

Breaking down menstrual health barriers in Bangladesh

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Motivation

- Every month 2 bln women have to manage their period – often in a secretive manner
- “period poverty” in both high-income and low-income countries but..
- In addition LMICs often have restrictive norms vis-a-vis menstruation
- Around time of menarche gender-based gaps in edu in LIMC widens
- Problematic as improving girls’ edu is one of the most cost-effective ways to spur development

Motivation

- Qualitative evidence that menses is a key driver for girls' absence in school
- Poor MH practises associated with lower academic achievement and adverse psychosocial outcomes like shame, anxiety and distraction (Chandra-Mouli and Patel, 2017; Chrichton et al., 2013; Miiro et al., 2018)
- Can external interventions help?

Related literature on MH interventions

- Systematic review by Hennegan and Montgomery on hardware and software MH interventions concludes a too small evidence base
- Some quantitative evidence on the provision of menstrual products and health/schooling outcomes (Das et al., 2015; Oster and Thornton, 2011; Philipps-Howard, 2016; Montgomery, 2016; Grant et al., 2013)
- Or training interventions (Haque, 2014; Fakhri et al., 2013)
- Few use rigorous evaluation designs and many arrive at mixed results

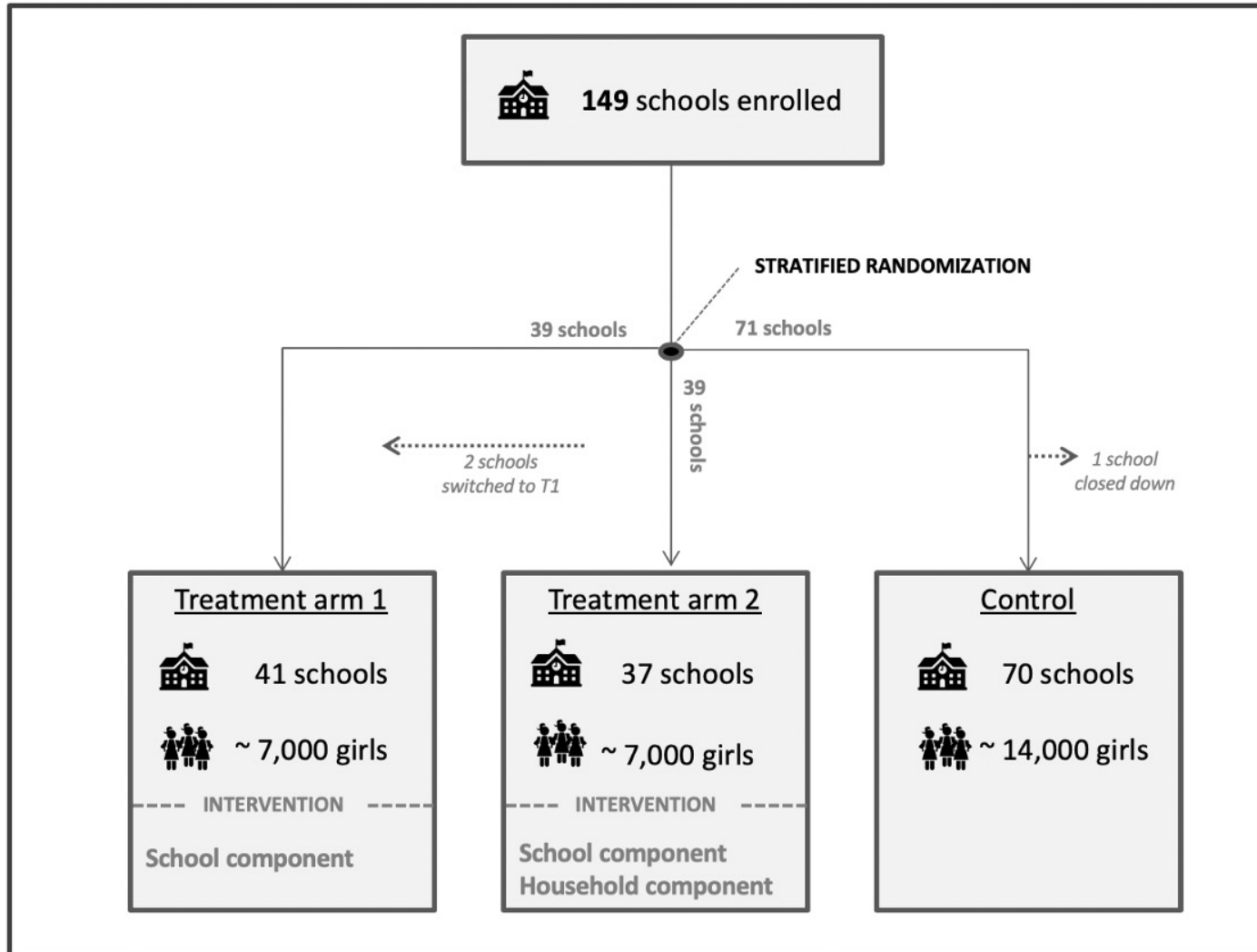
Key questions

- Does a multi-faceted MH intervention reduce school absenteeism, and improve health and psycho-social outcomes?
- Do intervention effects differ across measurement techniques and subgroups?
- Does a combined parental training + schooling program provide benefits over a schooling program alone?

