Transforming Harmful Norms:
The Effect of Reducing Menstrual Stigma on Health Behaviors and Girls' Education

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Motivation

Norms often support harmful or inefficient behaviours

[e.g., discrimination, female genital mutilation, stigmatization, forced marriages…]

But there are sometimes people **within a social network** who are willing to speak up against such a norm

⇒ Is it possible to **empower** these people to generate pro-social norm change?

Motivation

Trendsetters [Bicchieri 2017]

- People embedded in network who are willing to speak out against harmful social norms, e.g. because they are less sensitive to the norm in question

- They act as prominent examples of people engaging in good behaviours and can therefore change social norms

- ⇒ Can we **nominate, train, and coach trendsetters** to spread pro-social messages and encourage pro-social behaviours

Motivation

Advantages of working with trendsetters rather than individualised attempts to change attitudes: [Paluck 2021]

1. **Social multiplier:**

   - Leverage peer networks, rather than having to change people's beliefs individually (more scalable)

   - Builds on social learning literature that looks at spreading information by "seeding" it with influential network members
     [Banerjee et al 2013; Banerjee et al 2019; Beaman et al 2021]

2. **Coordinated norm change:** simultaneously change people's beliefs and beliefs about others' beliefs

What norms are we focusing on?

In this study, we focus on norms surrounding two related sets of behaviours:

1. **Hygiene behaviours in school**, e.g., handwashing, using latrines

2. **Reducing menstrual stigma in schools**
   - **Menstrual stigma**: norms, beliefs, and preferences relating to menstruation that prohibit discussion and result in exclusion of those who menstruate
   - **Scale** - around 1 in 3 menstruating women risk shame and harassment [Unilever WWA 2013]

What norms are we focusing on?

These behaviours might have an important **effect on human capital outcomes** for adolescent girls [Hennegan et al 2019]

- **Health -** hygienic behaviours important for avoiding disease (e.g., handwashing reducing diarrhoea, avoiding open defecation)

- **Menstrual health** – social norms prohibit discussion of menstruation, so girls have less information about menstrual hygiene, inhibits demand for products, leading to health issues (e.g., urinary tract infections) [Ali & Rizvi 2010; El-Gilany et al 2005]

- **Mental health** – bullying and teasing due to menstruation leads to poor mental health [Benshaul-Tolonen et al 2020]

- **Schooling** – bullying, teasing, or health problems could lead to absenteeism, dropout, or inhibit learning at school

Complementary interventions

Complementary **hygiene and sanitation interventions** in schools may also have important effects on human capital outcomes

- **Mixed results** of infrastructure and promotion interventions in schools when examining health and attendance outcomes [Oster & Thornton 2011; Montgomery et al 2012; Humphrey 2009; Galian et al 2016; Chase & Do 2012; Patil et al 2014]

- **But very few papers look at learning outcomes**, and there may be other social dynamics through which health promotion schemes can generate such effects (e.g., increased motivation)

- **Possible complementarity with norm change through trendsetters** – interventions designed to promote good hygiene behaviours, lift hard constraints (e.g. providing infrastructure and menstrual products), and endorsement of trendsetters from authorities (teachers & directors)

Research questions

1. Can **trendsetters** in schools promote healthy behaviours and improve human capital outcomes?

   - Is this particularly true for stigmatized topics like menstruation?

2. Can **hygiene and menstrual hygiene interventions** in schools affect human capital outcomes?

This paper

- RCT in 140 schools in rural Madagascar

- **Treatments:** partnered with large NGO to evaluate 2-year programme designed to promote hygiene and reduce menstrual stigma:

  - **Hygiene and sanitation bundle** (*base* programme)– sanitation infrastructure, teacher training, parent hygiene committee, free access to menstrual products

  - **"Young Girl Leaders"** – nominate, train and coach girls to spread positive messages about hygiene and menstruation

This paper

- Outcomes [N=2,414 girls]

  1. **Education** (absenteeism, enrolment, learning tests, grades)

  2. **Health** (general, UTIs, mental health)

  3. **Mechanisms:**

     - **Menstrual stigma**, including lab-in-the-field measures

     - **Knowledge** of hygiene, sanitation, menstruation

     - **Behaviours** related to hygiene, sanitation, menstruation

     - **Social dynamics** in school, e.g., networks, bullying/teasing

Results summary

- **Hygiene & sanitation interventions** led to:
  - **Substantial learning effects** (0.1 SD improvement in learning tests and school grades, increased grade progression)
  - **No effects** on absenteeism/enrolment
  - **Mechanism:** suggestive evidence that this is mediated by change in social dynamics at school rather than health (e.g. increased network ties between students)

- **No clear impacts on health outcomes** of any treatment

- **Young Girl Leader** intervention led to additional impacts on key mechanisms:
  - **Hygiene behaviour** – improvements in observed cleanliness at home, self-reported hygiene behaviours
  - **Menstrual stigma** – additional improvements in some measures of menstrual stigma
  - **No additional impact on education** $\Rightarrow$ menstrual stigma is not a binding constraint on education?

