

Menstruation: Barrier to Education

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Background

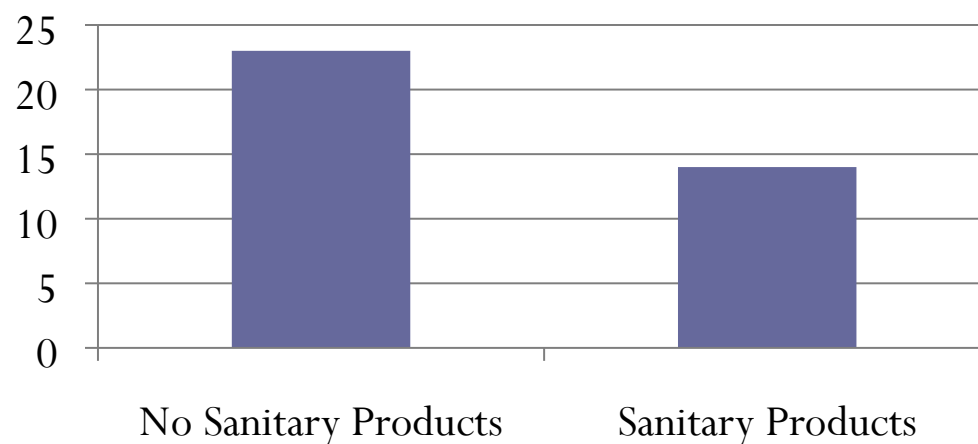
- Women face restrictions/ challenges during menstrual periods
 - Health
 - Culture
 - Logistics
- In the developing world – modern menstruation technologies (tampons, sanitary pads) are often not available or are expensive
- Most women use cloths
 - Less sanitary
 - Need to change often
 - Time to wash
 - Not private
- **Research Question:** Does providing modern sanitary products help increase girl's attendance in school?

Motivation

- Significant focus on the role of menstruation and lack of modern sanitary products on schooling
 - World Bank: Girls miss 10-20% of school days during period
 - Anecdotal evidence: school missed due to period, girls complain about poor sanitary products
 - Policy response: campaigns to increase availability of sanitary products (Always, NGOs, Proctor & Gamble, Clinton Initiative)
- Little or no rigorous evidence quantifying these impacts
 - Girls miss some school; how much?

Why don't we know the answers?

- How does menstruation affect girls' activities and schooling?
 - What are the effects of having modern sanitary products?
1. Lack of data – very rarely know when girls have their period and their activities
 2. Can't we just ask the girls or teachers?
 3. Can't we just compare the schooling of girls who have sanitary products with girls who don't?



Doesn't someone know these answers?

- Who reports about menstruation and education in developing countries?
 - Organizations that care about children and girls
 - Sanitary product companies

HOME THE STORY WHAT WE'RE DOING WHAT YOU CAN DO THE GIRLS

HOW TO HELP CHANGE SOMEONE'S LIFE

For some girls in Southern Africa, getting their period means missing school for several days each month.

That's because they don't have access to something many of us take for granted: feminine protection.

Helping girls stay in school is critical. An education gives them a future. It helps build better lives - not just for them, but for their families and their communities.

This website will give you more information on what Tampax and Always are doing to help. More importantly, it will show you how you can get involved and truly help make a difference.

WHAT WE'RE DOING →

Sound On Sound Off

HERO is a United Nations Association's campaign dedicated to the care of orphans and vulnerable children in Africa.

Research Design

- Randomized evaluation of a menstrual cups to adolescent girls in Chitwan, Nepal
 - 4 schools in Eastern Chitwan, Nepal
 - 7th and 8th grade girls invited to baseline meeting with mother
- Initial meeting, Oct/Nov 2006
 - 198 total girls
 - Baseline survey
 - Public randomization
 - Treatment girls remained at meeting
 - Received a free menstrual cup.
 - Instructed how to use menstrual cups



- Use:
 - Must be folded to be inserted correctly
 - Can be difficult to insert without practice
 - Can leak
 - Can be difficult to remove without practice
 - Lack of gynecological knowledge
- Potentially large benefits to adoption
 - Mobility
 - Time spent washing rags
 - Privacy

Research Design

- Followed for 15 months
 - Monthly nurse visits (trial and usage of cup)
 - Time diaries filled out by girls for first 6 days of each month (10 months)
 - Menstrual calendar (15 months)
- Follow-up meeting, Feb 2008
 - Follow-up survey
 - Control girls given menstrual cup

Baseline Statistics

Panel A: Participants

	Girls	Mothers	Female Guardians
School 1	54	41	13
School 2	48	33	13
School 3	48	42	6
School 4	48	35	8

Panel B: Demographics

	Mean	SD	Observations
Age	14.2	1.23	197
7th Grade (0/1)	0.53	0.5	197
Father Hindu Ethnicity	0.47	0.5	197
Income Category	2.52	1.59	190
Mother's Yrs. Educ.	2.69	3.90	190
Father's Yrs. Educ.	5.61	4.70	190
Menses at baseline (0/1)	0.87	0.33	197

Data Used

- Period data
 - Menstrual calendar (15 months)
- School attendance
 - Official
 - Time diaries filled out by girls (first 6 days of 10 months)
- Other outcomes
 - Test scores
 - Follow-up survey
 - Time use (diaries)

School participation during period

- 47% report missing school due to their period in past year
- But how much school are they really missing?
- Regression analysis:

$$Attend_{it} = \alpha + \beta Period_{it} + \Psi_t + \Lambda_i + \varepsilon_{it}$$

- Among the control girls
- Note: Not randomized!

