School-based interventions addressing the double burden of malnutrition among adolescents in Tanzania

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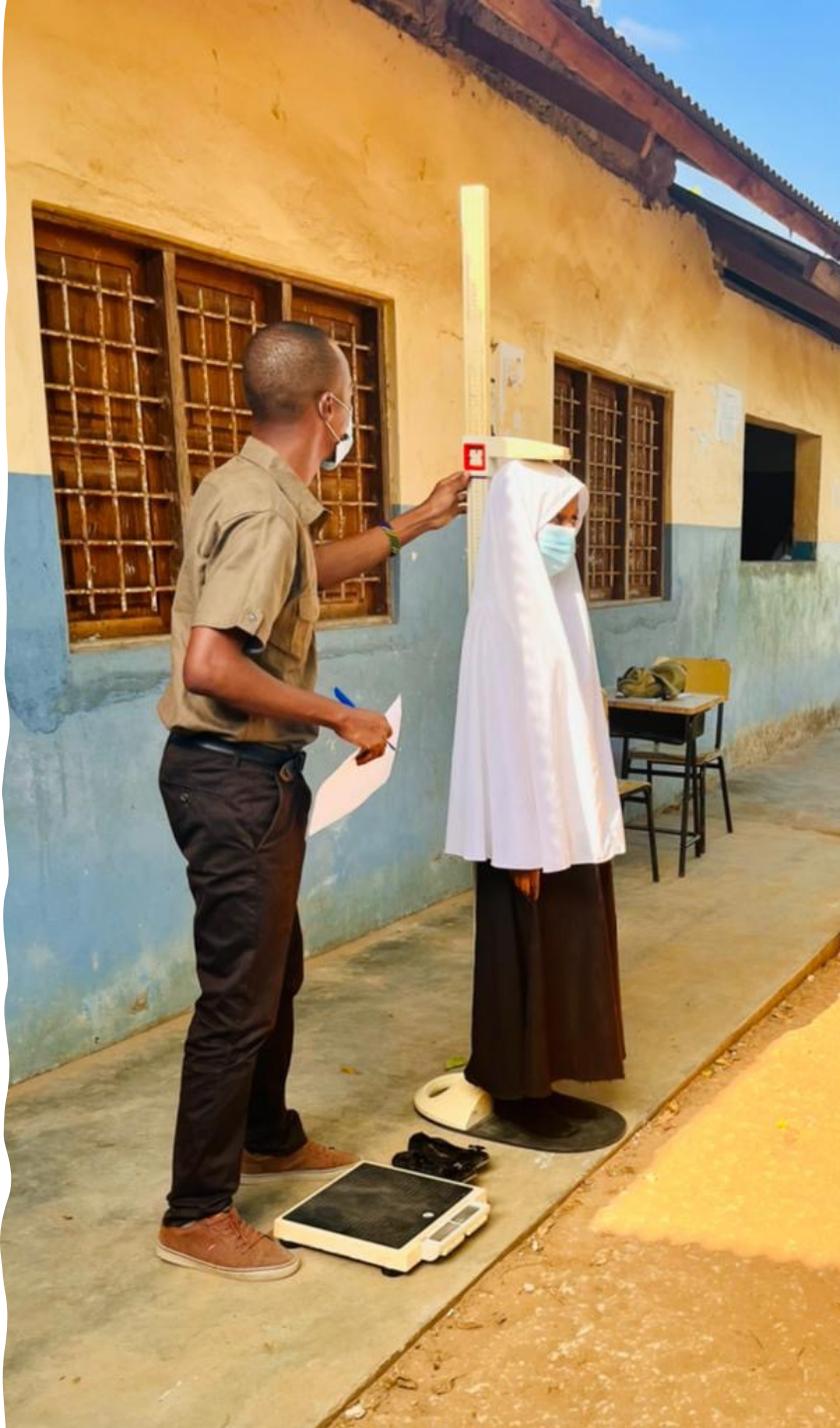Research | Training | Practice

For better public health

Presentation Outline

Overview of AAPH projects

Preliminary results

Discussion & way forward

Rutubisha Afya Zanzibar – Scaling-up high-impact micronutrient supplementation interventions to improve adolescents' nutrition and health in Zanzibar.

- The project aims to implement and evaluate school-based micronutrient supplementation and educational interventions to improve adolescent nutrition, health and education in Tanzania.

- Cluster randomized study with 3 arms which enrolled 42 schools in Unguja Island (14 schools per arm) .

ARMS
1) Supplementation and education program **weekly IFA**
2) Supplementation and education program with **daily MMS**
3) Controls.

Preliminary results

Adolescent Age

0.3

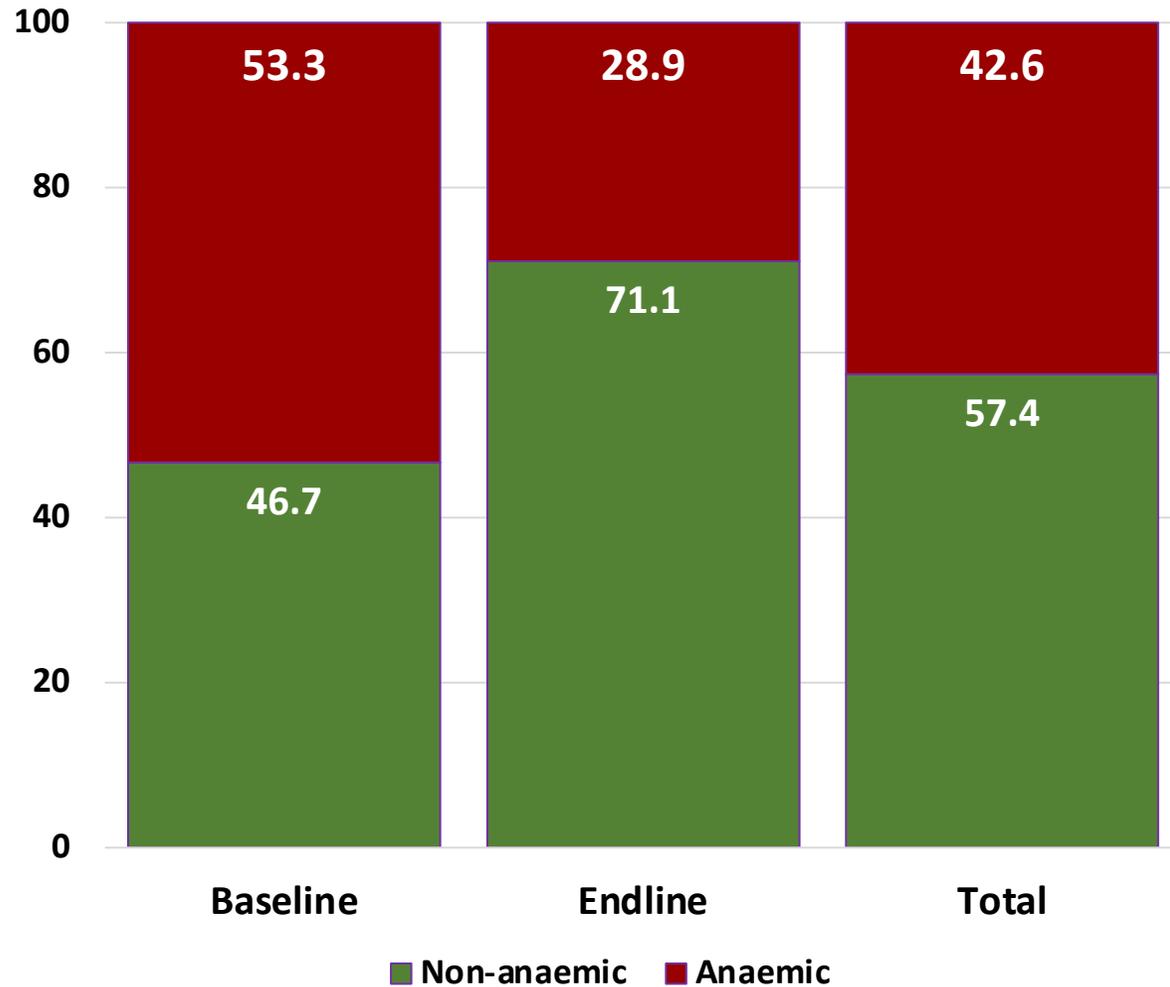36.6

63
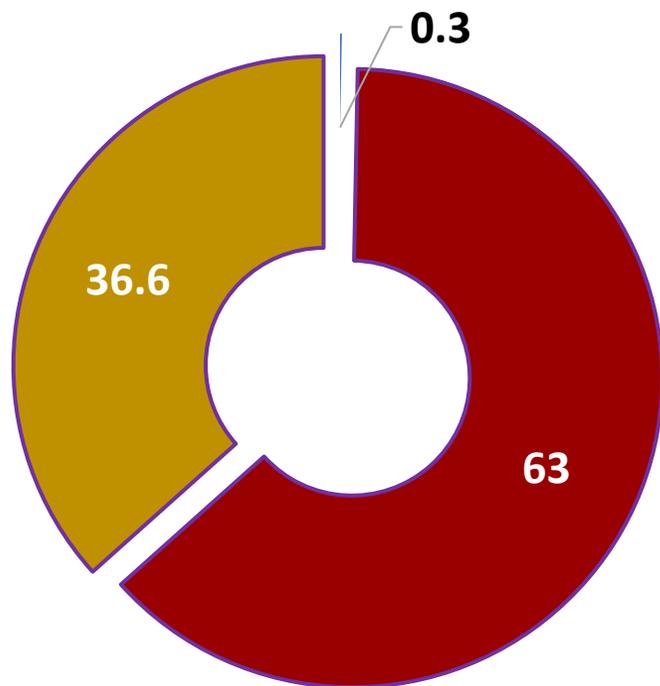
■ <12 years   ■ 12-14 years   ■ >14 years

Gender

Female   62.9

Male   37.1

- Majority of adolescents are 12- 14 years old.

- Most are females.