Context

Sample characteristics

- Surveyed 2,400 girls in 140 primary and secondary schools in Amoron'i Mania in rural Madagascar

- **Avg. age**: 14 years

- **Poor access to school**: average distance 2.5km, usually walking (30 minutes)

- **Highly constrained economically**:
  - Only 2% own a vehicle, 7% own a TV

- **Household:** avg. hh size = 6.5
  81% with mother still in household

Table

Duncan Webb, PSE

Motivating evidence at baseline

Some evidence of taboo, e.g.:

- only 45% had heard a classmate speak about menstruation at baseline (vs 70% about handwashing),

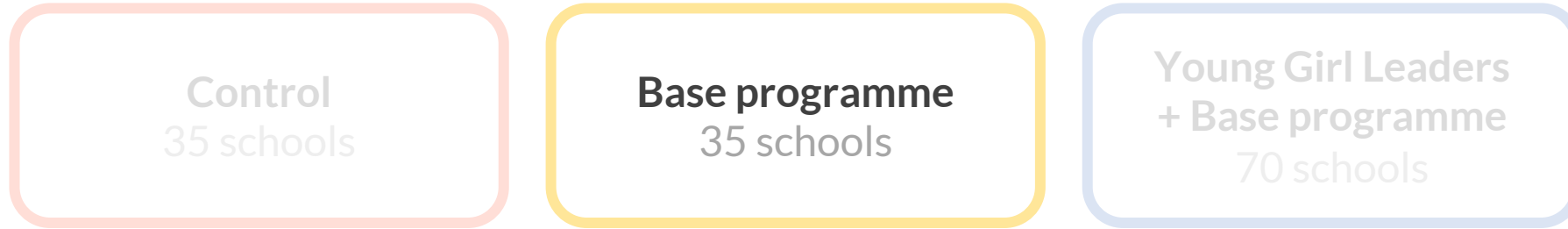- 40% say that one shouldn't discuss menstruation openly

Knowledge-behaviour gap?

- Knowledge of good hygiene practices is mixed (e.g., 98% know that the best place to defecate is not outside, but only 63% can name 2 important moments for handwashing)

- Knowledge doesn't always translate to correct behaviour, especially at school (e.g., only 32% washed their hands 3 times last day at school, only 14% cleaned themselves with soap during last menstruation at school)

Design

Control	Base programme	Young Girl Leaders + Base programme
35 schools	35 schools	70 schools
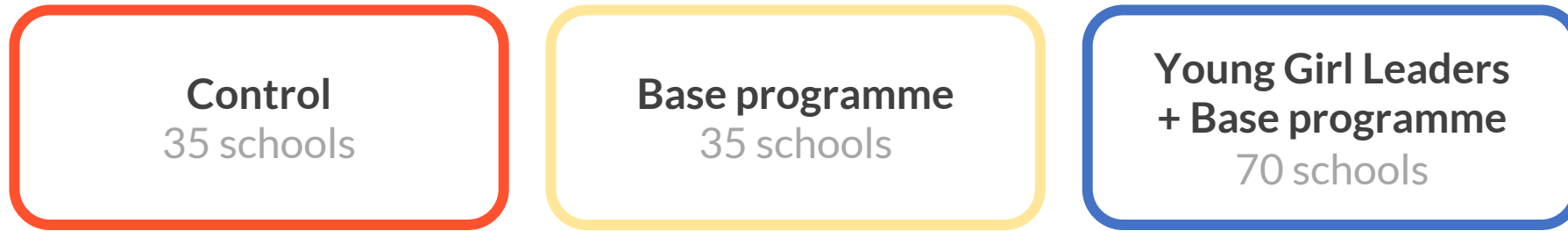
Each school randomised into 3 different treatment conditions

Control	Base programme	Young Girl Leaders + Base programme
35 schools	35 schools	70 schools

Base programme includes multiple components:

1. Hygiene/sanitation training for 2 teachers

2. Hygiene/sanitation committee for teachers and parents

3. Hygiene/sanitation contest for the school

4. Building sanitation infrastructure at schools (latrine and running water)

5. Vouchers for free reusable menstrual pads for girls in school

Control 35 schools	Base programme 35 schools	**Young Girl Leaders + Base programme** 70 schools

