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Introduction

The World Health Organization defines health as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.”¹ Mental health, physical health, and sexual and reproductive health (SRH) are three facets of health that menstrual health may impact.

In the Adolescent Menstrual Experiences and Health Cohort (AMEHC) Study, mental health measures focus specifically on depression, anxiety, and stress. For physical health, we look specifically at symptoms of urogenital (urinary tract and genital tract) infections. Other physical health outcomes of interest include access to care and self-care practices related to menstrual pain and heavy menstrual bleeding (note that these measures are provided under the ‘Menstrual Pain, Heavy Bleeding and Healthcare Summary’. SRH measures in this document focus on early marriage and pregnancy. As the AMEHC participant group reaches old ages, further SRH measures will be added.

Reasons to include **mental health** measures in your work:

- To describe the levels of anxiety, depression, and stress among participants
- To test how menstrual health experiences influence mental health outcomes

Reasons to include **urogenital infection** measures in your work:

- To describe the level of urogenital symptoms that participants are experiencing
- To explore the relationship between menstrual practices and urogenital infections

Reasons to include **early marriage and pregnancy** measures in your work:

- To describe levels of early pregnancy and early marriage among participants
- To explore the relationship between menstrual practices and early pregnancy and early marriage
- To explore how positive body image and autonomy around menstrual health and hygiene practices influence early pregnancy and early marriage

Overview of Mental Health: Depression, Anxiety, and Stress Measures

| | |
|---------------------------------------|---|
| Definition | “A state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community” ² |
| Importance to Menstrual Health | Poor menstrual health may affect the mental well-being of girls by increasing the likelihood of experiencing anxiety and depression, as well as diminishing overall wellness through various avenues. Factors such as stress related to managing menstruation, untreated menstrual pain, feelings of shame associated with menstruation, withdrawal from social interactions, and teasing from peers are all instances that could intensify preexisting anxieties or depressive feelings and foster social isolation and depression. ³ |
| Measurement Method | All questions: Self-reported by girls on an enumerator-administered survey |
| General Considerations | More support around the DASS questions can be found here . |
| Question Source | DASS questions: Szabo M, Lovibond PF. Development and Psychometric Properties of the DASS-Youth (DASS-Y): An Extension of the Depression Anxiety Stress Scales (DASS) to Adolescents and Children. <i>Front Psychol.</i> 2022;13:766890. doi:10.3389/fpsyg.2022.766890 |

| Construct’s Main Use in the AMEHC Study | | | |
|---|----------------------|----------------|-----------------------------|
| Proximal Exposure for: | Distal Exposure for: | Covariate for: | Outcome for: |
| | | | Menstrual health experience |

| Included in the Following AMEHC Study Activities* | | | | | |
|---|---------------------------|-----------------------|------------------------|---------------------|---------------------|
| Baseline Girls Survey | Baseline Guardians Survey | Baseline School Audit | Sub-cohort 1 Survey | Sub-cohort 2 Survey | Sub-cohort 3 Survey |
| X | | | | | X |
| Wave 1 Survey | Wave 1 School Audit | Wave 2 Survey | Wave 2 Guardian Survey | Wave 2 School Audit | |
| X | | X | | | |

*Specific questions varied over different data collection activities according to study needs.

Mental Health Survey Questions in AMEHC

| Question Number | Question | Response Options |
|--|---|---|
| <p>Instructions for DASS Questions: During adolescence, we know that people your age often experience emotional ups and downs, for example feeling really happy one day and really sad another day. That is normal. Here we would like to better understand if you experience emotional lows a lot. We would like to know a little about how you are feeling. I am going to read a series of statements, and I want to understand how true this was of you over the past week.</p> | | |
| DASSY3 | <p>You did not enjoy anything</p> <p>[Back translation: nothing makes you feel good]</p> | <ul style="list-style-type: none"> • NOT TRUE for you • A LITTLE TRUE for you • FAIRLY TRUE for you • VERY TRUE for you |
| DASSY2 | <p>You felt dizzy, like you were about to faint</p> | <ul style="list-style-type: none"> • NOT TRUE for you • A LITTLE TRUE for you • FAIRLY TRUE for you • VERY TRUE for you |
| DASSY4 | <p>You had trouble breathing (e.g. fast breathing) even though you were not exercising or were not sick</p> | <ul style="list-style-type: none"> • NOT TRUE for you • A LITTLE TRUE for you • FAIRLY TRUE for you • VERY TRUE for you |
| DASSY5 | <p>You hated your life</p> | <ul style="list-style-type: none"> • NOT TRUE for you • A LITTLE TRUE for you • FAIRLY TRUE for you • VERY TRUE for you |
| DASSY7 | <p>Your hands felt shaky</p> | <ul style="list-style-type: none"> • NOT TRUE for you • A LITTLE TRUE for you • FAIRLY TRUE for you • VERY TRUE for you |
| DASSY9 | <p>You felt terrified</p> | <ul style="list-style-type: none"> • NOT TRUE for you • A LITTLE TRUE for you • FAIRLY TRUE for you • VERY TRUE for you |
| DASSY10 | <p>There was nothing nice you could look forward to</p> | <ul style="list-style-type: none"> • NOT TRUE for you • A LITTLE TRUE for you • FAIRLY TRUE for you • VERY TRUE for you |