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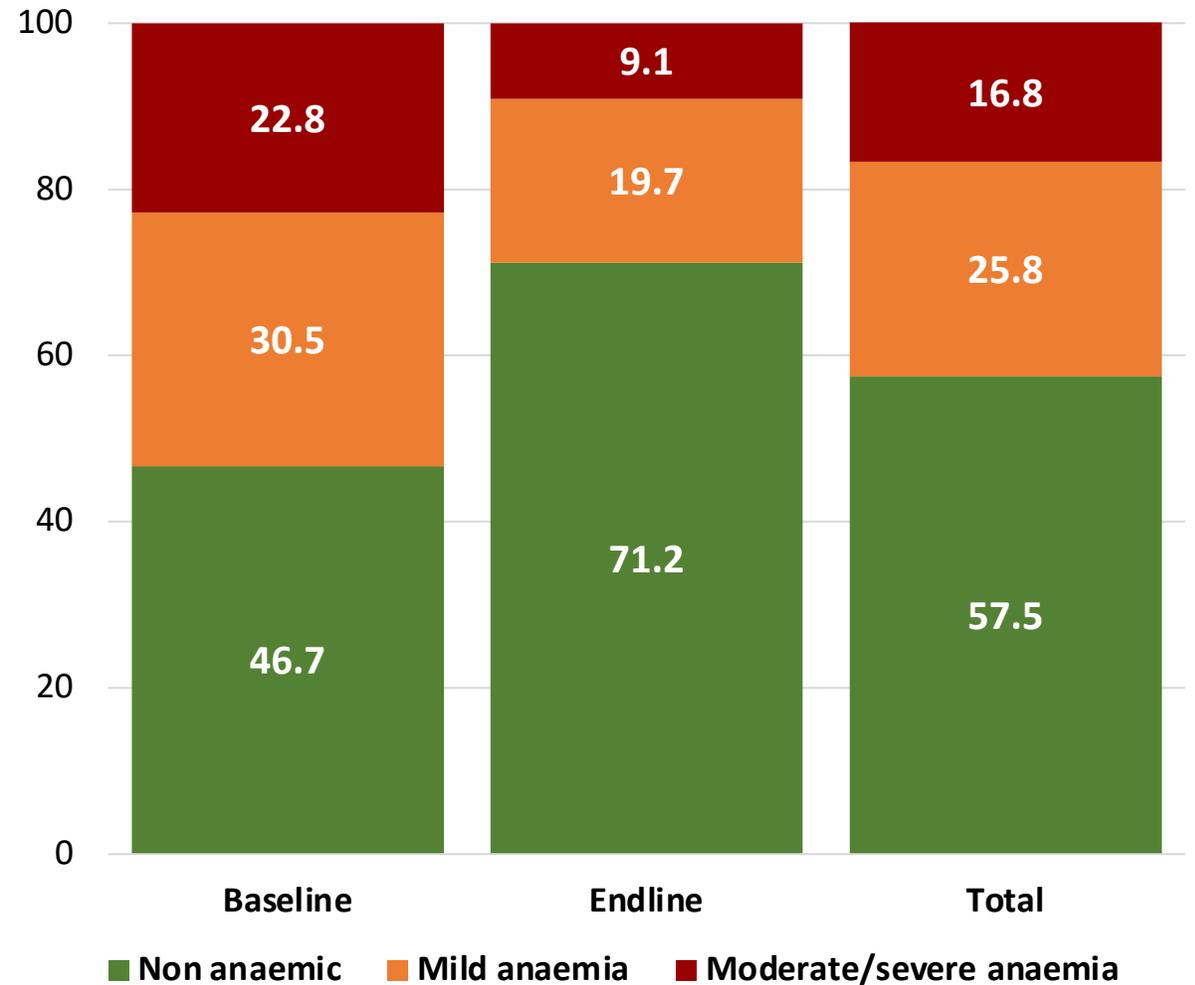Research | Training | Practice

Preliminary results

Anaemia

- Prevalence of anaemia decreased from 53.3% to 28.9%.

Anaemia Categories

- Prevalence of severe anaemia decreased from 22.8% to 9.1%.

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Preliminary results

- Dietary patterns in the past 24 hours prior survey remain relatively unchanged.

24 hrs dietary patterns

	0-3 food groups	4-5 food groups	6+ food groups
Total	21.6	32.7	45.7
Endline	19.6	34.8	45.7
Baseline	23.3	31.1	45.7
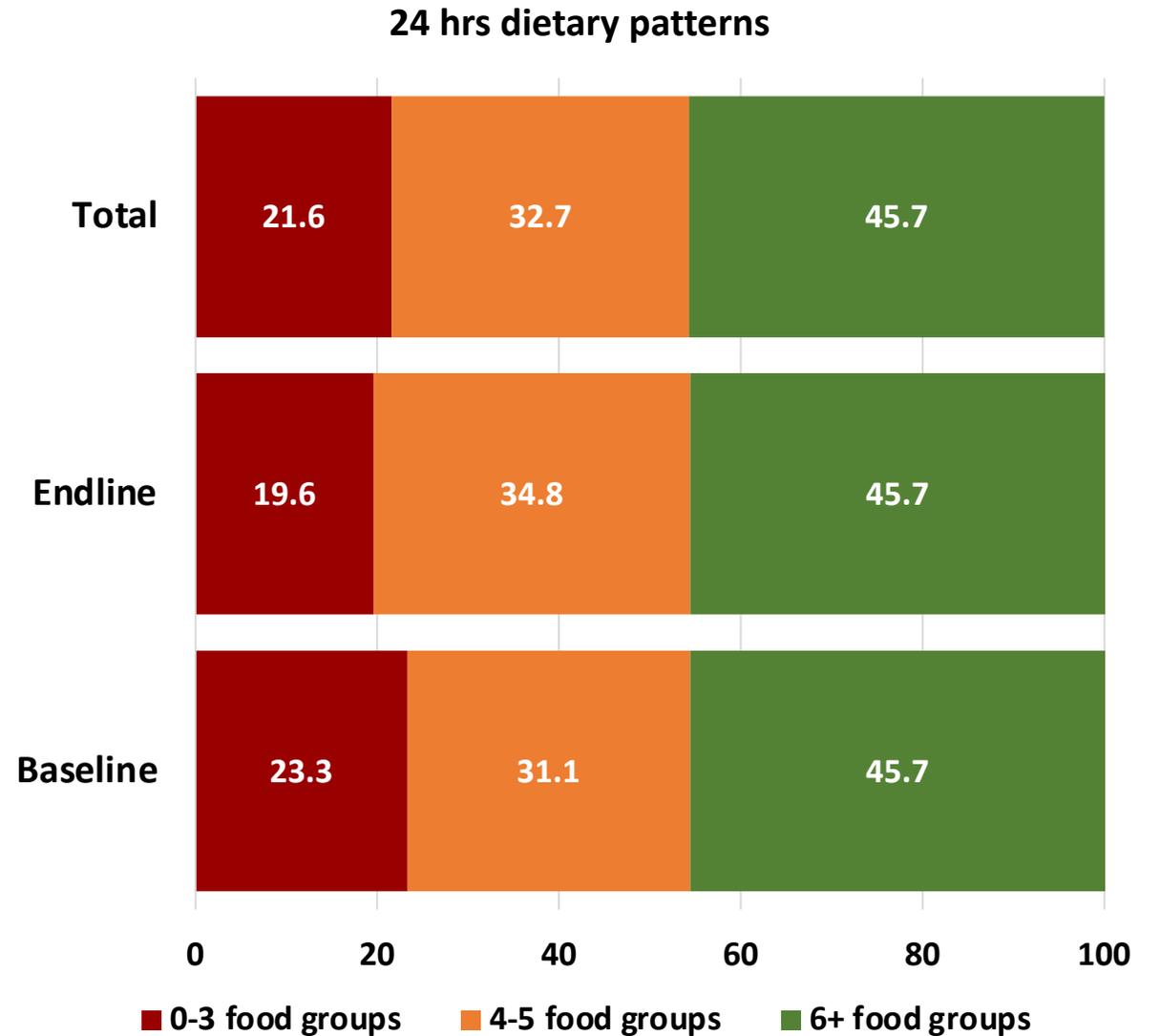
Preliminary results

Handwashing methods

Total: Proper 74.7, Improper 25.3
Endline: Proper 76.9, Improper 23.1
Baseline: Proper 73, Improper 27

Legend: Proper, Improper

Physical activity by Gender

Total: None 9.4, 1-3 days 28.5, More than 4 days 62.1
Female: None 7, 1-3 days 21.5, More than 4 days 71.6
Male: None 13.4, 1-3 days 40.4, More than 4 days 46.2

Legend: None, 1-3 days, More than 4 days
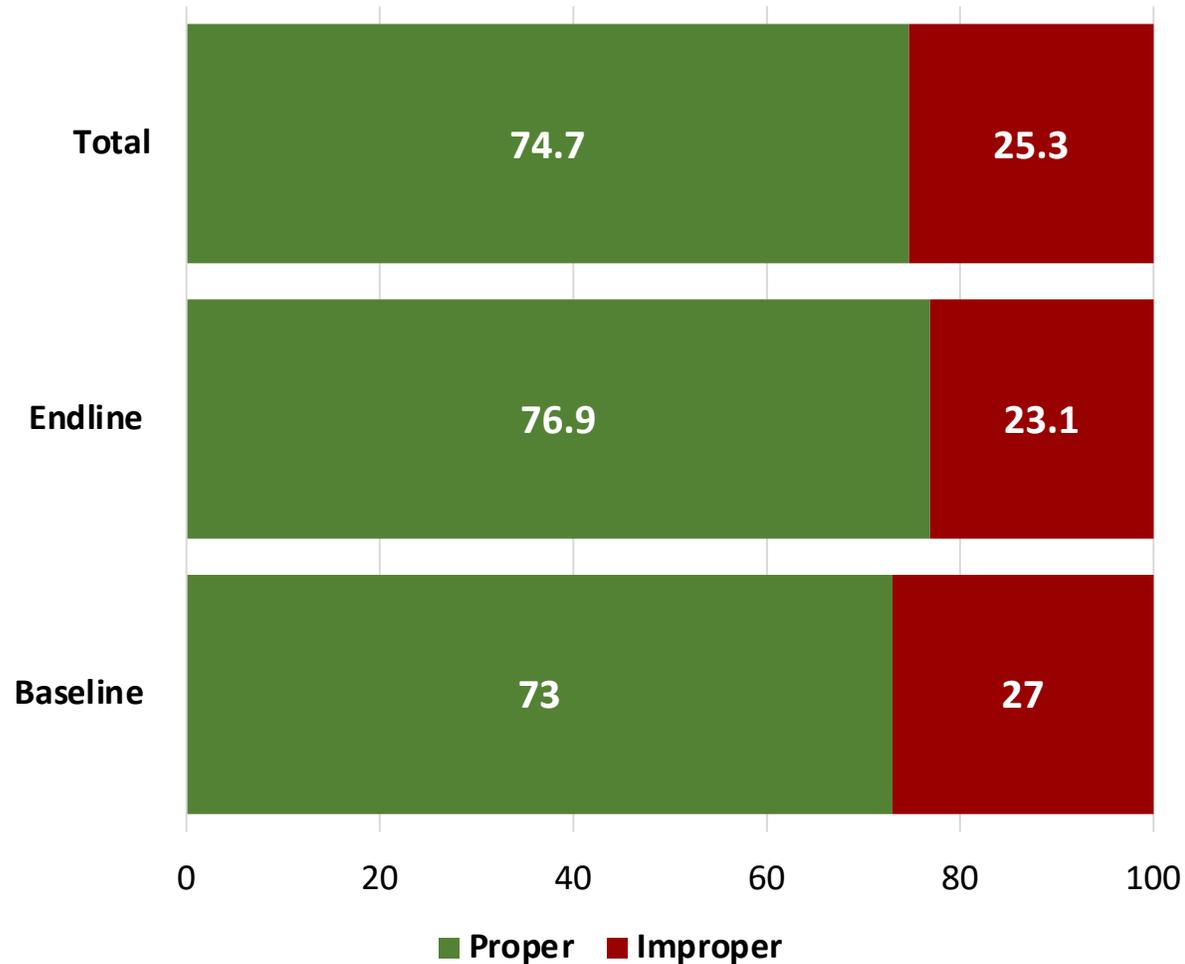
- 25.3% of adolescents have improper handwashing methods (water alone).