Young Girl Leaders programme was added to the base programme in 70 schools, in which girls in school were selected (usually 2-4 girls in each school, or 5+ for larger schools)

- **Selection process**: based on survey of teachers and nominees; chose girls based on factors including leadership qualities, "positive social deviance" (willingness to speak about menstruation), and having started menstruating

- **Training & coaching**: initial intensive training to raise awareness of good hygiene practices and menstrual hygiene, and also how to speak openly about these topics, plus regular coaching and visits by local NGO trainer

| Control 35 schools | Base programme 35 schools | **Young Girl Leaders + Base programme** 70 schools |

- **Randomise 2 different modalities** ("structured", in which girls give classroom sensitisation sessions, and "organic", in which girls do informal sensitisation in their peer group themselves) – very little variation in results across modalities, so not shown here

Timeline
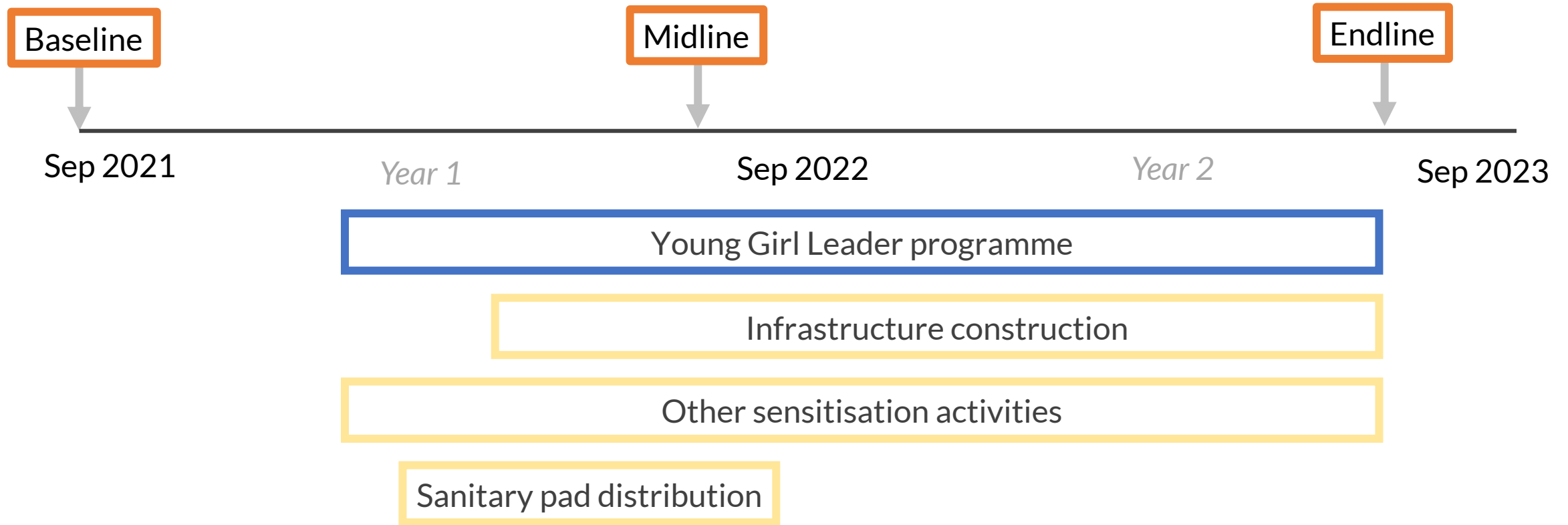
Theory of change

Hygiene and sanitation interventions (base programme) can encourage healthy behaviours and reduce menstrual stigma

- **Young Girl Leaders** may be particularly effective by acting as trendsetters from within the social network, spreading positive messages about hygiene and menstruation and coordinating norm change

Ability to improve **human capital** outcomes for girls in schools:

- Improve health by promoting healthy behaviours?

- Improve mental health by reducing psychosocial frictions (e.g., bullying/shame)

- Improve education through health or psychosocial channels

Results

Results Outline

1. Effect of the hygiene & sanitation interventions

   - On education

   - On health

   - On knowledge

2. Additional effects of the YGL programme

   - On hygiene behaviours

   - On menstrual stigma

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Results: **Education**

Result #1: Hygiene & sanitation interventions (base programme) lead to 0.1SD improvements in learning, grades, and grade progression

- No additional effect of YGL element

- Comparable to education-focused interventions [Muralidharan 2017]

Results: **Education**

Learning tests - written maths, digit span, reading, listening tests at endline

- Programme leads to 0.1SD improvement in standardized learning tests at endline (pooling Base and Base+YGL, p=0.01)