| | | |
|---------|---|---|
| DASSY13 | You could not stop feeling sad | <ul style="list-style-type: none"> • NOT TRUE for you • A LITTLE TRUE for you • FAIRLY TRUE for you • VERY TRUE for you |
| DASSY15 | You felt like you were about to panic | <ul style="list-style-type: none"> • NOT TRUE for you • A LITTLE TRUE for you • FAIRLY TRUE for you • VERY TRUE for you |
| DASSY16 | <p>You hated yourself</p> <p>[Back translation: You really didn't like yourself]</p> | <ul style="list-style-type: none"> • NOT TRUE for you • A LITTLE TRUE for you • FAIRLY TRUE for you • VERY TRUE for you |
| DASSY17 | <p>Over the past week...</p> <p>You felt like you were no good</p> | <ul style="list-style-type: none"> • NOT TRUE for you • A LITTLE TRUE for you • FAIRLY TRUE for you • VERY TRUE for you |
| DASSY19 | You could feel your heart beating really fast, even though you hadn't done any exercise | <ul style="list-style-type: none"> • NOT TRUE for you • A LITTLE TRUE for you • FAIRLY TRUE for you • VERY TRUE for you |
| DASSY20 | You felt scared for no good reason | <ul style="list-style-type: none"> • NOT TRUE for you • A LITTLE TRUE for you • FAIRLY TRUE for you • VERY TRUE for you |
| DASSY21 | You felt that life was terrible | <ul style="list-style-type: none"> • NOT TRUE for you • A LITTLE TRUE for you • FAIRLY TRUE for you • VERY TRUE for you |

Overview of Urogenital Symptoms Related to Menstrual Health

| | |
|---------------------------------------|--|
| Definition | Physical health symptoms that affect the urinary or reproductive systems. |
| Importance to Menstrual Health | Menstrual hygiene practices and genital care have been linked to reproductive tract irritation and infections such as bacterial vaginosis. ⁴ As girls age, bacterial vaginosis from could worsen girls' reproductive health outcomes, including increased susceptibility to sexually transmitted infections and higher risk of adverse pregnancy outcomes. ⁴⁻⁹ 2/10/2025 4:50:00 PM |
| Measurement Method | All questions: Self-reported by girls on an enumerator-administered survey |
| General Considerations | |
| Question Source | Hlth1-2: Das P, Baker KK, Dutta A, et al. Menstrual Hygiene Practices, WASH Access and the Risk of Urogenital Infection in Women from Odisha, India. Wilson BA, ed. <i>PLOS ONE</i> . 2015;10(6):e0130777. doi:10.1371/journal.pone.0130777 We also drew from Shah, V., Phillips-Howard, P., Hennegan, J., Cavill, S., Sonko, B., Sinjanka, E., ... & Torondel, B. (2022). Puberty health intervention to improve menstrual health and school attendance among adolescent girls in The Gambia: study methodology of a cluster-randomised controlled trial in rural Gambia (MEGAMBO TRIAL). <i>Emerging Themes in Epidemiology</i> , 19(1), 6. |

| Construct's Main Use in the AMEHC Study | | | |
|---|-----------------------------------|----------------|---|
| Proximal Exposure for: | Distal Exposure for: | Covariate for: | Outcome for: |
| | Mental Health Education SRH | | Menstrual hygiene and genital practices |

| Included in the Following AMEHC Study Activities* | | | | | |
|---|---------------------------|-----------------------|------------------------|---------------------|---------------------|
| Baseline Girls Survey | Baseline Guardians Survey | Baseline School Audit | Sub-cohort 1 Survey | Sub-cohort 2 Survey | Sub-cohort 3 Survey |
| X | | | X | X | X |
| Wave 1 Survey | Wave 1 School Audit | Wave 2 Survey | Wave 2 Guardian Survey | Wave 2 School Audit | |
| X | | X | | | |

*Specific questions varied over different data collection activities according to study needs.