School participation during period

	Official Data (1)	Time Diaries Data (2)
Having Period	-0.024** (0.011)	-0.043* (0.025)
Observations	15,460	4,000
Average	0.85	0.55

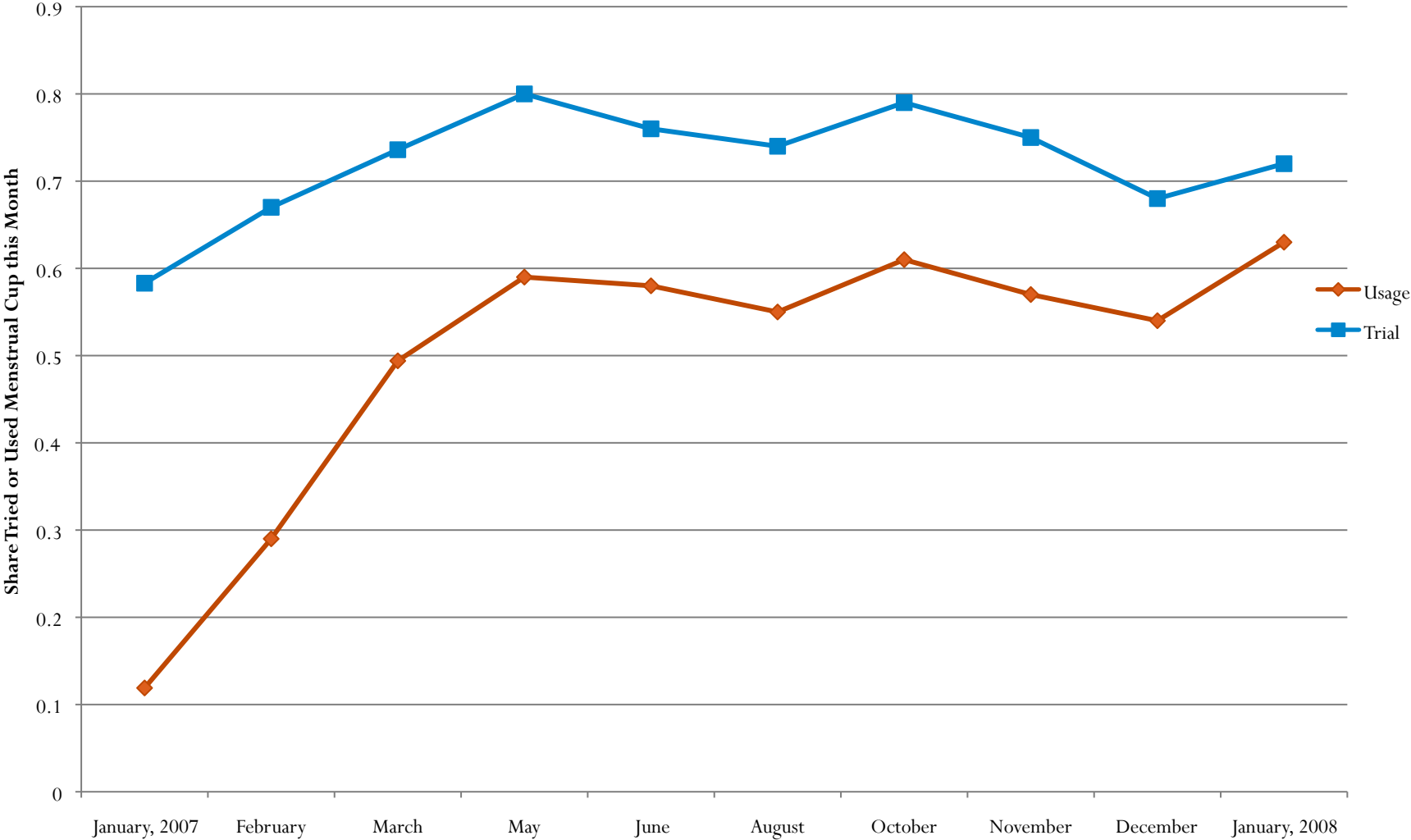
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Menstrual cups

- Did they use it?
- Did access to the cup close the small gap in attendance on period days?
- Are there other benefits?