- Largest effect on written maths (β=0.19SD, p<0.01)

Effect on index of standardized learning test (Z-score)
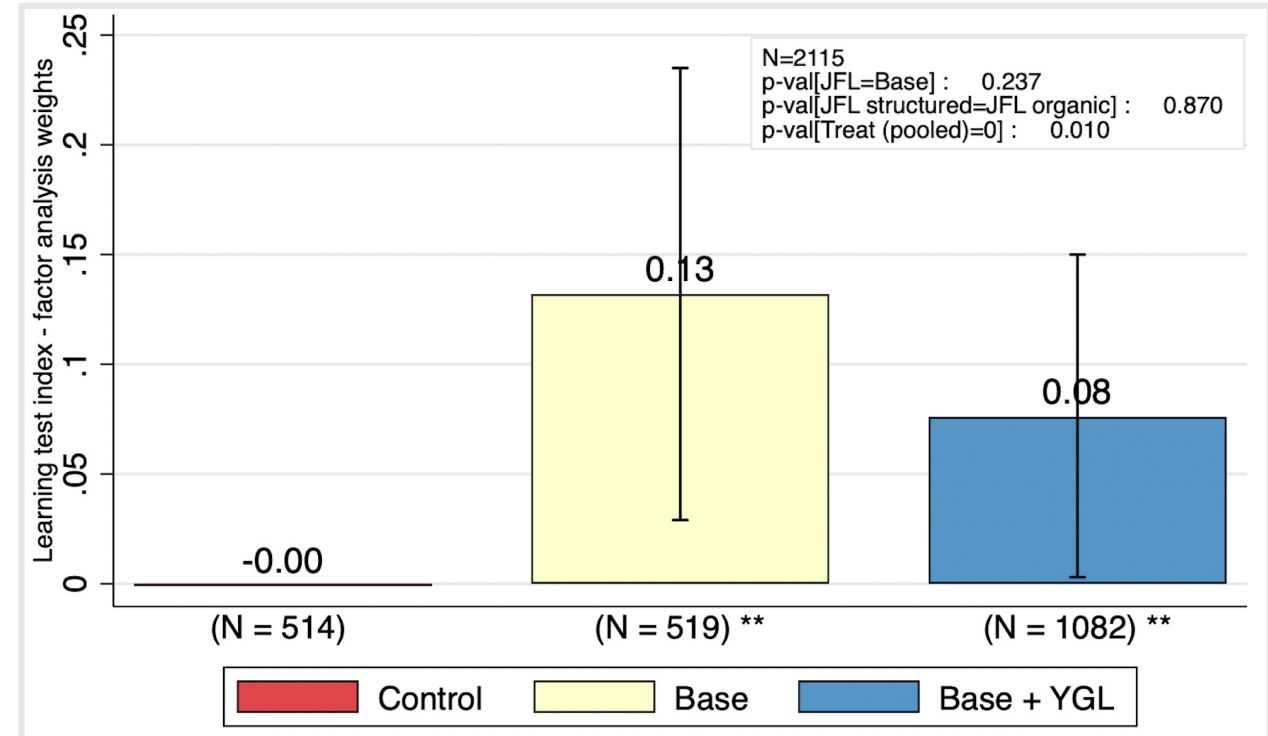
Results: **Education**

Does this translate to improve grades at school? Yes

School grades - using official school records from most recent *bulletin*

- Pooled treatments lead to 0.11 SD improvement for girls (p=0.07)

- Only 0.06 SD for boys (not significant, p=0.19)

Class progression:

- 7.5 p.p. (10%, p=0.01) increase in girls' probability of progressing to next class since baseline

Results: **Education**

Result #2: Hygiene & sanitation interventions do **not** lead to measurable effects on school attendance (absenteeism/enrolment)

- **Enrolment**: from official school enrolment lists, no effect (p=0.52)

- **Attendance**:
  1. Unannounced spot checks (5x throughout the school year) – no effect (p=0.39)
  2. Self-reported absenteeism – no effect (p=0.38)
  3. Official school registers – in progress

Results Outline

1. Effect of the hygiene & sanitation interventions

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Health

Result #3: Hygiene & sanitation interventions (with or without YGL) do **not** lead to clear measurable effects on on health

- **Self-reported health index** – no effect (p=0.55)

- **Symptoms of urinary tract infections** – no average effect (p=0.73), although fewer symptoms reported in YGL schools in *secondary* only (β=-0.14SD, p=0.02)

- **Mental health** – no effect (p=0.24)

Results: **Mechanisms**

Why does the programme have an impact on **learning,** despite no effect on health outcomes?

