1.17****	**.07**	**1.17****	**.07**
Gender Equality States	**1.19***	**.07**	**1.19***	**.07**
Maternal Autonomy	.98	.01	.97	.02
Maternal Health Related Awareness	1.006	.17	.98	.05
Maternal Autonomy * Maternal Health Related Awareness			1.002	.006

*p<.05, **p<.01, ***p<.001

Hierarchical Ordered Logistic Regression with Mediation
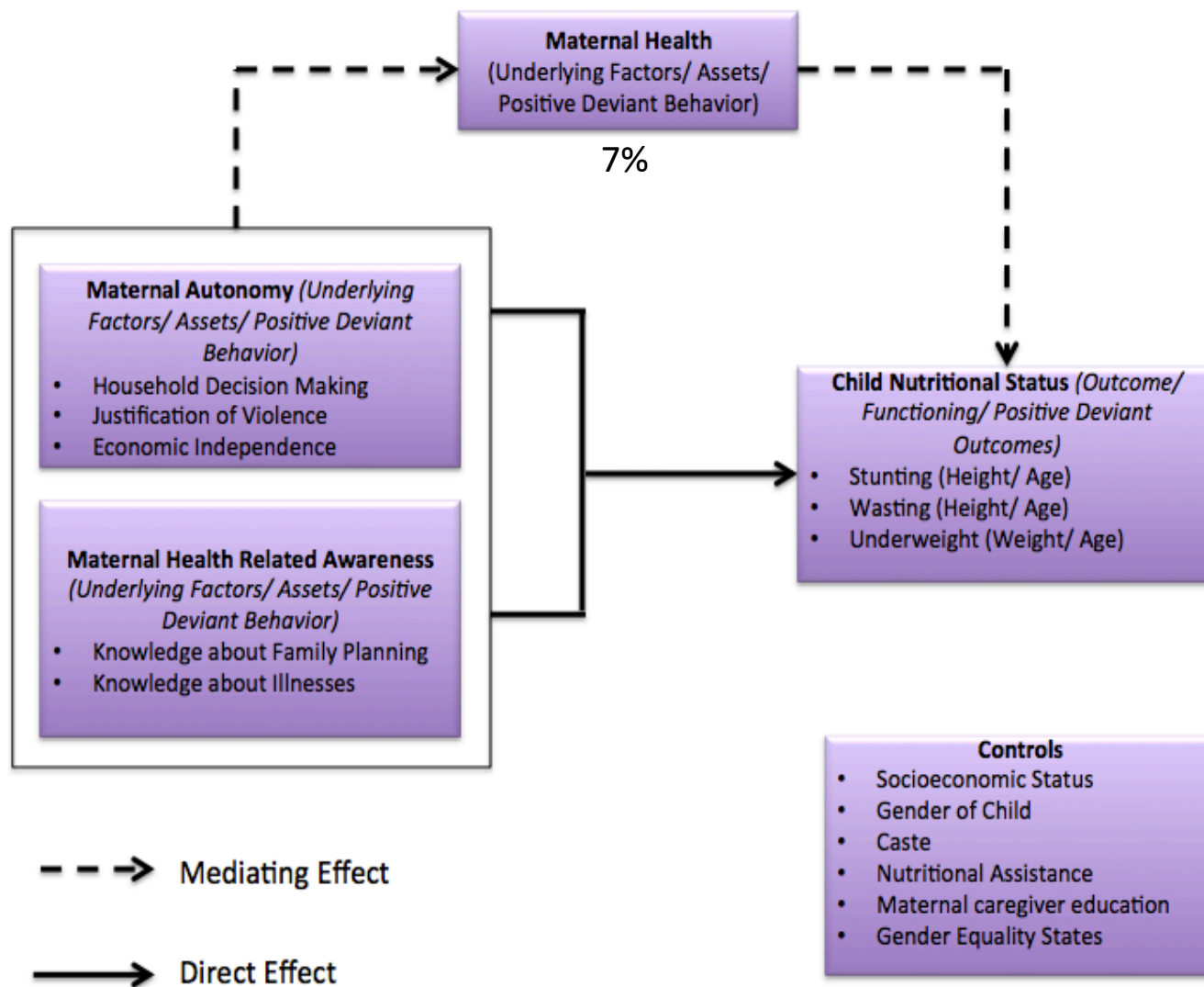
Next Steps to Tackle Global Child Malnutrition

- Recognize the **substantial impact** of deeply imbedded social and cultural norms.

- Treat each country/ community/ household as **unique**.

- Recognize community as a **partner** in policy formulation and implementation.

- While **income** is important it is not the only significant factor that impacts child health.

- Create programs to tackle the deep rooted problem of **inequality and exclusion**, rather than the outcome of it.

Thank You
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