- Majority of adolescents are phyisically active.

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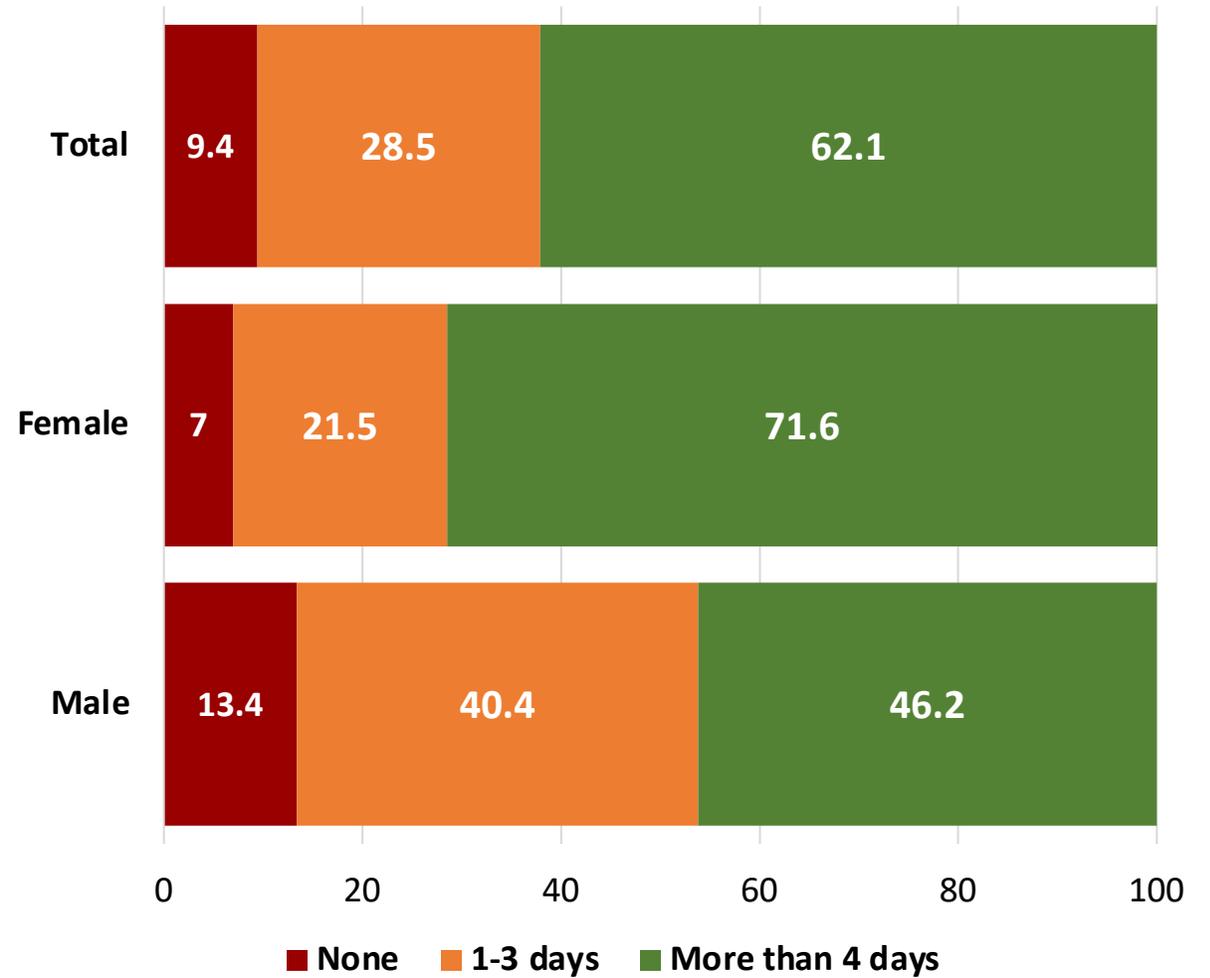
Preliminary results

Mental Health Characteristics

Thoughts or plans about suicide or self-harm.
- Don't know: 3.7
- Some/most/all the time: 0.6
- Hardly ever: 95.7

Feeling worried, nervous, panicky, tense, keyed up, or anxious.
- Don't know: 2
- Some/most/all the time: 6.6
- Hardly ever: 91.2

Stunted — Baseline 10.7, Endline 11.6, Total 11.06
Malaria diagnosis — Baseline 3.1, Endline 1.3, Total 2.3
Underweight — Baseline 5.2, Endline 5.1, Total 5.1
overweight/obese — Baseline 12.8, Endline 12.5, Total 12.7

Legend: Baseline, Endline, Total

- 6.6% of adolescents report to feel worried/anxious some/most/all the time.
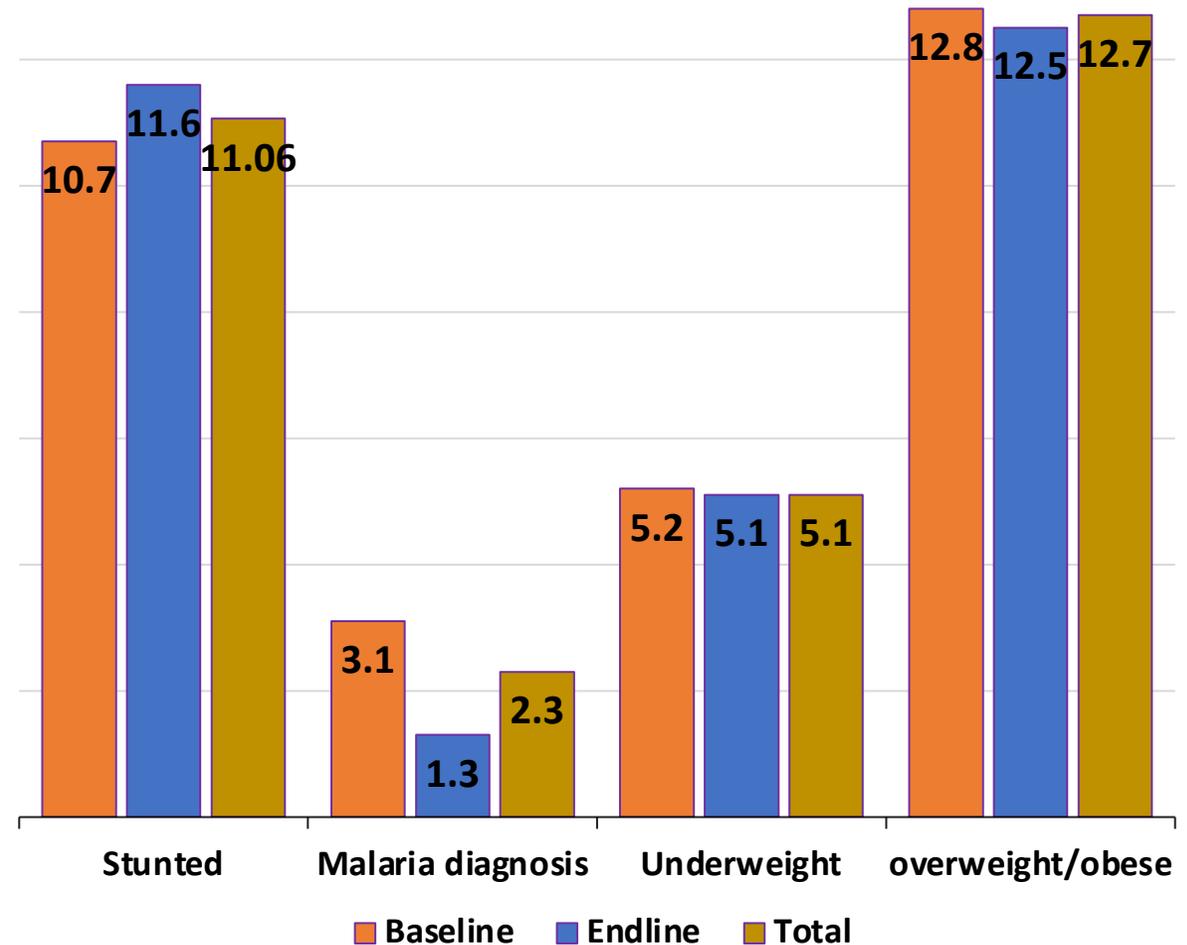
- Stunting, BMI, and malaria diagnosis did not significantly vary between surveys

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Preliminary results

- Females are 46% more likely to be anaemic compared to males.

- Older adolescents are less likely to be anaemic compared to younger ones.

- Odds of anaemia is lower in both IFA and MMS arms compared to controls.

- Odds of anaemia are lower during endline compared to baseline study rounds.