Menstrual Cup Trial and Usage Over Time



Effects of Menstrual Cups

- Possible impact very limited
- Analysis 1: Treatment Versus Non-Treatment

$$Y_{it} = \alpha + \gamma_1 Treatment_{it} + \Pi X_{it} + \Psi_t + \varepsilon_{it}$$

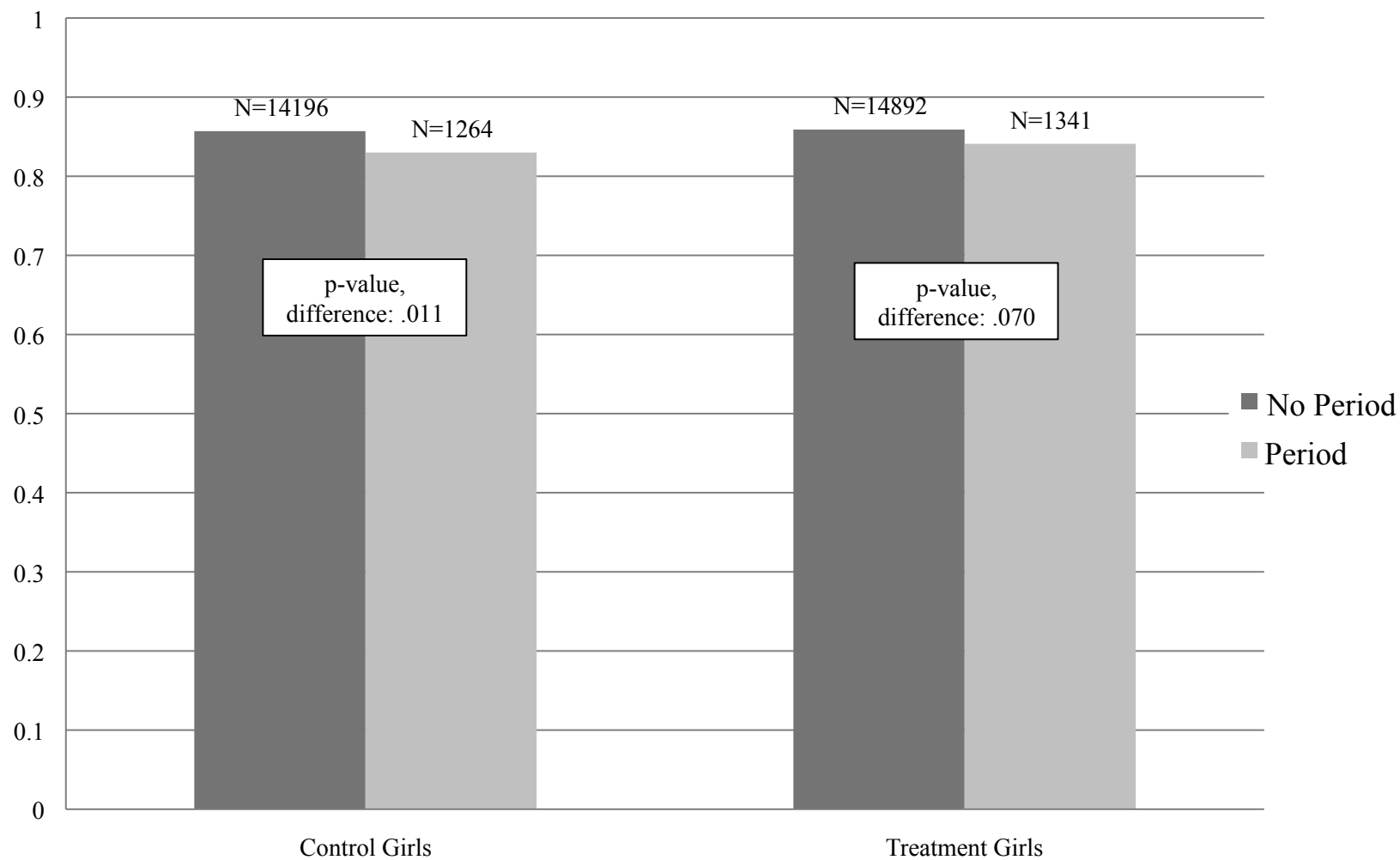
- Analysis 2: Use period days

$$Y_{it} = \alpha + \beta_1 Treatment_i * Period_{it} + \beta_2 Period_{it} + \Lambda_i + \Psi_t + \varepsilon_{it}$$

Treatment Effects: Attendance

	Official Attendance Data		Time Diary Data	
	(1)	(2)	(3)	(4)
Treatment	0.003 (0.014)		-0.004 (0.016)	
Treatment*Period		-0.010 (0.017)		0.036 (0.039)
Period		-0.023** (0.011)		-0.046* (0.025)
Observations	29,499	31,693	7,100	8,075
Mean of dep. Var.	0.86	0.86	0.55	0.55

