

# 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

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# 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.

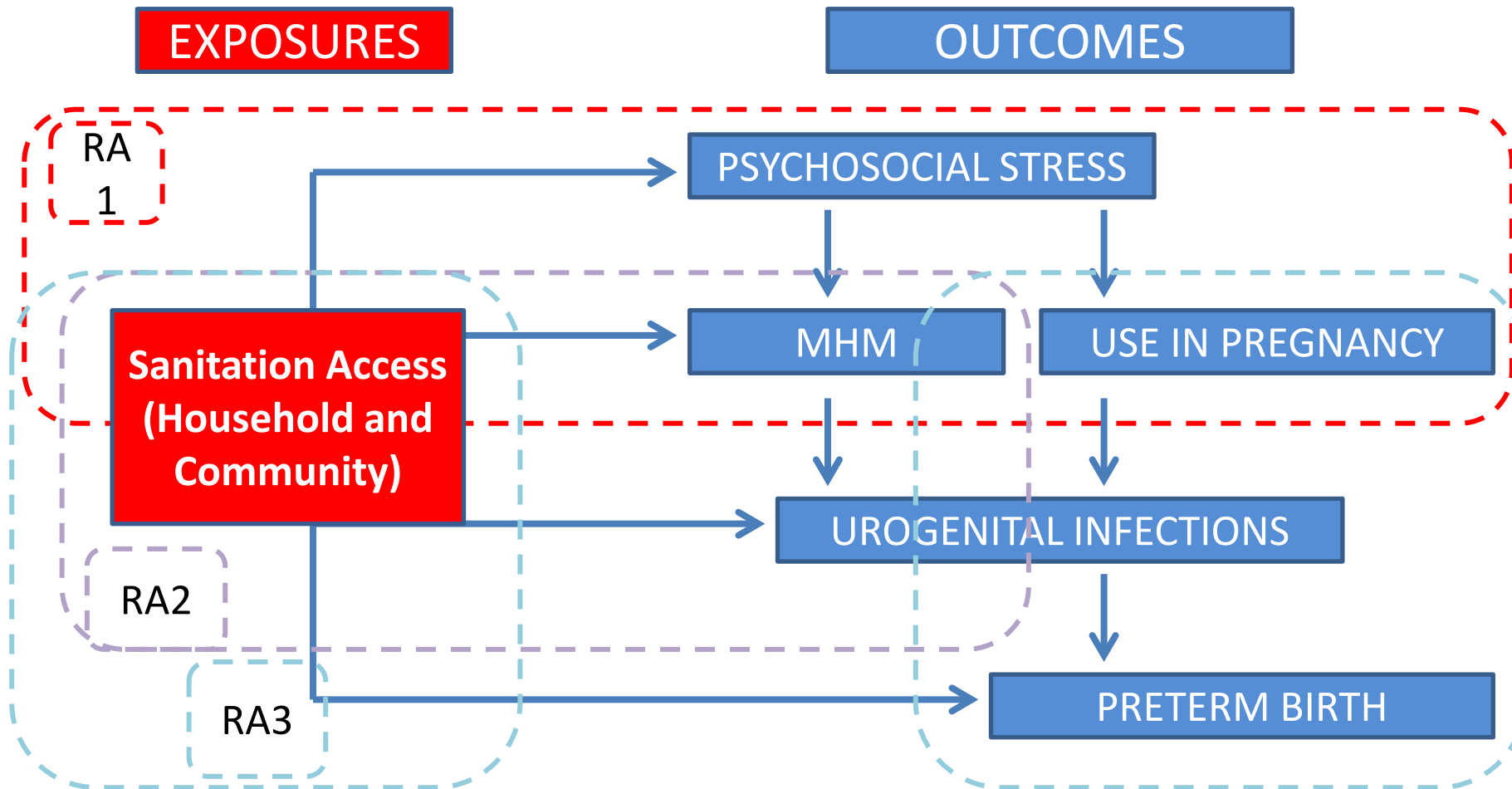
Between 2001–2010 sanitation coverage increased from 8% to 42%, but sustained toilet usage, and adoption of best hygiene practices remain key challenges.