Unadjusted logistic regression of factors associated with Anaemia among adolescents		
Variables	**Anemia (N/Y)**	
	Crude OR (95% CI)	**P-value**
Sex		
Male	Ref	<0.001
Female	1.46(1.29-1.65)	
Age_cat		
<12 years	Ref	
12-14 years	0.38(0.13-1.12)	0.0790
>14 years	0.35(0.12-1.02)	0.0550
Arm		
Control	Ref	
MMS	0.76(0.66-0.88)	<0.001
IFA	0.9(0.77-1.04)	0.1460
Study round		
Baseline	Ref	<0.001
Endline	0.36(0.31-0.4)	

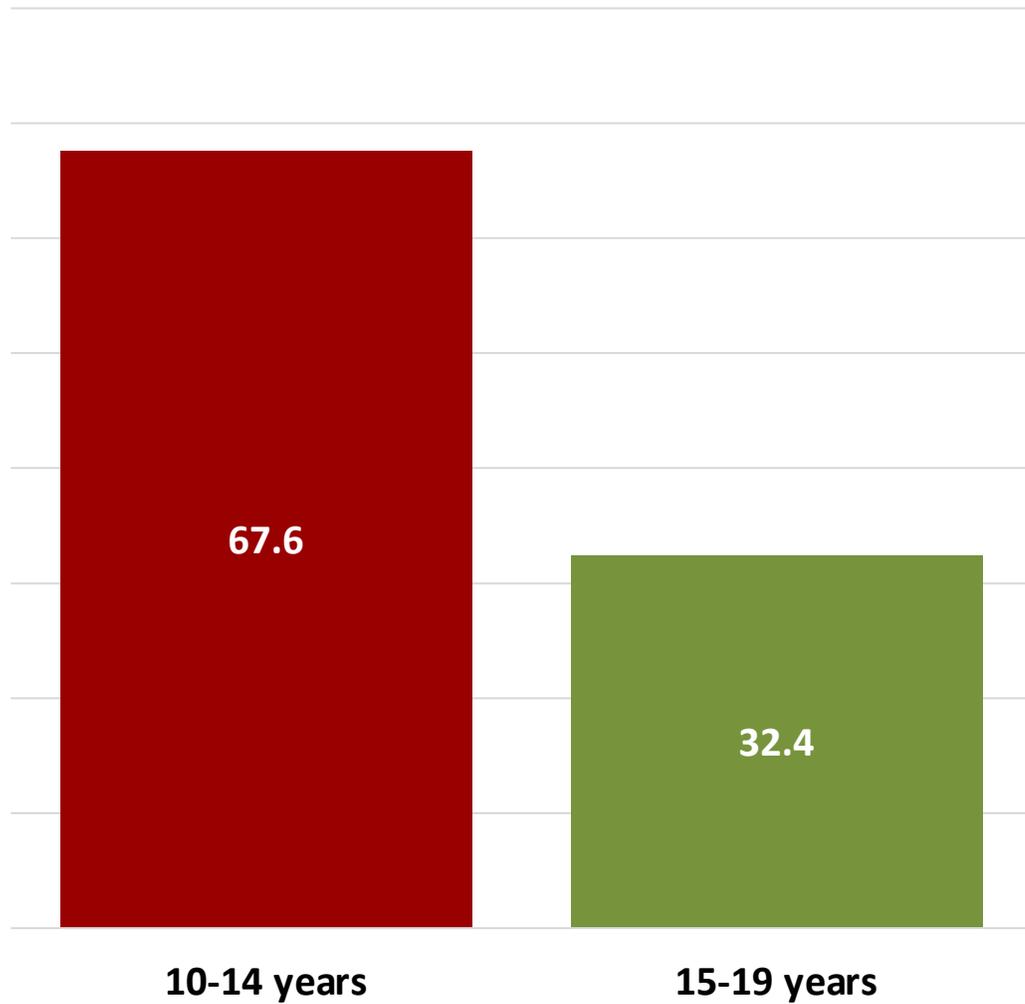AAPH Africa Academy for Public Health
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Harnessing longitudinal data and digital technologies to improve adolescent health in Tanzania.

- School and community-based adolescent health project in recognition that adolescents have specific health needs that differ from other age groups.

- Longitudinally implementing a standardized instrument to collect key adolescent health indicators in LMICs across seven diverse community settings in sub-Saharan Africa (SSA) including Tanga, Tanzania.

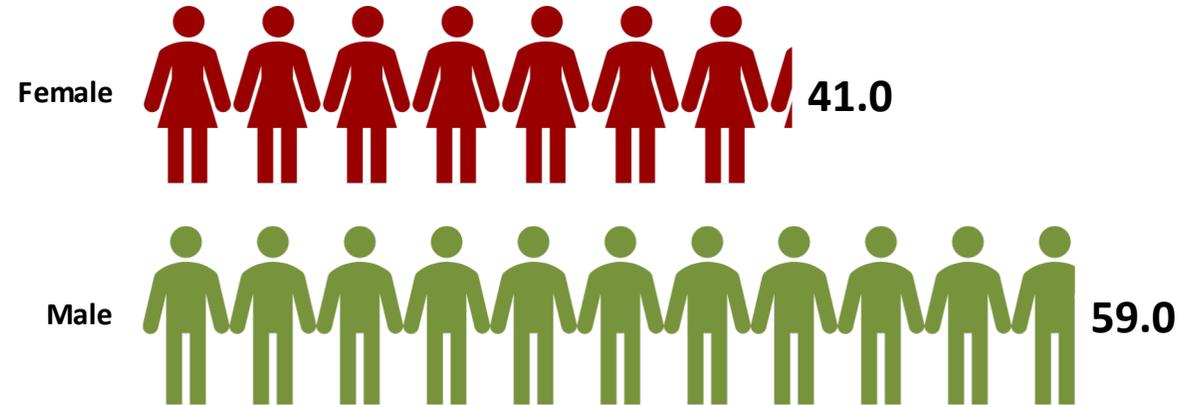- Evaluate effectiveness of digital approaches in collecting key adolescent health indicators.
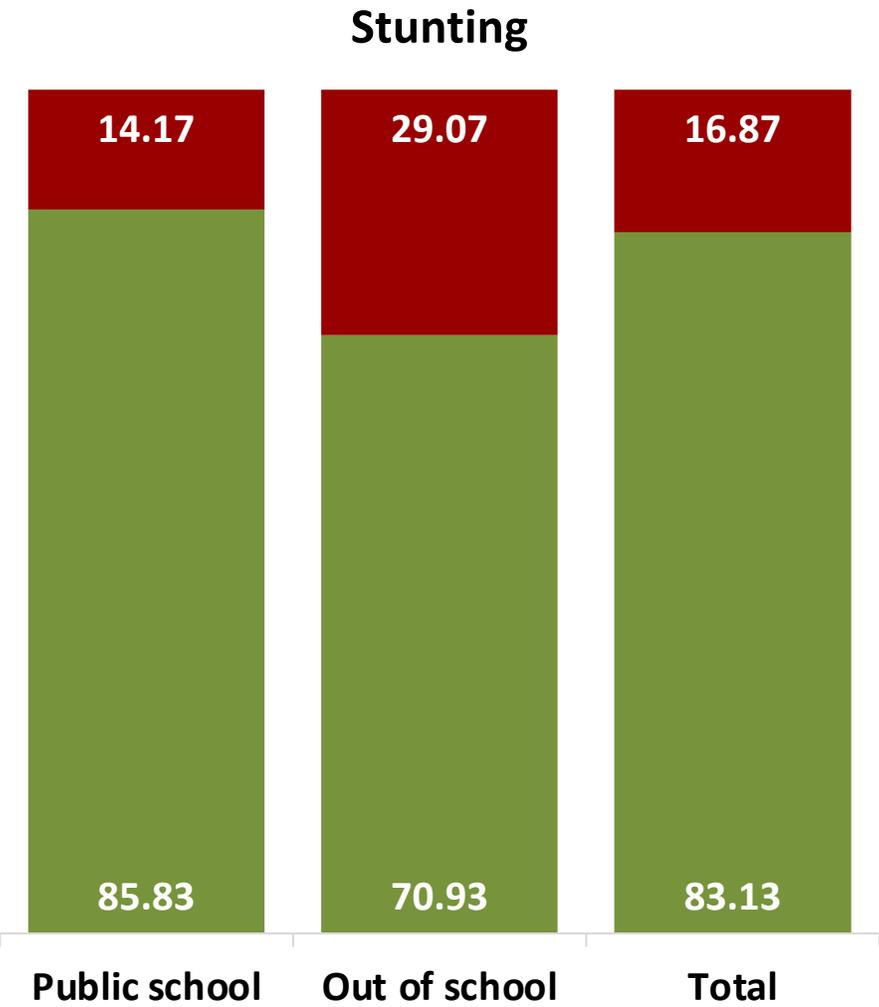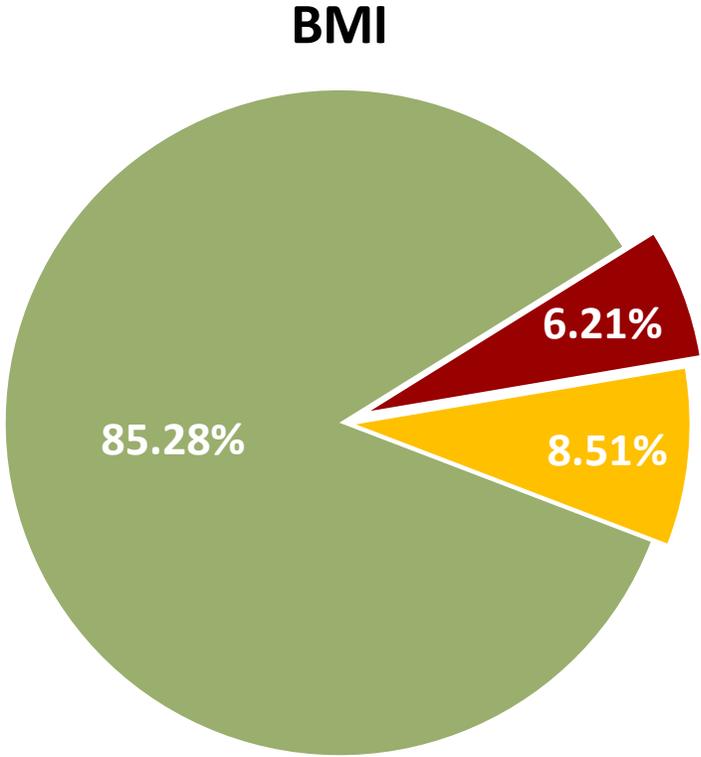
Preliminary results

Age

Gender

Female — 41.0

Male — 59.0

67.6 (10-14 years)

32.4 (15-19 years)

- 59% are males.
- Majority are 10 -14 years old.