School participation during period



Treatment Effects: Time Use

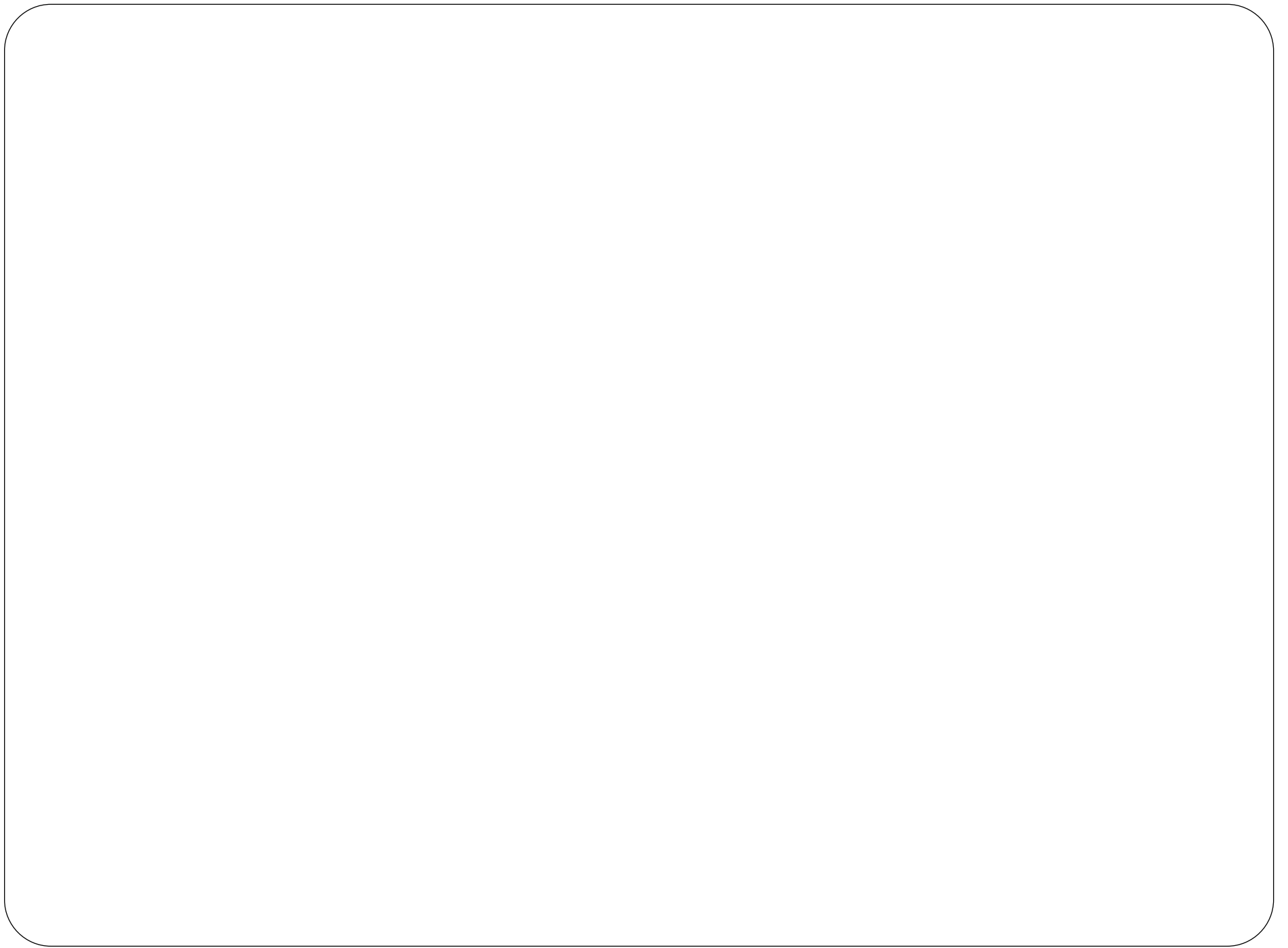
- No impact on puja, cooking, tea, personal care
- Large impact on laundry – completely counteracts minutes needed during period to wash rags