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

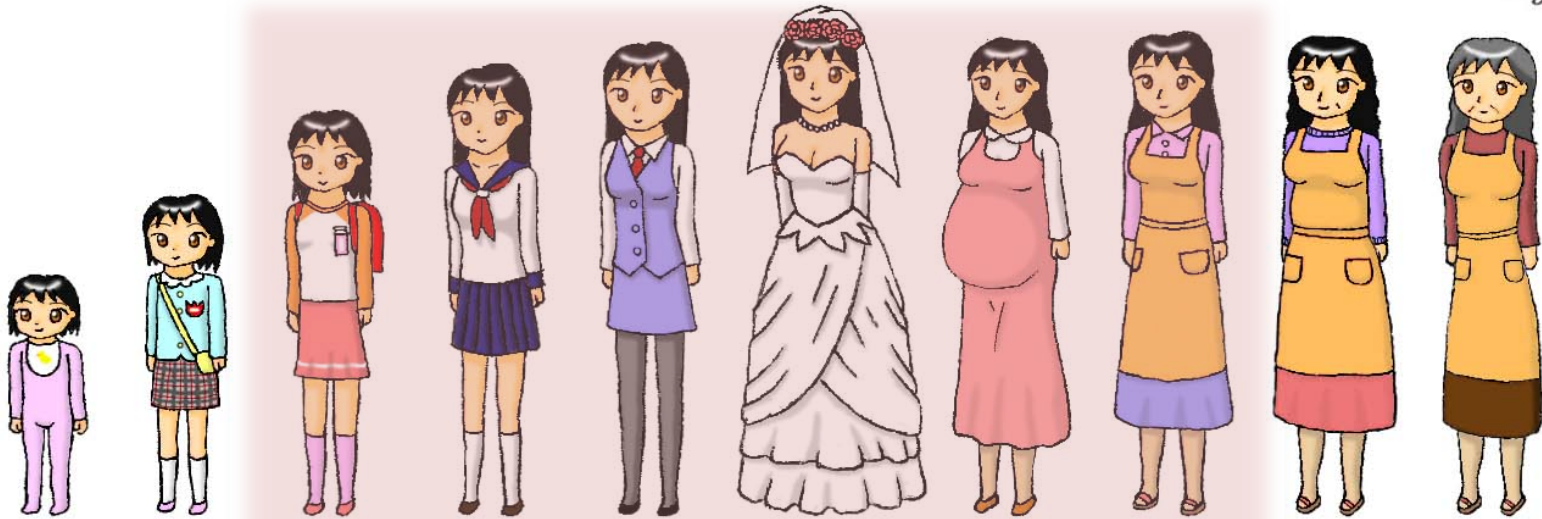


# Female Life Course

Menarche: 14 years  
(12-16)

Menopause: 47 years  
(40-48)

*mogmog*



<http://gomyugomyu.deviantart.com/art/From-Cradle-to-Grave-176209118>



~33 years

1716 days for defecation/urination

370 menstrual cycles

2.7 births (1 wealthiest – 8 poorest)