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Preliminary results

Stunting

	Public school	Out of school	Total
Stunted	14.17	29.07	16.87
Normal	85.83	70.93	83.13

Legend: ■ Normal ■ Stunted

- 16.8% are stunted (more among out of school adolescents).

BMI

- Normal: 85.28%
- Underweight: 6.21%
- Overweight/obese: 8.51%

Legend: ■ Normal ■ Underweight ■ Overweight/obese

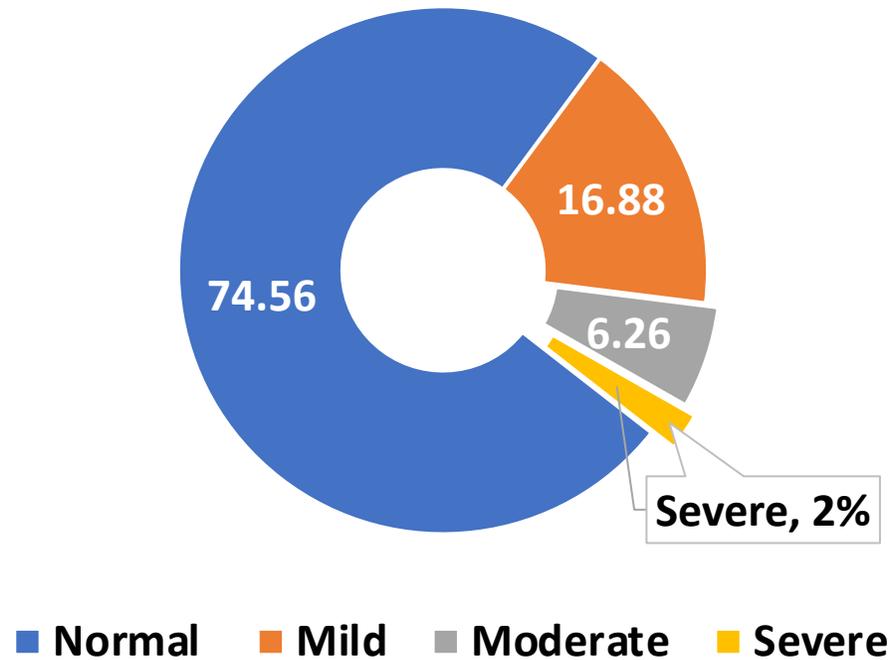- 6.2% are underweight & 8.5% are overweight – Double burden of malnutrition.

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Preliminary results

Anaemia

- 63.28%
- 17.92%
- 18.79%

■ Normal ■ Mild anaemia ■ Moderate/severe anaem

How did you pay for health services?

Other — 0.33

Exemption — 0.88

Cash — 86.20

Health insurance — 12.58
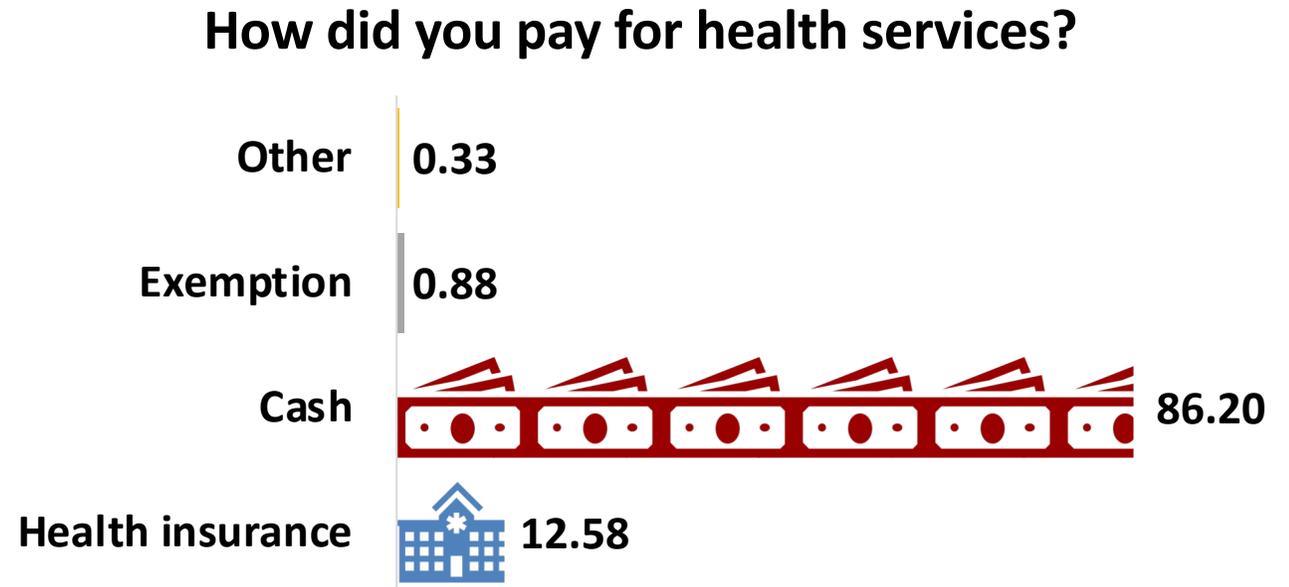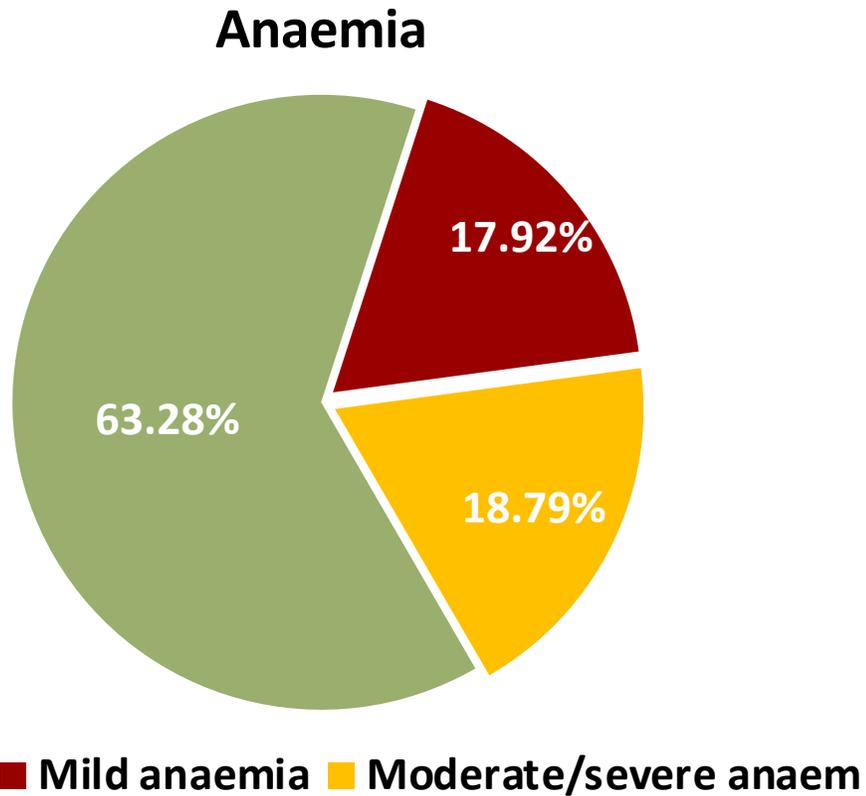
- 36% are anemic (mild, moderate, severe).

- Ony 12.6% of adolescents who visited HF had health insurance.

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Preliminary results

Anxiety and depression score (N= 1262)

- Normal
- Mild
- Moderate
- Severe

Severe, 2%

- 25% had experienced anxiety/depression.

During the past week, on how many days were you physical

	None	1-3 days	4-5 days	6-7 days
Female	17.95	32.24	20.66	29.15
Male	10.48	28.49	18.15	42.88
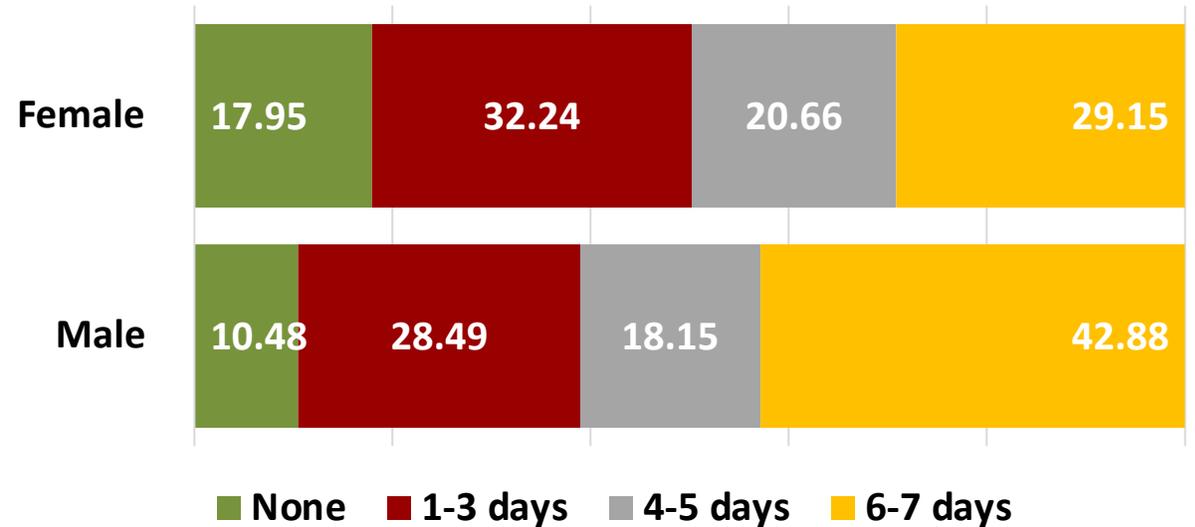
- Males are more physically active than females.