- Qualitative reports of improved motivation and solidarity in schools

- And 0.23SD (*p*<0.01) increase in network integration index (questions on how many friends of different types)

- Suggests that programme involvement and the social dynamics it creates may be more important for learning than health impacts?

Effect on index of network ties between girls and other students (Z-score)
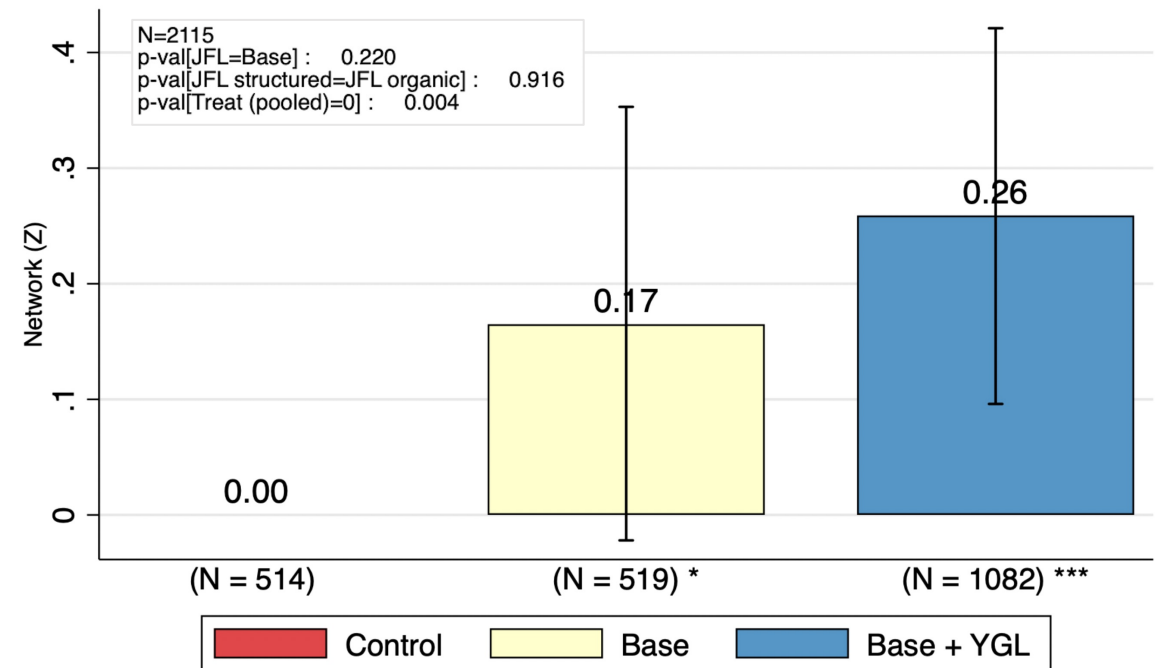
Results Outline