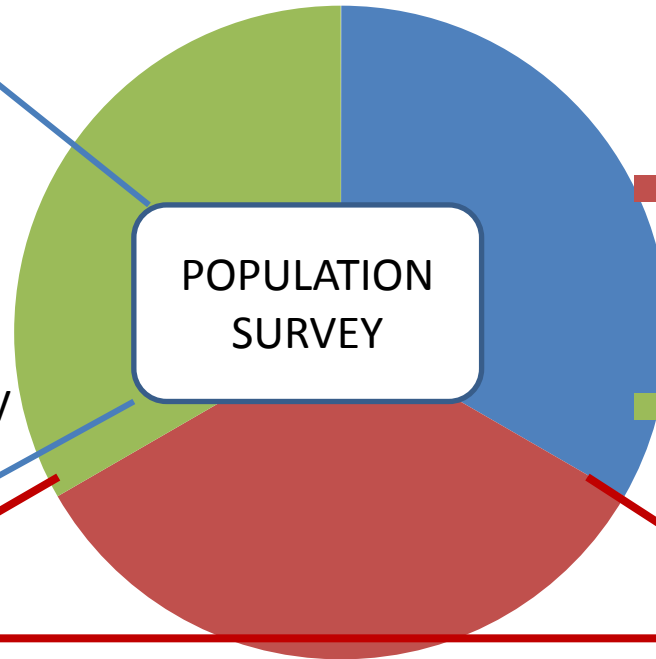


# Interconnected study design

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



■ 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**

**Pregnant**

**MENSTRUATING**



# 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?

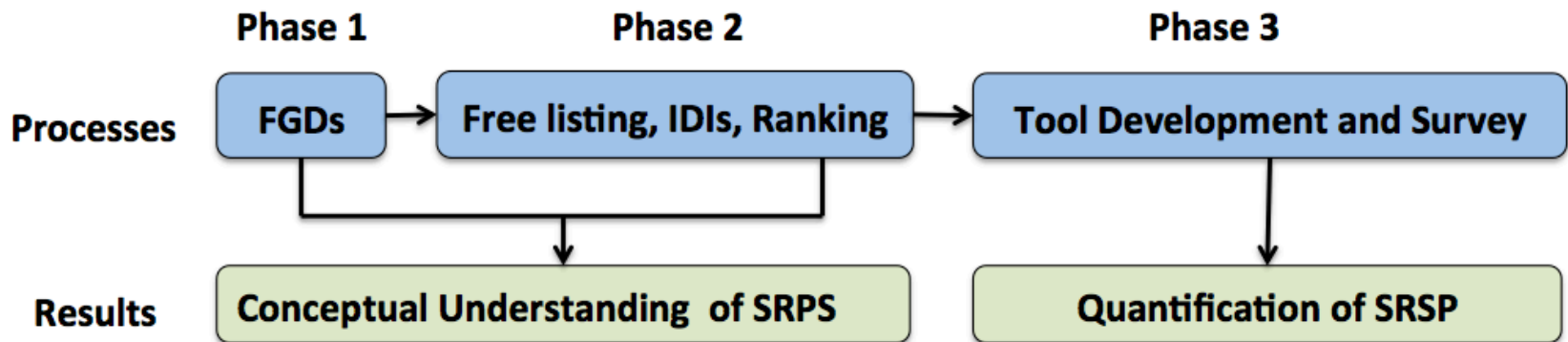
3)

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.

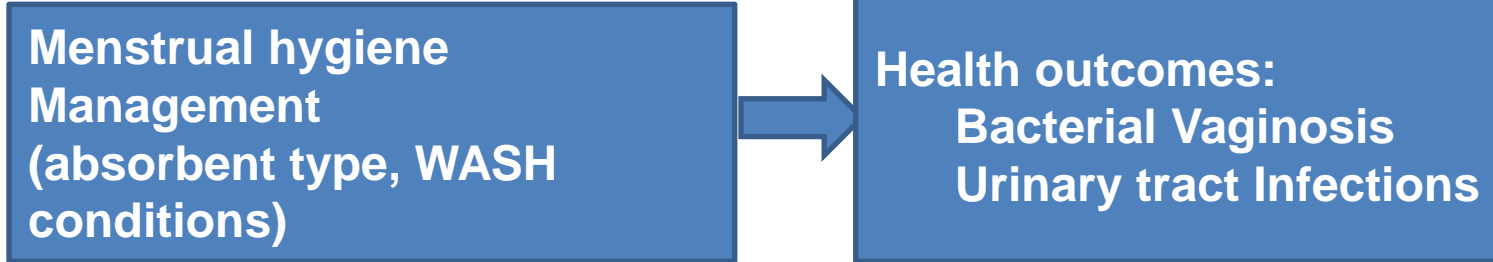
Unclear about:

- 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?



# Study design: Case-Control hospital based study

**-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

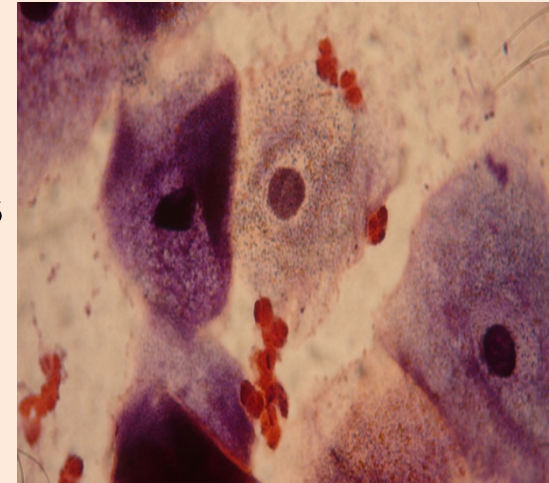
QA/QC: Exit interview

**-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 (Balianta & 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).