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Age first smoked

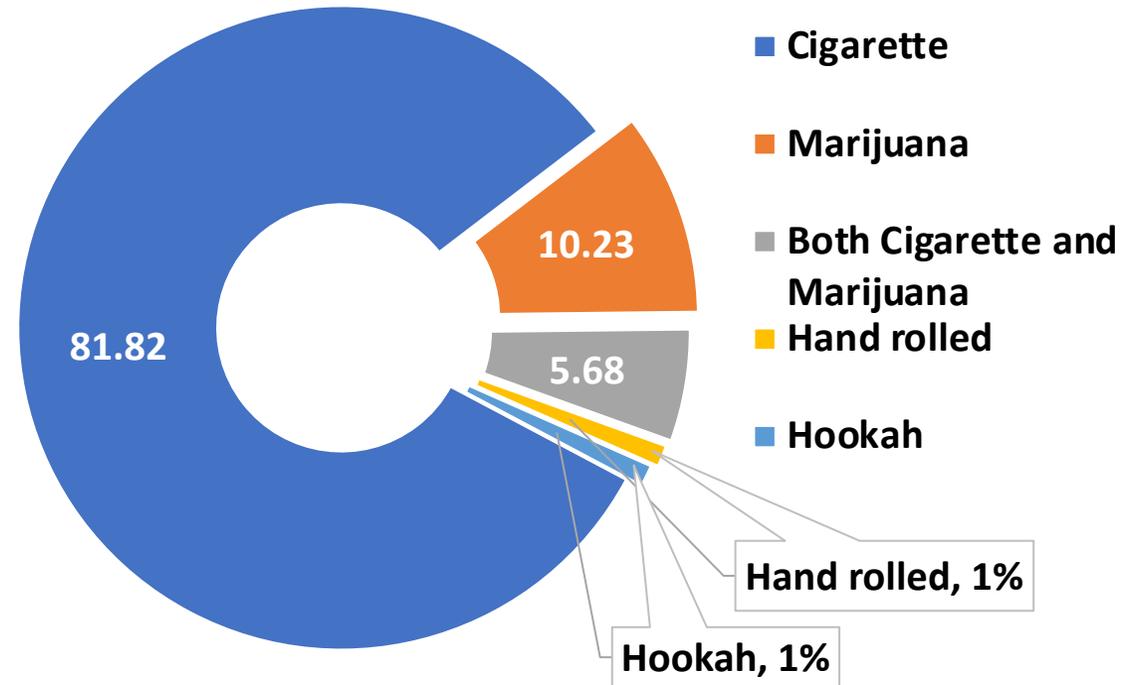|	Public school	Out of school	Total
15-19 years	41.67	65.63	59.09
Less than 14 years	58.33	34.38	40.91

■ Less than 14 years   ■ 15-19 years

- Majority of out of school adolescents first tried smoking between 15 – 19 years of age.

Which one did you smoke first


- Cigarette — 81.82
- Marijuana — 10.23
- Both Cigarette and Marijuana — 5.68
- Hand rolled, 1%
- Hookah, 1%

- Most adolescents first tried cigarettes followed by marijuana.

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MEGA - Meals, Education and Garden for inschool Adolescents in Dodoma

- Project designed to address and assess nutrition, Water Sanitation and Hygiene (WASH), knowledge, attitude and practice gap regarding nutrition among School adolescents.

- 6 schools in Chamwino District Council Dodoma Tanzania.

- Cluster-randomized design and mixed methods evaluation.