1. Effect of the hygiene & sanitation interventions
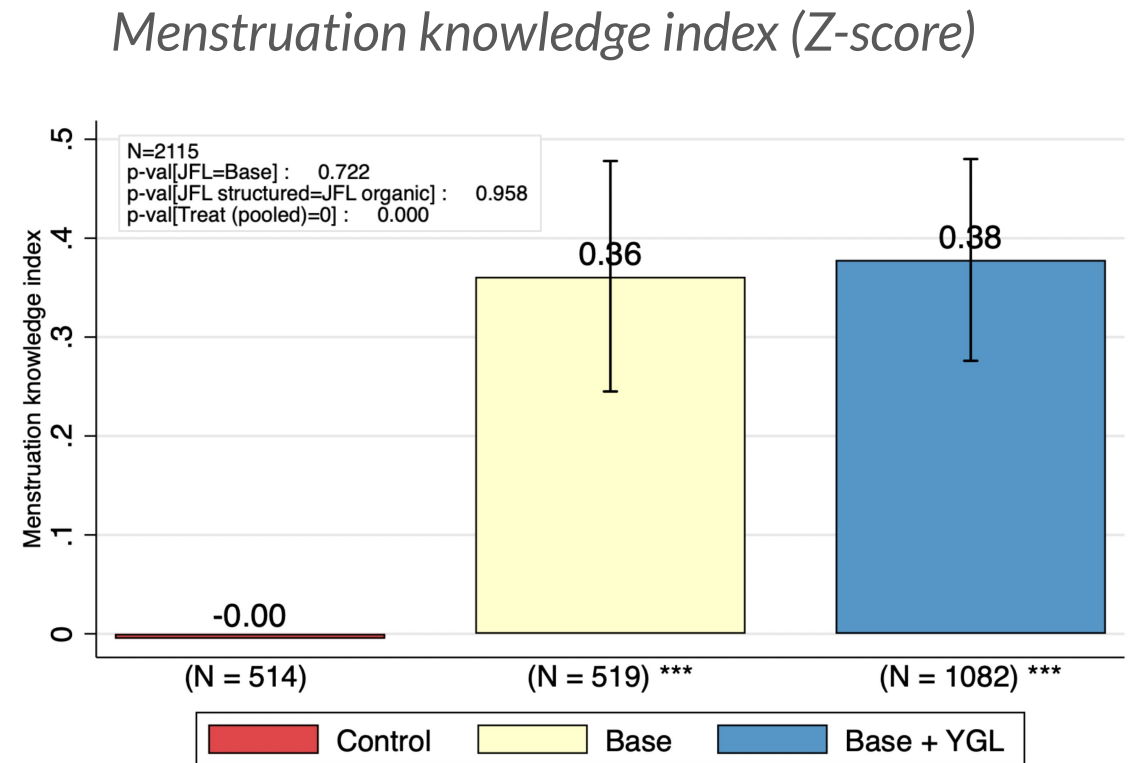
   - On education

   - On health

   - On knowledge

2. Additional effects of the YGL programme

   - On hygiene behaviours

   - On menstrual stigma

Results: **Knowledge**

Programme improved knowledge of hygiene & menstruation

- 0.37 SD improvements in knowledge index about menstruation

- 0.4 SD improvements in knowledge about other hygiene behaviours

- Similar for Base vs Base + YGL

Menstruation knowledge index (Z-score)

N=2115
p-val[JFL=Base] :   0.722
p-val[JFL structured=JFL organic] :   0.958
p-val[Treat (pooled)=0] :   0.000

-0.00   0.36   0.38

(N = 514)   (N = 519) ***   (N = 1082) ***

Control   Base   Base + YGL

Results Outline

1. Effect of the hygiene & sanitation interventions

   • On education

   • On health

   • On knowledge

2. Additional effects of the YGL programme

   • On hygiene behaviours

   • On menstrual stigma

Results: **Effects of "Young Girl Leaders"**

Hygiene & sanitation interventions improve education, knowledge, but not health

Do Young Girl Leaders to further improvements on other dimensions? ⇒ **Yes**

Results Outline

1. Effect of the hygiene & sanitation interventions

   • On education

   • On health

   • On knowledge

2. Additional effects of the YGL programme

   • On hygiene behaviours

   • On menstrual stigma

Results: **Effects of "Young Girl Leaders"**

Hygiene behaviours improve more in YGL schools:

- Self-reported hygiene behaviour index (0.3 SD vs 0.1 SD, *p* of diff < 0.01)

- Enumerator observations on cleanliness / hygiene at home (0.2SD vs 0.07SD, *p* of diff = 0.03)

Suggests that YGLs may help closing the knowledge-behaviour gap

WASH behaviour index (Z-score)

N=2115
p-val[JFL=Base] :   0.005
p-val[JFL structured=JFL organic] :   0.121
p-val[Treat (pooled)=0] :   0.002