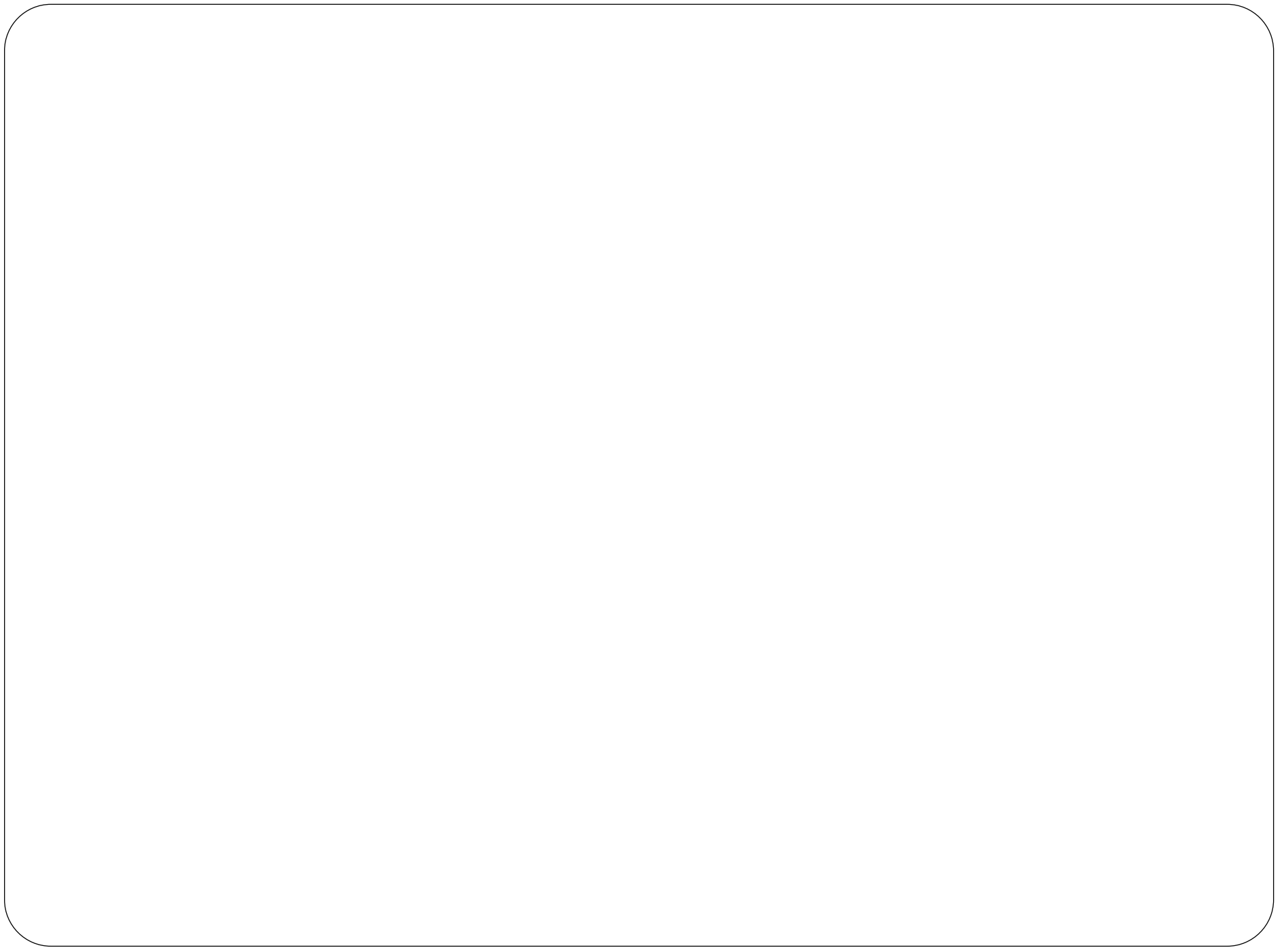
Other Effects

- Test scores
- Gynecological health
 - Discharge, pain urinating, sores, itching
 - Cramps, PMS
- Empowerment
 - Contraception use, decision-making, being touched during period
- Self-esteem
 - Sad, proud, happy, ashamed, express, pressure
- No effects
 - Small sample
 - Short time frame
 - Difficult to measure

Conclusion

- Women like modern sanitary products – high levels and rates of adoption
- No impact on school attendance
- Significant time savings each day
- Other programs may be more effective in reducing barriers to education





Extra slides

Other Benefits?

Minutes	Puja	Cooking	Washing Clothes	Personal Care
	(1)	(2)	(3)	(4)
Treatment * Period	1.982	5.678	-20.354***	-0.532
	[3.022]	[4.809]	[4.632]	[7.966]
Period	-10.211***	-16.939***	21.939***	10.685**
	[2.013]	[3.628]	[3.999]	[5.322]
Observations	9690	9690	9690	9690
R-squared	0.4	0.34	0.15	0.45
Average	18.08	57.94	35.75	116.05

Activity participation during period

Panel A: Percent activity level during period	Do Puja (1)	Touch a cow (2)	Eat with family (3)	Cook Rice (4)	Fetch Water (5)	Work (6)	Travel long distances (7)	Go to the Market (8)
Same amount	1.16	23.66	46.32	35.56	39.13	48.44	39.13	43.62
A little less	1.16	2.15	5.26	6.67	10.87	14.06	26.09	29.79
Do not do during period	97.67	74.19	48.42	57.78	50	37.5	34.78	26.6
Observations	86	93	95	90	92	64	92	94
Panel B: Reason for lower activity level (percent)	Do Puja (1)	Touch a cow (2)	Eat with family (3)	Cook Rice (4)	Fetch Water (5)	Work (6)	Travel long distances (7)	Go to the Market (8)
Culture	100	100	94.12	82.76	87.5	6.06	12.5	7.27
Don't want to			5.88	5.17	3.57	24.24	16.07	12.73
Health/Physical				12.07	8.93	57.58	39.29	45.45
Difficulty managing blood						9.09	32.14	30.92
Other						3.03		3.64