Study design

- 178 mixed-gender junior high schools in Netrakona district eligible
- Children in junior high schools are between 11-14 years old
- 149 schools voluntarily enrolled (12 unwilling, 17 already working with other NGOs)
- Stratified random allocation of schools to one of two treatment arms or control group
- Stratification based on pre-intervention school attendance; upazilla (area); and pre-intervention quality of school toilet facilities

Study design



Ritu intervention

Treatment arm I – school-based

- MH – friendly toilets installed or improved in accordance with Water Sanitation and Health (WASH) criteria
- 5-day training intervention for teachers to increase knowledge on MH and teach culturally sensitive topics + 2 – day refresher training
- Launching campaign to familiarize students and staff with “Ritu” – discussion sessions, essay writing and screening of a reality show on tv
- MH/puberty education modules embedded in the school curriculum (taught bi-weekly to girls and boys) – focussing on puberty, improving MH knowledge and practises and changing attitudes towards menstruation

Ritu intervention

Treatment arm II – household level intervention

- All parents/guardians from grade 6-8 girls were targeted
- 2-day group education sessions for fathers and mothers in the community focusing on improving knowledge, MH practises and promoting less restrictive norms towards menstruation
- Information about available subsidy to build MH proof toilet facilities at home
- MH-booklet with visual reminders of contents taught during the education sessions
- Pilot-tested with 30 out-of-sample parents prior to the intervention

Sample and data sources

- Survey data from a random sample of 28 girls (6-graders) per school
- Survey data collected during two rounds (B:M)
- Administrative monthly data from school records
- Monthly spot-check data – unannounced school visits by independent research team members to overcome self-reporting or recall bias, misaligned incentives
- FGD
- Attrition rates between B & M are moderate at 9% and not systematic
- We use a balanced panel of $N = 1985$ post-menarche girls for our main analyses

Empirical strategy – ITT effects

$$Y_{ij} = \beta_0 + \beta_1 \text{Treatment } 1_j + \beta_2 \text{Treatment } 2_j + \beta_3 X_{ij} + \varepsilon_{ij}$$

For midline (post-intervention) outcomes with baseline controls

Controls include:

Socio-economic status

female hh members

Distance to school

Age at menarche

School size

MH friendly toilets at school

& stratification variables

Key outcomes – education

School records: $absence\ rate_i = \frac{No.\ absent\ days_i}{No.\ open\ school\ days_j}$

Survey: $absence\ rate_i = \frac{Self\ reported\ no.\ absent\ days_i}{No.\ open\ school\ days_j}$

Spot – check: $absence\ rate_i = \frac{No.\ absent\ during\ spot\ check\ rounds_i}{No.\ total\ spot\ check\ rounds_j}$

School absence during menstrual period: frequency of absence
(from 1=never, to 4=always)

School drop-out: whether a girl dropped out of school at midline

Key outcomes – socio-psycho wellbeing & empowerment

- Mental health is a combined index of frequency of positive/negative feelings
- Subjective well-being index 0-7
- Embarrassment & insecure during mp
- Empowerment
 - Three subindices related to gender attitudes, opinions and decisions and aspirations (edu & age of marriage)
 - Binary vars for mobility restrictions (going to school, performing religious activities, cooking etc.)