- 4 interventions: (1) School garden, (2) school meal program, (3) agriculture, nutrition, and water, sanitation, and hygiene (WASH) education, and (4) community workshops.
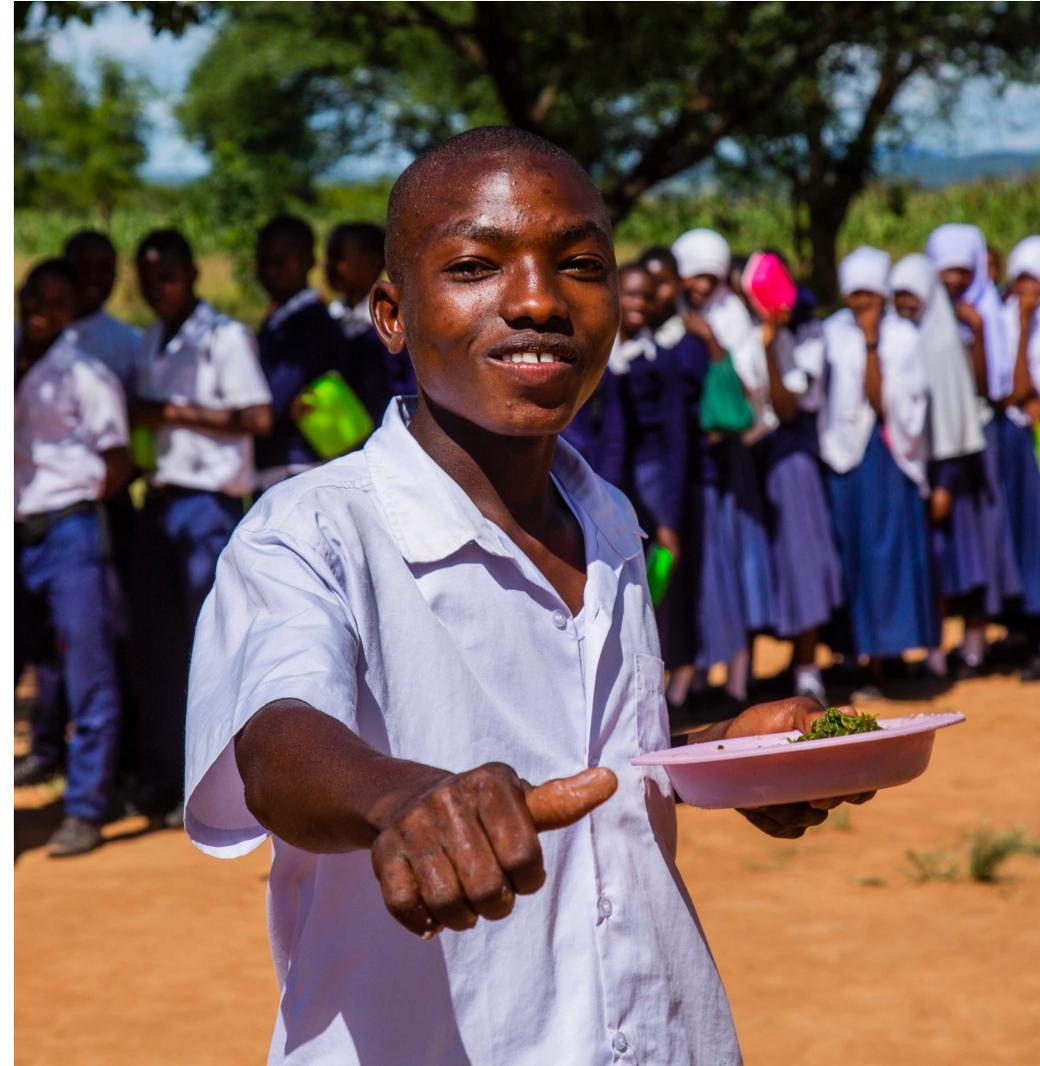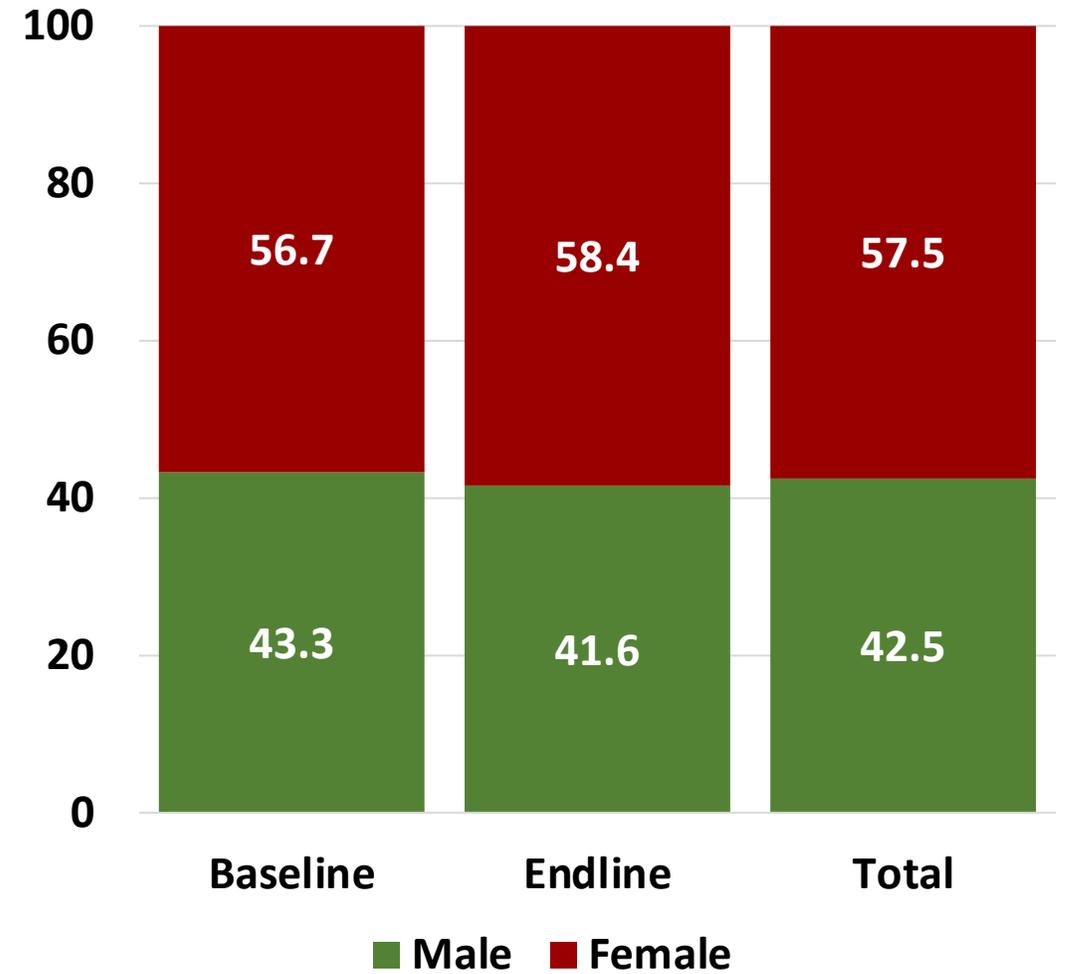
Preliminary results
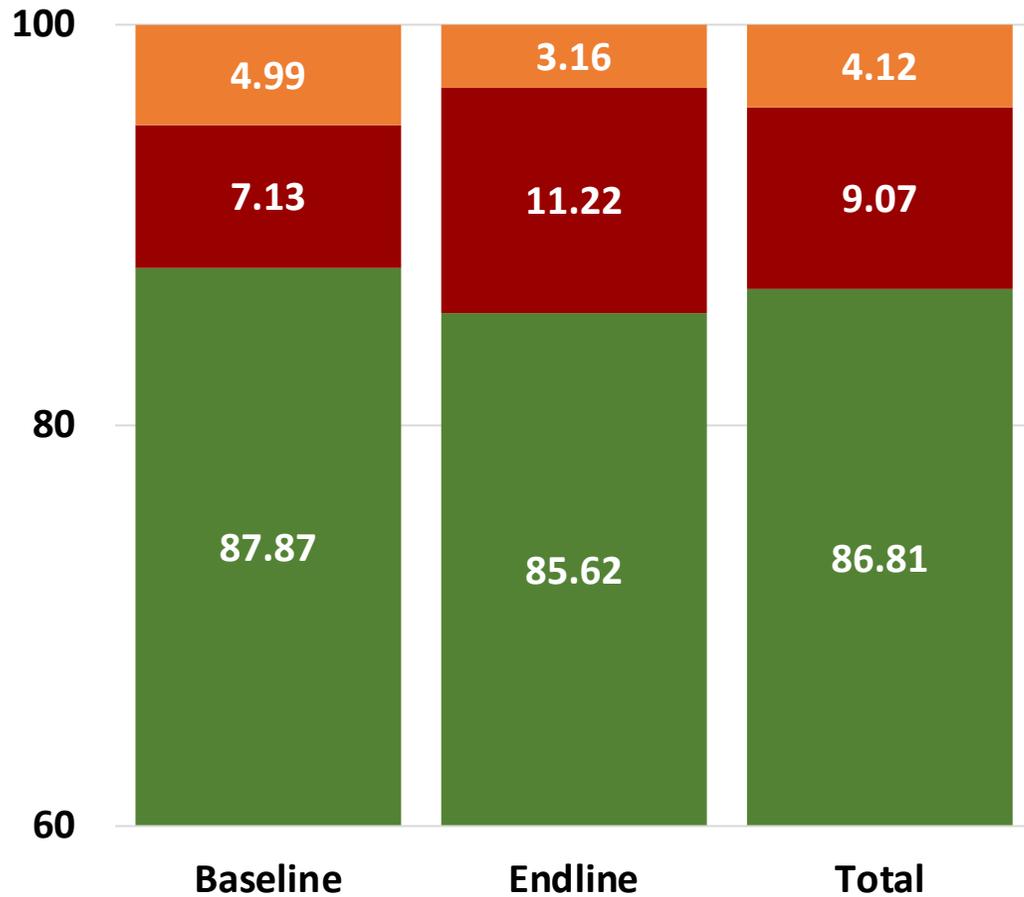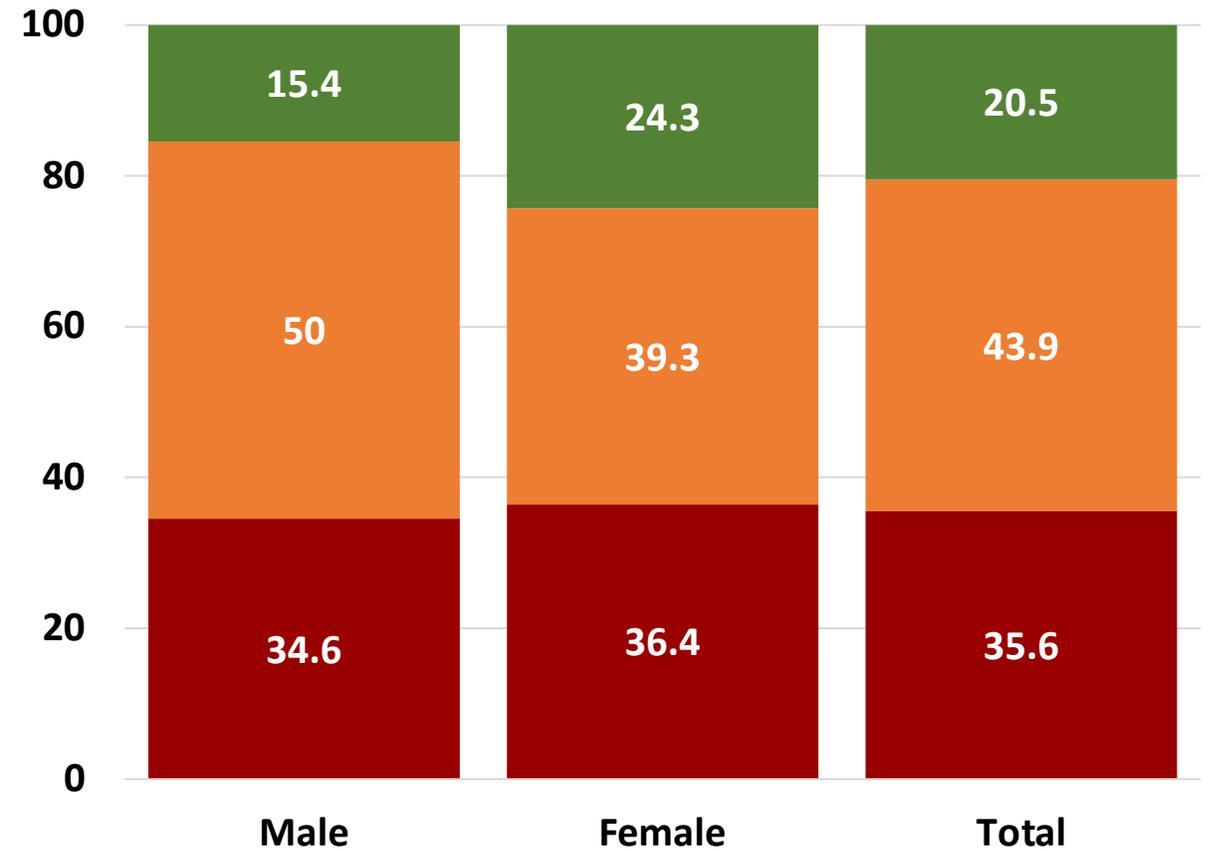
Age
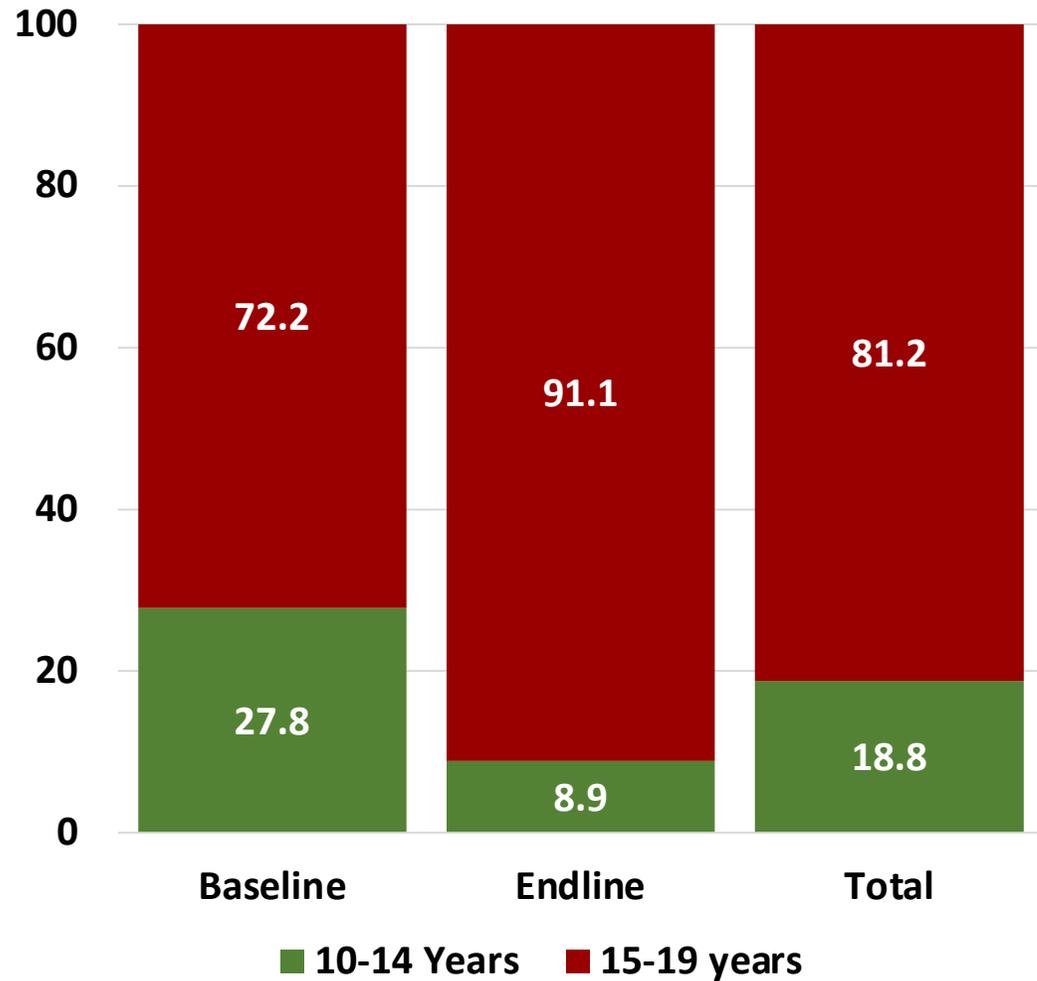
- Majority aged 15 – 19 years.

Gender

- Majority of participants are females.

Preliminary results

BMI

Baseline: overweight/obese 4.99, underweight 7.13, normal 87.87
Endline: overweight/obese 3.16, underweight 11.22, normal 85.62
Total: overweight/obese 4.12, underweight 9.07, normal 86.81

Legend: normal, underweight, overweight/obese

Physical activity by gender

Male: 4 and more 15.4, 1-3 days 50, None 34.6
Female: 4 and more 24.3, 1-3 days 39.3, None 36.4
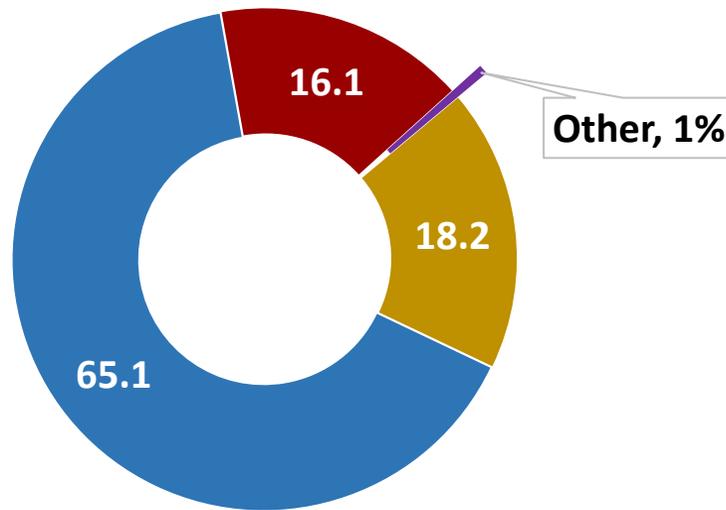Total: 4 and more 20.5, 1-3 days 43.9, None 35.6

Legend: None, 1-3 days, 4 and more

- Prevalence of overweight decreased from 4.9% to 3.2% between baseline and endline.