Activities during period

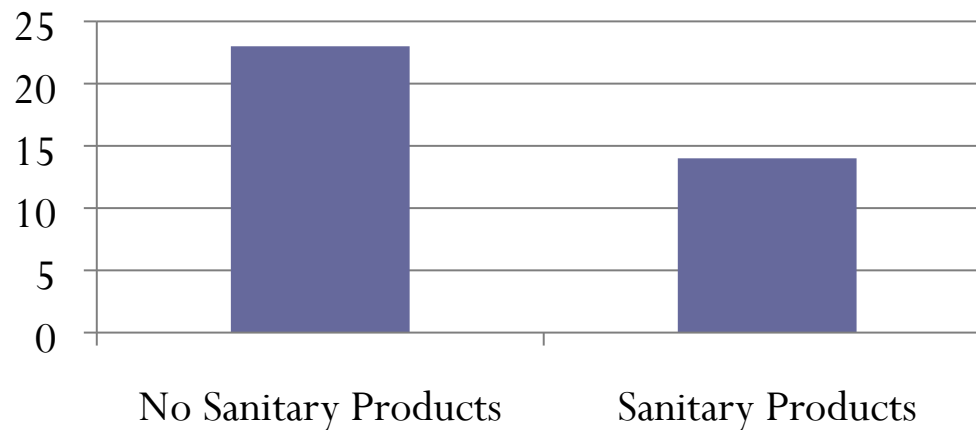
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Background

- Women face restrictions/challenges during menstrual periods: Health, Culture, Logistics
- In the developing world modern menstruation technologies (tampons, sanitary pads) often not available/are expensive
- Most women use cloths
 - Less sanitary
 - Need to change often
 - Time to wash
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Why don't we know the answers?

- How does menstruation affect girls' activities and schooling?
 - What are the effects of having modern sanitary products?
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 2. Can't we just ask the girls or teachers?
 3. Can't we just compare the schooling of girls who have sanitary products with girls who don't?



This project

- Randomized evaluation of menstrual cup provision to adolescent girls in Chitwan, Nepal
 - Adoption of menstrual cup
 - Impact of period on school attendance
 - Impact of menstrual cup provision on school attendance
- Menstrual Cup
 - Small, silicone, bell-shaped device used internally during menstruation
 - Emptied approximately every 12 hours
 - Reusable for up to a decade

Baseline use of sanitary products

- Majority use rags rather than other modern sanitary products
 - Rags: 98% of girls use, 80% use exclusively
 - Pads: 67% heard, 22% ever used but only 1.7% *usually* use

Time use during period

	Sleep (1)	Puja (2)	Tea (3)	Homework/ Reading (4)	Cooking (5)	Eating (6)	Washing Clothes (7)
Having Period	2.843 [5.328]	-9.851*** [2.025]	1.246 [2.45]	9.6547 [10.242]	-17.077*** [3.560]	2.395 [3.920]	21.801*** [3.933]
Observations	4830	4830	4830	4830	4830	4830	4830
R-squared	0.37	0.44	0.43	0.40	0.34	0.27	0.17
Average	569.65	18.47	65.73	235.32	57.28	126.02	38.32

	Other Domestic Work (8)	Ag Work (9)	Work for Pay (10)	Personal Care (11)	Playing Games or Sports (12)	Visiting with Friends (13)	Watching TV (14)	Other (15)
Having Period	-12.693 [7.124]	4.5075 [4.715]	-0.355 [0.242]	12.064** [5.502]	0.419 [2.890]	7.711* [4.649]	0.897 [5.476]	14.349 [9.704]
Observations	4830	4830	4830	4830	4830	4830	4830	4830
R-squared	0.44	0.17	0.18	0.48	0.37	0.21	0.34	0.41
Average	158.88	29.08	1.01	114.76	32.73	42.12	117.93	143.12

- Do some girls adopt faster than others?
- Effects of peers: do girls with more friends in the treatment group adopt faster than girls with fewer friends?
- Difficult to identify peer effects
 - I use and so do my friends: Are we similar to each other? Or do we learn from each other?
 - Separating these is important for understanding whether friend exposure matters.
 - Individual randomization: conditional on total number of friends, # treatment friends random
 - Can estimate causal effect of having more friends with the menstrual cup
- Adoption Data
 - “Did you use the cup this month?”

