Understanding Predictors of Maternal and Child Health in Rural Western India

Haley Newman (MS2) Class of 2016
Karamsat, Gujarat, India
Study Funded by University of Massachusetts Medical School Office of Global Health

Objectives

• Follow 200 women throughout the course of pregnancy and 6 months postpartum collecting information related to nutritional, physical and psychosocial health
• Define prevalence of physical abnormalities, undernutrition and depression during pregnancy
• Determine associations between prenatal factors and birth outcomes

Religion: 89% Hindu, 9% Muslim
Language: Gujarati, Hindi
Economy: business, agriculture (tobacco, cotton, peanuts, dairy)
Alcohol banned since 1960
Vegetarian cuisine
Home of Mahatma Gandhi

40% of children are malnourished

Background: Maternal and Child Health

Malnutrition is more common in India than the three poorest countries in Africa
52 million children are malnourished
Malnutrition is not only affected by food intake—also influenced by quality of care for the pregnant mother, access to health services, and good hygiene practices

Study Design

21 Surveys:
• Domestic Violence
• Female autonomy
• Health care seeking behavior
• Reproductive history

Lab Biomarkers:
• Hemoglobin
• Folic acid
• Vitamin B-12
• Serum Iron
• Vitamin D3
• Glucose
• TSH
• Hb electrophoresis

Ultrasounds

Anthropometrics

Food Frequency Questionnaire

Approach to Understanding

4 I's: Investigate, Innovate, Intervene, Implement
Evidence based approach and community engagement for increased sustainability

Way Forward

Phase 1: Follow 200 study participants throughout course of pregnancy and 6 months postpartum
Phase 2: Analysis: Define prevalence of physical abnormalities, undernutrition, depression during pregnancy
Determine associations between prenatal factors and birth outcomes
Phase 3: Disseminate findings and work with local communities to generate creative solutions to health barriers

Specific Research Focus

Nutrition, Birth Outcomes and Infant Development

Research ideas:
• Effect of maternal serum 25-hydroxyvitamin D concentrations on pregnancy outcomes
• 25-hydroxyvitamin D status in preeclampsia
• Impact of maternal hemoglobinopathy on birth outcomes
Long term goals:
Working with the local village community to generate ideas to alleviate anemia and B12 and vitamin D deficiency with potential for nutritional education on Manta Day

Study Team

Students:
Apurv Soni
Nisha Fahey
Haley Newman
Jasmine Khushchandani
Michaela Tracy

OB/GYN:
Tiffany Moore-Simas, Nitin Raithatha (CAM)

Psychiatry:
Nancy Byatt, Anusha Puthalakara (CAM)

Psychosocial Determinants:
Jason Allen, Milagros Rosal

Pediatrics:
Somashekhar Nimbalkar

Lab Biomarkers:

Ultrasounds:

Specific Research Focus:

Nutrition, Birth Outcomes and Infant Development

Research ideas:

Thank you!

• Apurv Soni
• Nisha Fahey
• Research and Advocacy for Health in India (RAHI)
• UMass Office of Global Health
• Dr. Tiffany Moore-Simas

Thank you!