0.01   (N = 514)
0.10   (N = 519)
0.31   (N = 1082) ***

Control   Base   Base + YGL

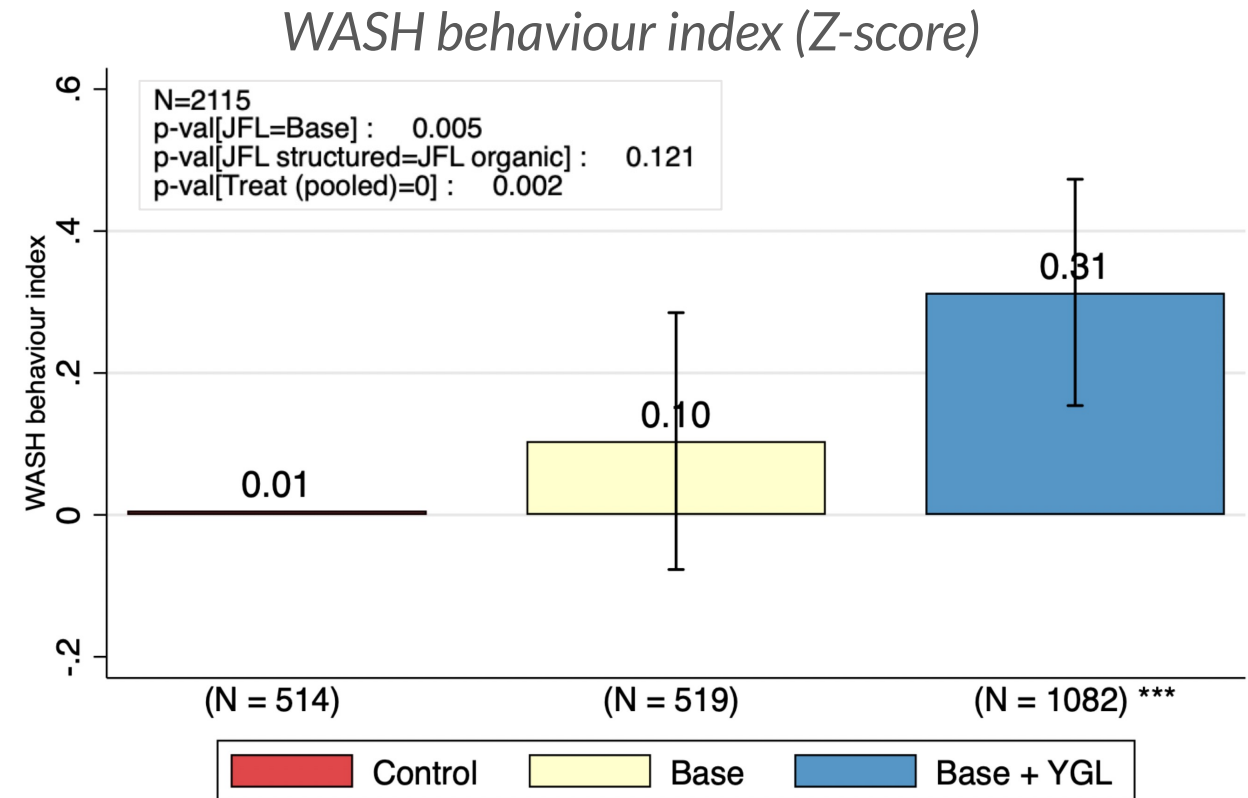# Results Outline

1. Effect of the hygiene & sanitation interventions

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2. Additional effects of the YGL programme

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   - On menstrual stigma

Results: **Effects of "Young Girl Leaders"**

Menstrual stigma: YGL programme generates *larger improvements* than the base programme in a wide variety of survey measures:

1. **Supply of information from others -** more likely to have heard people speaking about menstruation

2. **Supply of information from girls** – increased reported willingness to speak about menstruation

3. **Progressive attitudes** (e.g., agreeing that girls should be allowed to go to school during menstruation)

4. **Reduction in emotions of shame** in response to embarrassing vignette

5. **Second-order beliefs** – girls believe that others have more progressive attitudes

Results: **Effects of "Young Girl Leaders"**

Mixed results on how much the improved attitudes/self-reports translate to behaviour:

1. **Bullying / teasing:** no changes in measures of bullying/teasing in school

2. **Willingness to speak (revealed-preference lab-in-the-field measures):**
   - Girls supply info to classmates, choose whether it's about menstruation topic or hygiene topic to classmates
   - For **anonymous video** (no social image concerns) – pooled treatment schools are more likely to select menstruation (p=0.06)
   - When asked to **explain in front of classmates** (strong social image concerns), *only* YGL school girls more likely to select for explanation (p=0.04)
   - Suggests that taboo is weaker in YGL schools

Results: **Effects of "Young Girl Leaders"**

Mixed results on how much the improved attitudes/self-reports translate to behaviour:

3. **Demand for information (lab-in-the-field**): small increase in selecting to open a menstruation-related envelope, but no differences between Base vs Base + YGL (pooled effect 3p.p.; *p*=0.07)

4. **Dictator game:** no significant effects of any treatment on boys' or girls' willingness to share biscuits with a girl talking about hygiene vs menstruation

Results: **Effects of "Young Girl Leaders"**

YGL programme led to **reduced menstrual stigma** on a number of measures

But didn't lead to additional improvements in school attendance or achievement

Suggests that menstrual stigma may not be a binding constraint on education for girls in this very low-income context

⇒ *Prevalence of girls being sent at young ages for work suggests hard economic constraints are binding*

Conclusion & next steps

Conclusion

- School-based hygiene & sanitation programme in a low-income context led to **substantial learning gains**, comparable to education-focused programmes

- Even without generating measurable health impacts

- Nominating, training, and coaching **trendsetters** can help to change harmful stigmatising norms, although need more evidence on whether this change in norms can translate to meaningful economic improvements

Next steps: analysis

1. **Intensive tracking** has just finished, incorporating full sample

2. **Robustness**:
   - Are results driven by social desirability bias (use Crowne-Marlowe 1960)?
   - Correcting for attrition

3. **Understanding dynamics**: comparing midline and endline results

4. **Understanding mechanisms**: what type of YGLs are most effective? Those who are most willing to speak up? Central in network?