Time use during period

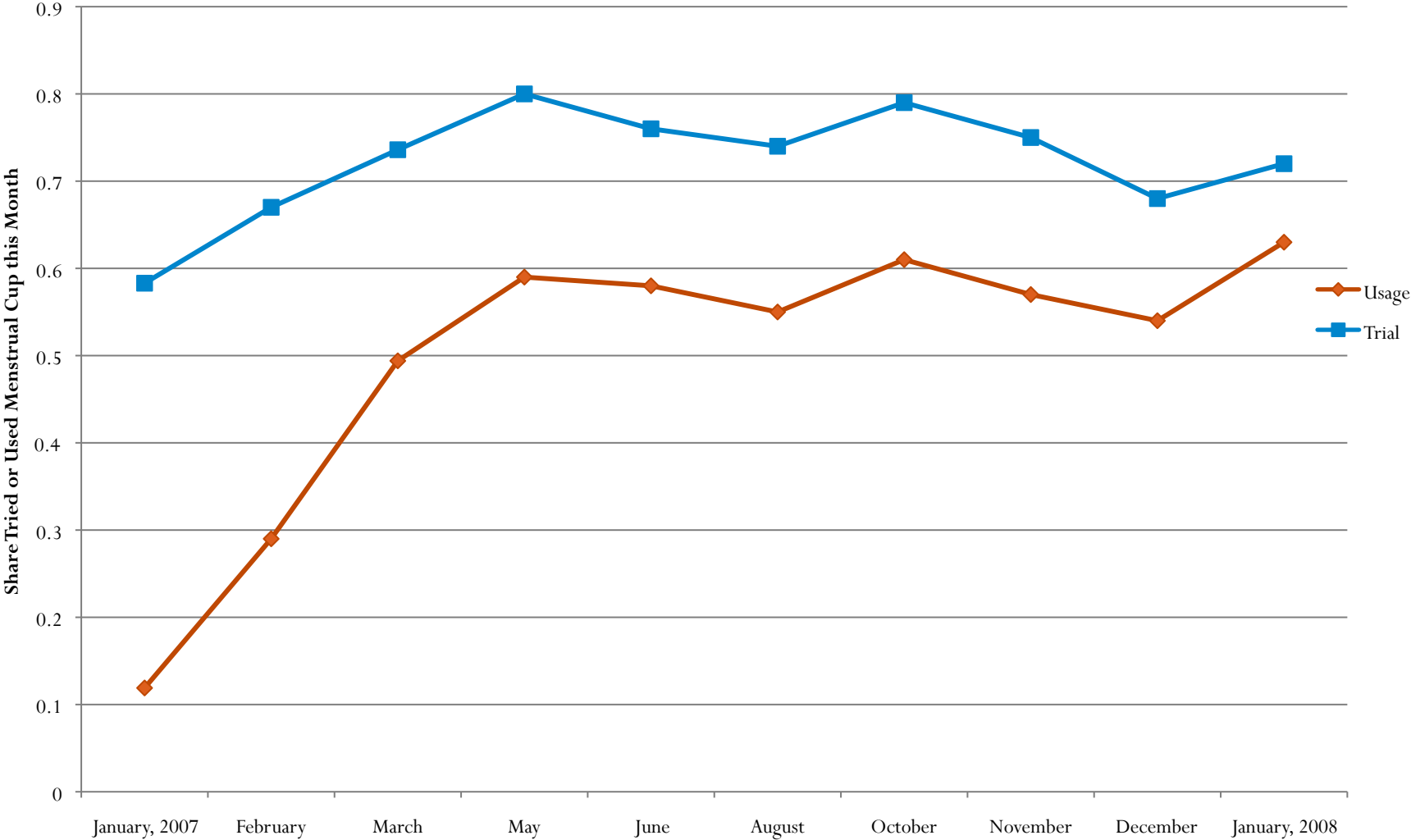
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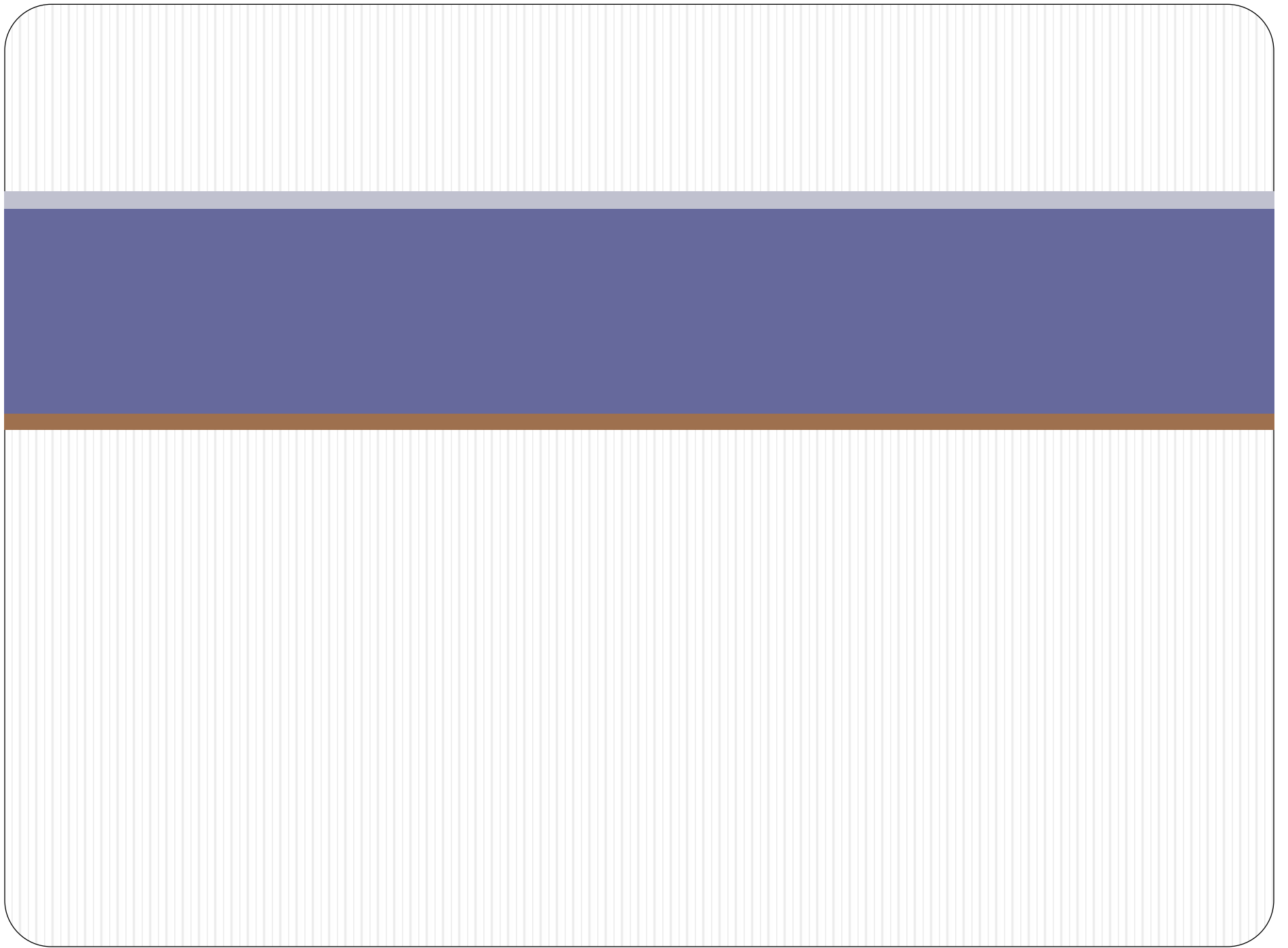
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Treatment Effects: Sanitary Product Use