- Physical activity did not vary significantly by gender.

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Preliminary results

Source of drinking water

16.1
18.2
65.1
Other, 1%

- The water that is piped to my house
- The water that is piped in my neighborhood
- Water from a well, spring, river or lake
- Other

- Majority of adolescents have water piped to neighborhood.

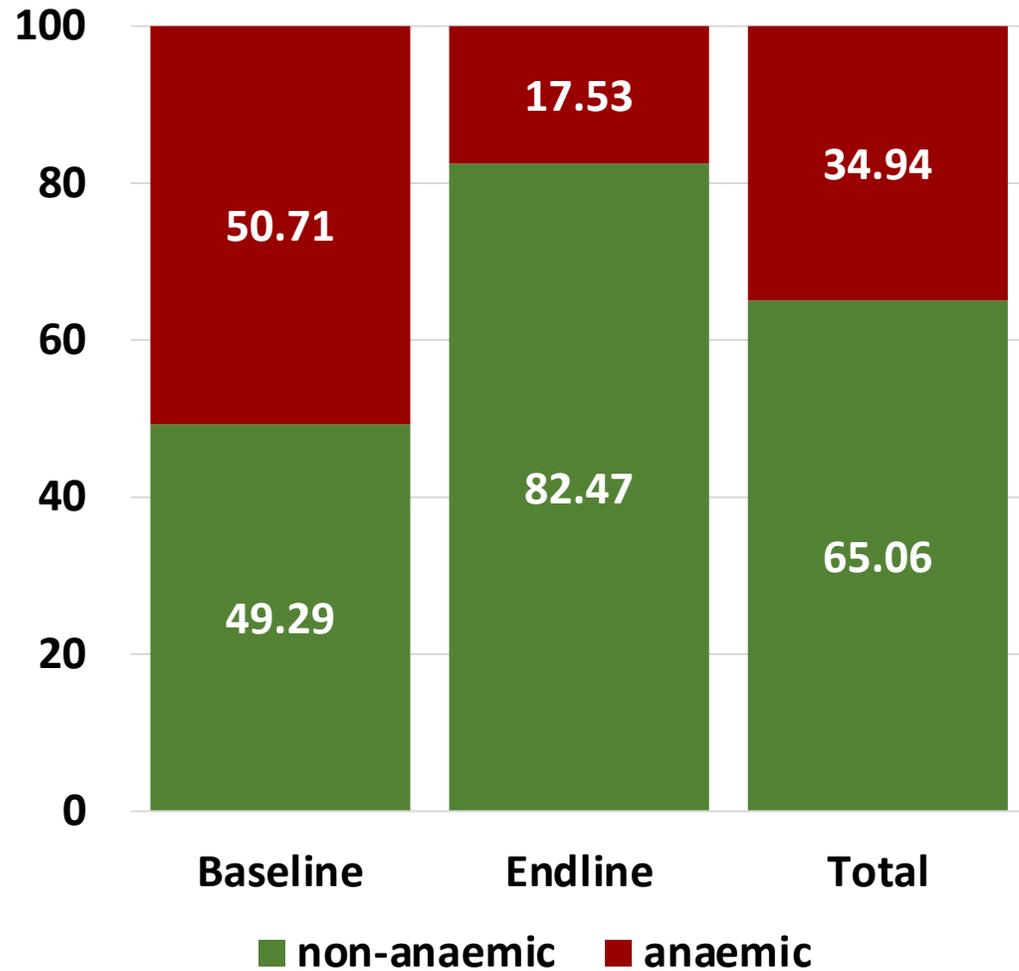## Household does anything to make water safer to drink

31.4
68.6
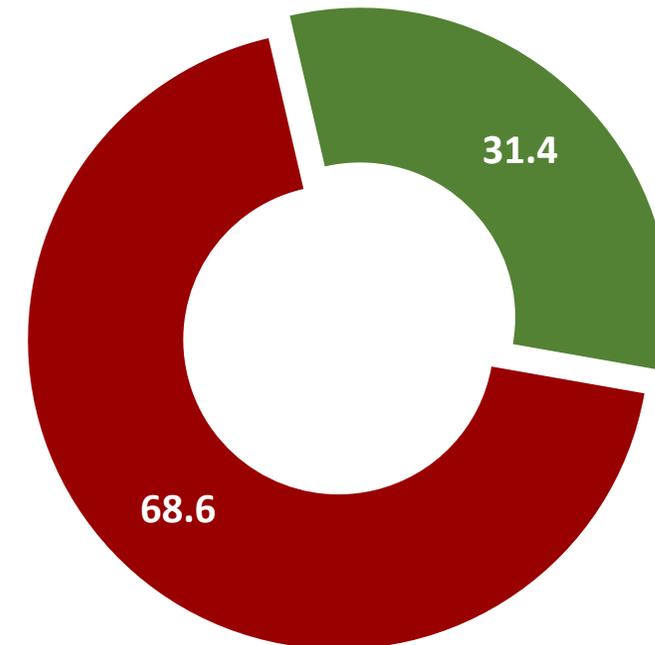
- No - Yes

- 69% do not do anything to make water safe to drink.

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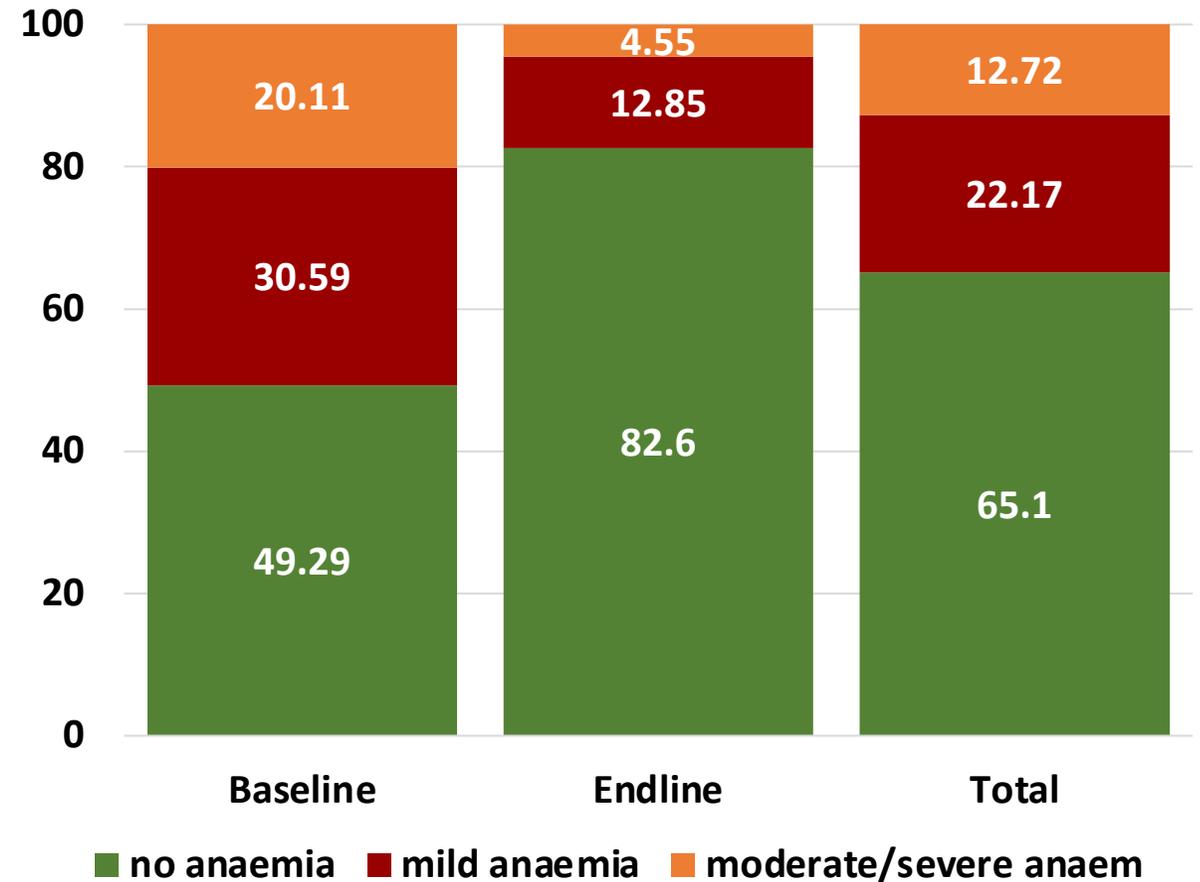
Anaemia

- Anemia decreased from 50.7% to 17.5% from baseline to endline.

Anaemia Categories

- Moderate/severe anaemia decreased from 20.1% to 4.5% from basleine to endline.

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Preliminary results

- Odds of anaemia are lower in both full and partial intervention arms.

- Odds of anaemia are lower during endline compared to baseline study rounds.

Unadjusted logistic regression of factors associated with Anaemia among adolescents		
Variables	**Anemia (N/Y)**	
	Crude OR (95% CI)	**P-value**
Arm		
Control	Ref	
Full intervention	0.55 (0.42 – 0.73)	<0.001
Partial Intervention	0.53 (0.4 – 0.7)	<0.001
Study round		
Baseline	Ref	
Endline	0.21 (0.16 – 0.27)	<0.001

Discussion and way forward

- Tanzania currently faces DBM.

- Urgent adolescent tailored mitigation strategies are required to prevent associated diseases in adulthood.

- Potential in-school interventions include;
  - Promotion of school gardens.
  - Provision of school meals.
  - Nutrition education & WASH.
  - Supplementation initiatives.

Thank you!