Urogenital Symptoms Survey Questions in AMEHC

| Question Number | Question | Response Options |
|-----------------|---|--|
| Hlth1 | In the past month , have you experienced itching or burning in your genital area | <ul style="list-style-type: none"> • No • Yes |
| Hlth2 | In the past month, have you experienced burning or pain when urinating? | <ul style="list-style-type: none"> • No • Yes |
| Hlth3 | In the past month, have you had to wake up and pass urine more than usual? | <ul style="list-style-type: none"> • No • Yes |
| Hlth4 | In the past month, have you experienced an unpleasant or fishy odour from your genitals? | <ul style="list-style-type: none"> • No • Yes |
| Hlth5 | In the past month, have you experienced discharge from your vagina that is different than normal (for example it has an unusual texture and color: e.g., it is chalky, has the consistency of yoghurt or cottage cheese, or is grey, green, or yellow discharge)? | <ul style="list-style-type: none"> • No • Yes |
| Hlth6 | Did you discuss your symptoms with someone when they occurred? | <ul style="list-style-type: none"> • No • Yes |
| Hlth6_who | Who did you discuss them with? | <ul style="list-style-type: none"> • Parent/Guardian [0/1] • Other family member [0/1] • Friends [0/1] • Health care provider [0/1] • Other [0/1] |

| | | |
|----------------|---|---|
| Hlth_recommend | <p>What did they say?</p> <p><i>Do not read response options. Select all that apply</i></p> | <ul style="list-style-type: none"> • Symptoms are normal [0/1] • Seek treatment from pharmacy [0/1] • Seek homeopathic treatment [0/1] • Change diet/drinking practices [0/1] • Change hygiene practices [0/1] • See a health care provider [0/1] • Told to keep secret/ not discuss [0/1] • Did not say anything [0/1] • Other (specify) [0/1] |
| Hlth_treatment | <p>Did you use any treatment for your symptoms?</p> <p><i>Do not read response options. Select all that apply</i></p> | <ul style="list-style-type: none"> • Yes, a pill/tablet [0/1] • Yes, tablet, gel or cream applied to or inserted in the vagina [0/1] • Yes, homeopathic remedy (oral) [0/1] • Yes, homeopathic remedy (applied to or inserted in the vagina) [0/1] • Yes, changing diet [0/1] • Yes, changing hygiene practices (specify) [0/1] • Yes, other [0/1] • No [0/1] |
| PH2 | <p>In past three months, have you experienced itching or burning in your genital area</p> | <ul style="list-style-type: none"> • No • Yes |
| PH3 | <p>In the past year have you consulted a health care provider about symptoms in your genitals?</p> | <ul style="list-style-type: none"> • No • Yes |

Overview of Early Marriage & Pregnancy Outcomes

| | |
|---------------------------------------|--|
| Definition | Entering a marriage or being pregnant before a girl reaches age 18. ¹⁰ |
| Importance to Menstrual Health | Insufficient understanding of menstruation and the menstrual cycle can lead to misinformation about fertility and a weak basis for SRH and contraceptive education. ¹¹ A more restrictive environment related to menstruation, and experiences of care-seeking for menstrual-related concerns may serve as early deterrents to future health care seeking for SRH. ¹¹ Additionally, some evidence shows that negative menstrual experiences could be associated with lower sexual decision-making power, mediated by body image. This could lead to SRH outcomes such as early marriage and early pregnancy. ¹² |
| Measurement Method | All questions: Self-reported by girls on an enumerator-administered survey |
| General Considerations | These questions may be sensitive for some participants. Before asking them, you may consider reminding the girls that the survey is confidential and that no one will know the answer came from them. They are free to decline to answer any question in the survey. In the early years of the AMEHC study while the population is young, questions about pregnancy were only asked of girls' who reported that they were married. |
| Question Source | Questions are based on basic demographic questions asking about marital status and pregnancy. E.g., in Demographic and Household Surveys (https://dhsprogram.com/) |

| Construct's Main Use in the AMEHC Study | | | |
|---|----------------------|----------------|--|
| Proximal Exposure for: | Distal Exposure for: | Covariate for: | Outcome for: |
| | | | Menstrual health experiences Menarche experience, body appreciation |

| Included in the Following AMEHC Study Activities* | | | | | |
|---|---------------------------|-----------------------|------------------------|---------------------|---------------------|
| Baseline Girls Survey | Baseline Guardians Survey | Baseline School Audit | Sub-cohort 1 Survey | Sub-cohort 2 Survey | Sub-cohort 3 Survey |
| | | | | | |
| Wave 1 Survey | Wave 1 School Audit | Wave 2 Survey | Wave 2 Guardian Survey | Wave 2 School Audit | |
| X | | X | | | |

*Specific questions varied over different data collection activities according to study needs.

Early Marriage and Pregnancy Outcomes Survey Questions in AMEHC

| Question Number | Question | Response Options |
|------------------------|---|--|
| Married | Are you married or engaged to be married? | <ul style="list-style-type: none">• No• Married• Engaged |
| Pregnant | Are you now or have you ever been pregnant? | <ul style="list-style-type: none">• No• Yes |

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