Key outcomes – MH practices & communication

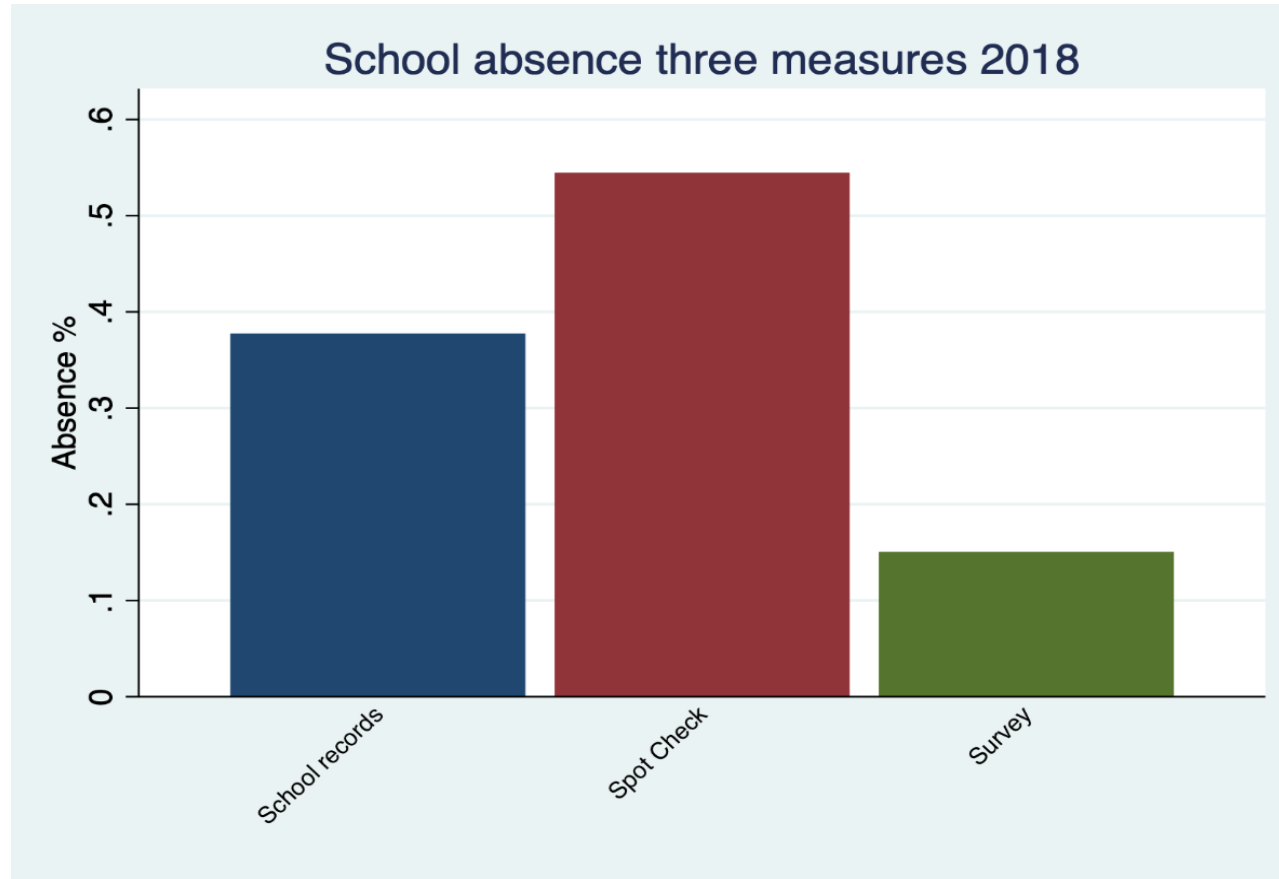
- Predominant use of sanitary pads
- Frequency of changing material (general and at school)
- Drying place (1 = unhygienic indoors to 3 hygienic outdoors)
- Frequency of wearing dry materials
- Comfortable talking about MH
- Discussed with parent(s), friends, teacher

Heterogeneity

Key subgroups:

- Poor/rich households
- Presence of female role models
- Pre-program levels of empowerment

Descriptives – school absenteeism



MH knowledge and toilet facilities

	MH KNOWLEDGE	GIRL TO TOILET RATIO	SOAP	BIN	WATER INSIDE	LIGHT	CLEAN
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
T1: School program	0.461*** (0.142)	-7.552*** (2.781)	0.830*** (0.138)	0.661*** (0.118)	0.316** (0.133)	0.180* (0.092)	0.520*** (0.171)
T2: School + HH program	0.559*** (0.130)	-6.815** (2.862)	0.884*** (0.130)	0.663*** (0.118)	0.358*** (0.130)	0.145* (0.085)	0.334* (0.177)
Control mean	6.44	38	2.00	2.33	2.38	2.15	1.7
p-value T1=T2^	0.508	0.816	0.600	0.934	0.734	0.741	0.345
Observations#	2,095	143	143	143	143	143	143
School Controls^^	YES	YES	YES	YES	YES	YES	YES
Indiv. Controls^^	YES	NO	NO	NO	NO	NO	NO

School absenteeism

	School Absence Rates					
	School records		Survey		Spot-check	
	(1)	(2)	(3)	(4)	(5)	(6)
T1: School program	-0.102*** (0.025)	-0.103*** (0.024)	-0.032*** (0.009)	-0.034*** (0.009)	-0.048* (0.032)	-0.046* (0.031)
Hochberg p-value		<0.001***		<0.001***		0.134
T2: School + HH program	-0.075** (0.030)	-0.068** (0.029)	-0.025* (0.014)	-0.022* (0.013)	-0.073** (0.033)	-0.064** (0.032)
Hochberg p-value		0.063*		0.086*		0.067*
Control Mean	0.359	0.359	0.163	0.163	0.525	0.525
p-value T1=T2^	0.388	0.242	0.603	0.336	0.464	0.587
Observations	1,985	1,957	1,985	1,957	1,985	1,957
Controls^^	NO	YES	NO	YES	NO	YES