5. **Additional outcomes**: using heart-rate data during endline survey to measure stress when discussing menstruation

Next steps: scale-up plans

Scale-up plans:

- Work in 3 regions, in larger set of schools

- Possible avenues:
  - Evaluate community-level interventions to understand whether the programme is complementary with changing community norms
  - Relax hard economic constraints that curtail girls' education
  - Examine the roles of boys in generating and spreading stigma

Appendix

Baseline characteristics

Variable	(1) Total Mean/(SD)	(2) Control Mean/(SD)	(3) JFL Structure Mean/(SD)	(4) JFL Organique Mean/(SD)	(5) Infrastructure Mean/(SD)	(3)-(2) P-value	(4)-(2) Pairwise t-test P-value	(5)-(2) P-value
Age	13.997 (6.804)	13.741 (6.904)	14.155 (6.279)	14.038 (6.891)	14.033 (7.356)	0.282	0.461	0.483
Distance to school (km)	2.480 (3.331)	2.421 (3.426)	2.570 (3.353)	2.502 (3.638)	2.421 (2.982)	0.447	0.693	0.998
Time to school (min)	30.204 (40.746)	29.722 (44.587)	31.844 (42.639)	29.775 (37.915)	29.404 (38.511)	0.403	0.983	0.896
Baseline absenteeism	1.409 (3.643)	1.391 (2.988)	1.373 (4.023)	1.262 (3.301)	1.607 (4.113)	0.929	0.484	0.300
Baseline absenteeism - no outliers	1.139 (2.726)	1.187 (2.637)	1.176 (3.473)	0.960 (2.116)	1.234 (2.498)	0.951	0.109	0.750
Father passed away	0.085 (0.318)	0.077 (0.225)	0.094 (0.362)	0.073 (0.347)	0.096 (0.319)	0.353	0.813	0.256
Father in HH	0.696 (0.606)	0.711 (0.556)	0.685 (0.611)	0.706 (0.614)	0.682 (0.657)	0.446	0.882	0.401
Mother passed away	0.048 (0.209)	0.040 (0.183)	0.065 (0.232)	0.035 (0.194)	0.053 (0.209)	0.049**	0.621	0.282
Mother in HH	0.816 (0.453)	0.835 (0.469)	0.785 (0.488)	0.825 (0.396)	0.820 (0.459)	0.080*	0.700	0.595
Number of HH members	6.478 (3.240)	6.523 (2.771)	6.542 (3.592)	6.351 (3.057)	6.497 (3.504)	0.918	0.313	0.886
Has livestock	0.975 (0.219)	0.977 (0.233)	0.979 (0.152)	0.982 (0.149)	0.960 (0.306)	0.867	0.693	0.291
Has good to produce revenue	0.696 (1.167)	0.690 (1.269)	0.694 (1.119)	0.693 (1.157)	0.706 (1.175)	0.961	0.970	0.821
Owns land	0.984 (0.131)	0.977 (0.168)	0.989 (0.096)	0.988 (0.095)	0.982 (0.150)	0.151	0.165	0.610
Radio	0.593 (0.773)	0.600 (0.813)	0.606 (0.804)	0.593 (0.715)	0.574 (0.789)	0.896	0.863	0.576
TV	0.069 (0.358)	0.077 (0.458)	0.071 (0.348)	0.062 (0.306)	0.068 (0.315)	0.784	0.493	0.670
Wooden bed	0.874 (0.496)	0.847 (0.636)	0.885 (0.438)	0.896 (0.411)	0.866 (0.469)	0.228	0.117	0.551
Bike	0.139 (0.574)	0.113 (0.490)	0.161 (0.710)	0.124 (0.450)	0.157 (0.597)	0.168	0.693	0.167
Car or Moto	0.020 (0.161)	0.018 (0.140)	0.021 (0.146)	0.028 (0.187)	0.013 (0.163)	0.684	0.263	0.618
Generator	0.013 (0.135)	0.014 (0.175)	0.013 (0.114)	0.015 (0.144)	0.008 (0.103)	0.891	0.920	0.489
Panneau solaire	0.279 (0.806)	0.252 (0.688)	0.326 (1.018)	0.269 (0.690)	0.266 (0.739)	0.141	0.672	0.737
Has no assets	0.057 (0.309)	0.081 (0.395)	0.044 (0.297)	0.048 (0.244)	0.056 (0.273)	0.069*	0.094*	0.213
Number of observations	2393	568	620	599	606	1188	1167	1174
Number of clusters	140	35	35	35	35	70	70	70

Back