	Any Rags (1)	Any pads (2)	Any cup (3)	Number of pads (4)	Rags washed (5)
Treatment * After	-0.379*** [0.104]	-0.064 [0.097]	0.644*** [0.068]	-0.154 [0.694]	-1.085** [0.420]
Observations	396	396	396	395	395
R-squared	0.63	0.61	0.79	0.7	0.62
Average	0.77	0.18	0.16	1.38	2.6

Menstrual Cup Trial and Usage Over Time





Background

- Significant speculation on the role of menstruation and lack of modern sanitary products on schooling
 - World Bank: Girls miss 10-20% of school days during period
 - Anecdotal evidence: school missed due to period, girls complain about poor sanitary products
 - Policy response: campaigns to increase availability of sanitary products (Always, NGOs)
- **Research Questions:**
 1. How much school do girls really miss during their periods?
 2. Does providing modern sanitary products help reduce the gap (if any)?
 3. Will girls use modern products? What other benefits might there be?

Baseline use of sanitary products

- Majority use rags rather than other modern sanitary products
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Schooling during Period without an Intervention on School Days

	Official (1)	Unofficial (2)	Time diaries (3)	Time in School (if not zero) (5)
Having Period	-0.024** [0.011]	0.026 [0.038]	-0.042* [0.025]	-0.038 [0.112]
Observations	15460	1091	4000	2179
R-squared	0.08	0.19	0.25	0.47
Average	0.85	0.87	0.55	5.07
Impact	-0.35 days	0.37 days	-0.60 days	

Balancing Statistics

Balancing on number of treatment friends		
	Coefficient on # treatment friends	SD
Age	0.090	(0.091)
7 th Grade (0/1)	0.006	(0.038)
Test Score Last Year	-0.97	(0.090)
Father Hindu	0.053	(0.038)
Income Category	-0.132	(0.121)
Mother's Yrs. Educ.	-0.199	(0.306)
Father's Yrs. Educ.	-0.179	(0.369)
Menses at baseline (0/1)	-0.027	(0.025)
Work for Pay	0.099***	(0.031)
Days worked (if >0)	0.058	(0.324)
Time to Wash Cloths	3.37	(2.47)
# Months observed in sample	0.301	(0.237)

Trial and Usage Over Time