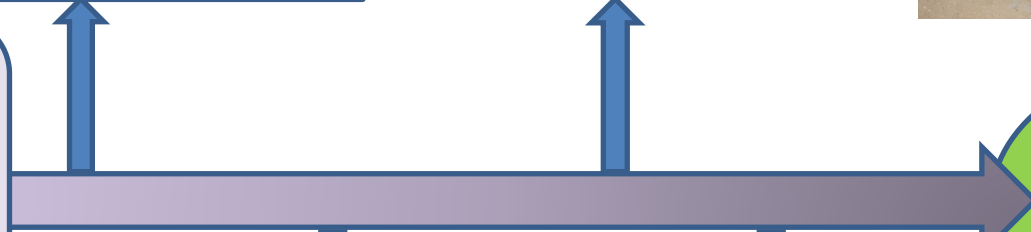


# Time Frame of Follow-ups

12-15 Weeks:  
• First visit  
• Consent obtain

32-33 Weeks:  
• Third Visit

Eligible Pregnant enrolled for follow-ups using questionnaire

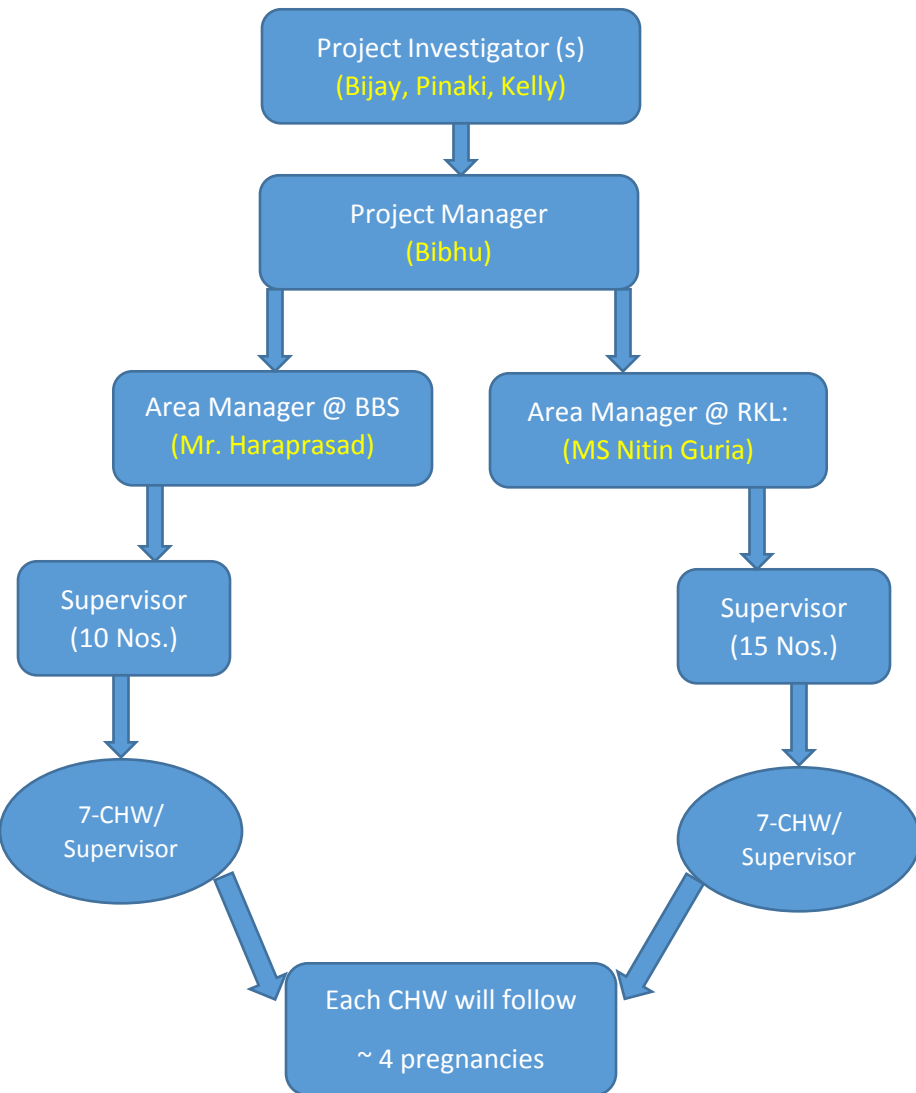


23-24 Weeks:  
• Second visit

35-36 Weeks:  
• Fourth Visit



# Human Resources Engaged in the Study



- **Enrollments:** 487 out of 600 (from 15<sup>th</sup> September to 30<sup>th</sup> November 2013).
- **QA/QC Testing:** 10% of the 1<sup>st</sup> 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