Psychosocial wellbeing: general, and during menstrual period

	General		During menstrual period	
	Mental Health Index (1)	Subj. Wellbeing Index (2)	Embarrass. during MP (3)	Insecure during MP (4)
T1: School program	0.041 (0.269)	-0.072 (0.055)	0.131** (0.065)	0.001 (0.079)
Hochberg corrected p-value	-	-	0.091*	0.990
T2: School + HH program	0.323 (0.255)	0.040 (0.050)	0.220*** (0.059)	0.167*** (0.059)
Hochberg corrected p-value	-	-	<0.001***	0.005***
Control Mean	24.1	5.9	3.3	3.4
p-value T1=T2^	0.331	0.046	0.181	0.040
Observations	2,095	2,095	2,095	2,095
Controls^^	YES	YES	YES	YES

Treatment effect on likelihood of dropout

	(1)	(2)
	Dropout	Dropout
T1: School program	-0.053**	-0.054**
	(0.025)	(0.023)
T2: School + HH program	-0.060**	-0.048**
	(0.023)	(0.021)
Control mean	0.155	0.155
p-value T1=T2^	0.781	0.791
Observations	2,678	2,637
Controls^^	NO	YES

Empowerment outcomes

	EMPOWERMENT INDEX	GENDER ATTITUDES INDEX	OPINIONS & DECISIONS INDEX	ASPIRATIONS INDEX
	(1)	(2)	(3)	(4)
T1: School program	0.013 (0.014)	0.109 (0.222)	0.106 (0.159)	-0.005 (0.041)
T2: School + HH program	0.047*** (0.017)	0.513** (0.214)	0.378** (0.181)	0.101** (0.047)
Control mean	0.54	8.55	2.44	1.42
p-value T1=T2^	0.064	0.113	0.191	0.029
Observations	1,707	2,052	1,734	2,084
Controls^^	YES	YES	YES	YES

Menstrual Health – Practices

	predominant use sanitary pads		Changing Material		Drying material	
	Home	School	Freq. general	At School	Drying place	Freq. wear dry
	(1)	(2)	(3)	(4)	(5)	(6)
T1: School program	0.102** (0.040)	0.185*** (0.044)	0.359*** (0.055)	0.356*** (0.038)	0.536** (0.071)	-0.360*** (0.075)
Hochberg p-value	0.012**	<0.001***	<0.001***	<0.001***	<0.001***	<0.001***
T2: School + HH program	0.074* (0.043)	0.152*** (0.046)	0.250*** (0.065)	0.370*** (0.039)	0.675*** (0.064)	-0.492*** (0.069)
Hochberg p-value	0.086*	0.001***	<0.001***	<0.001***	<0.001***	<0.001***
Control mean	0.25	0.36	2.7	0.13	2.0	1.88
p-value T1=T2^	0.551	0.506	0.103	0.769	0.051	0.092
Observations	2,061	2,032	2,095	2,042	1,470	1,470
Controls^^	YES	YES	YES	YES	YES	YES

Treatment effects on boy school absence rates

	BOYS GRADE 7 AGGREGATE
T1: School Program	-0.101*** (0.031)
T2: School + HH program	-0.127*** (0.030)
Control Mean	0.506
Observations	148
Controls ^^	YES
p-value T1=T2^	0.486

School absence rates girls pre-menarche

	School records		Survey		Spot-check	
	(1)	(2)	(3)	(4)	(5)	(6)
T1: School program	-0.040 (0.038)	-0.032 (0.037)	0.016 (0.032)	0.013 (0.028)	-0.005 (0.045)	-0.024 (0.045)
T2: School + HH program	0.015 (0.039)	0.014 (0.038)	0.002 (0.024)	0.006 (0.029)	0.043 (0.051)	0.032 (0.050)
Control Mean	0.318	0.318	0.147	0.147	0.486	0.486
Observations	333	333	333	333	333	333
Controls [^]	NO	YES	NO	YES	NO	YES

Heterogenous results

- We find modest evidence of impact heterogeneity
- Higher pre-program levels of gender equity attitudes has stronger treatment effects on school attendance & psycho-social wellbeing during menses
- Girls with higher pre-program aspiration levels also experience stronger treatment effects on psycho-social well-being

Conclusion

- First evidence of impacts of a multi-faceted MH interventions reducing school absenteeism in the short to medium run
- Impact heterogeneity is modest
- Combined school & hh intervention has additional impacts on empowerment measures
- Boys absence rates are also lowered while there is no effect on pre-menarche girls – FGD with boys suggest safer education environment