Life course approach for exploring the impact of sanitation access and menstrual hygiene management on psychosocial stress, behavior, and health among girls and women in Odisha (Orissa), India

Emory
Robert Dreibelbis
Matt C. Freeman
Kelly K. Baker

AIPH
Bhabani S. Das
Ambarish Dutta
Bijay K Padhi

AIPH
Padmalaya Das
Krushna C Sahoo
PR Misra

LSHTM
Belen Torondel

UNMC
Kelly K. Baker

International Sanitation and Gender Workshop
Park Hotel, New Delhi, India
9-10 December 2013
Gender, Sanitation, and Health in Odisha

In Odisha over 88% of rural population do not have adequate sanitation facilities (Govt. of Odisha Annual Plan 2011-12)

Odisha lags far behind in terms of access to toilet facilities and safe drinking water.

Between 2001–2010 sanitation coverage increased from 8% to 42%, but sustained toilet usage, and adoption of best hygiene practices remain key challenges.

Girls and women can experience gender-specific challenges in using available sanitation services.

May be particularly susceptible to hygiene-related diseases caused by decreased sanitation use.
Conceptual Model of Sanitation Access on Behavior and Health in girls and women

EXPOSURES

Sanitation Access (Household and Community)

OUTCOMES

PSYCHOSOCIAL STRESS

MHM

USE IN PREGNANCY

UROGENITAL INFECTIONS

PRETERM BIRTH
Female Life Course

Menarche: 14 years (12-16)
Menopause: 47 years (40-48)

~33 years
1716 days for defecation/urination
370 menstrual cycles
2.7 births (1 wealthiest – 8 poorest)

http://gomyugomyu.deviantart.com/art/From-Cradle-to-Grave-176209118
Interconnected study design

Study population: girls and women 14-45 years of age

CROSS-SECTIONAL STATISTICS (4000 HH):
- Life course stage
- Socio Economic Status
- WASH access and use
- MHM practices
- Stress responses
- 2 week reported UTI/BV Symptomology
- HUAS for UTI/BV

POPULATION SURVEY

- Sundargarh district - tribal villages
- Khorda district rural villages
- Urban Slums (BBS & RKL)

Adolescence: 13 – 18 yrs Not married

Newly married: Within one year, Lives with in-laws

Married or previously married

MENSTRUATING

Pregnant
Sub-Study I: Sanitation-related Psychosocial Stress (SRPS)

- SRPS and its associated health risks and social/behavioral adaptations not fully understood

- Broader literature on water, sanitation, and hygiene (WASH) suggest that there is a strong link between WASH access and mental health outcomes

- Dynamic in nature
  - Temporal: daily stresses, periodic stresses (menstruation, pregnancy), long-term (incontinence)

  Life course: onset of menses, marriage and relocation into in-law’s home, pregnancy, child-rearing
PSYCHOSOCIAL STRESS

1) How is SRPS experienced by women at different stages of life?

2) How does withholding food/liquid, withholding defecation/urination, menses, fear of sexual and/or physical violence contribute to SRPS?

3) How does SRPS influence sanitation-related behaviors and what are the potential health risks of these adaptive behaviors?
PSYCHOSOCIAL STRESS

• Exploratory, mixed-methods design in which unstructured qualitative research leads to instrument development for SRPS

• Stratified by life-stage and geographic location
Sub-Study II: MHM association with health outcomes

Background:

Systematic Review (Sumpter and Torondel 2013):
1. Evidence for the impact of menstrual hygiene management (MHM) on health outcomes was found in 13 articles.
2. Plausible association: good MHM and reduction of RTI.
Unclear about:
   - Specific infections
   - Strength of effect
   - Route of transmission
   - Role of water and sanitation access
   - Definition of “good menstrual hygiene management”

Relevance in India: Between 43 and 88% of girls wash and reuse cotton clothes. Prevalence of UTI range (25-60%) and BV (15-25%).
Research Aim:

1) Are menstrual hygiene management practices (including type of absorbent used, pad hygiene practices and women WASH practices) risk factors for bacterial vaginosis and urinary tract infections?
2) Are menstrual hygiene practices associated with increased microbial contamination in menstrual absorbent pads?
Number of women: 500
Location: 2 hospitals (Bhubaneswar and Rourkela) Odisha
Inclusion criteria: Women attending to gynaecology clinic,
18-45 years old
Non-Pregnant
Non menstruating during clinic visit
Cases: Women with one or more of the following symptoms:
Abnormal vaginal discharge
Burning or itching in the genitalia
Burning or itching when urinating.
Controls: Women with none of the above symptoms
Risk factor assessment: Questionnaire
QA/QC: Exit interview
Disease assessment: Laboratory diagnostic:
BV: Amsel/Nugent criteria and
UTI: culture microbiology test.
QA/QC: Examination of slides for Clue cell by an independent evaluator in 10% slides
Sub-Study III: WASH Access, Use, and Preterm Birth

- **Design**: Observational prospective cohort study.
- **Setting**: Rural (Baliana & Balipatana) and Tribal (Kuanrmunda and Lathikata) in Odisha, India.
- **Participants**: All eligible pregnant women (18-45 aged).
- **Main Exposures**: WASH practices and if any changes occurs during the course of pregnancy
- **Outcome Measures**: Adverse pregnancy outcomes (LBW-<2500g, PTB-<37 weeks of gestation).
Time Frame of Follow-ups

- **12-15 Weeks:**
  - First visit
  - Consent obtain

- **32-33 Weeks:**
  - Third Visit

- **23-24 Weeks:**
  - Second visit

- **35-36 Weeks:**
  - Fourth Visit

Eligible Pregnant enrolled for follow-ups using questionnaire

Birth Outcomes
Human Resources Engaged in the Study

- Project Investigator(s) (Bijay, Pinaki, Kelly)
- Project Manager (Bibhu)
  - Area Manager @ BBS (Mr. Haraprasad)
  - Area Manager @ RKL: (MS Nitin Guria)
    - Supervisor (10 Nos.)
    - Supervisor (15 Nos.)
      - 7-CHW/Supervisor
      - Each CHW will follow ~ 4 pregnancies

- Enrollments: 487 out of 600 (from 15th September to 30th November 2013).
- QA/QC Testing: 10% of the 1st phase data has been tested for QA/QC.
- Adverse Pregnancy outcomes so far: only one subject has spontaneous abortion at week 21.
Future Road Map

Surveillance
- Geo-coding of the households
- Enrollment of Eligible Subjects
- Demographic and socio-cultural data
- WASH Exposure assessment
- Prospective follow-up and outcome measures

Innovation
- Identification of key interventions to reduce exposures

Evaluation
- Evidence generation for policy implementation
Addressing knowledge gaps

- Impact of limited sanitation is more expansive than infectious disease outcomes
  - Important to understand and quantify social and mental health impacts
- Experience-centric characterization of role of limited sanitation access on hygiene behavior in women
  - Temporal or life-course gender-specific stresses
- Beyond diarrhea – promotes system-level thinking about role of sanitation access/use on spectrum of diseases
  - New concepts for at-risk populations
- Individual-centric perspective on burden of sanitation-associated disease over life course
  - Consequence of cumulative body of gender experiences
- Policy
  - is existing health system effectively measuring and treating gender-specific sanitation-associated disease?
  - What obstacles must health and environmental policy address?
Improving Public Health through Innovation & Alliance