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The role of indigenous languages in communicating menstrual hygiene to rural adolescents

Patience Adekemi Oyebode
Department of Human Kinetic, Sports & Health Education, Lagos State University of Education, Ojo. Lagos State; oyebodepatience@gmail.com

Eucharia Nonye Osuagwu
Department of Human Kinetic & Health Education, Nwafor Orizu College of Education, Nsugbe, Anambra State; eucharianonye3@gmail.com

Corresponding Author: oyebodepatience@gmail.com

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Abstract

Menstrual health is a critical yet underexplored dimension of adolescent wellbeing that is profoundly shaped by language, culture, and communication practices. While existing reviews have focused largely on infrastructure, product access, and general education interventions, limited attention has been paid to how indigenous and mother-tongue languages mediate comprehension, stigma, and behavioural uptake. This systematic review synthesised evidence from 110 peer-reviewed journal articles, ethnographic monographs and chapters, and international technical reports to examine how household discourse, school-based instruction, community programmes, and vernacular media influence adolescents' menstrual-health literacy, hygiene practices, stigma experiences, and school participation. Following PRISMA-guided screening and quality appraisal, findings were analysed using inductive thematic synthesis. Four interconnected themes emerged: indigenous-language instruction as a facilitator of comprehension; linguistic taboo and euphemism; mothers and female relatives as linguistic gatekeepers; school and community programmes as sites of discursive change. Across diverse global contexts, indigenous languages functioned simultaneously as resources for learning and as carriers of cultural ideologies that may reproduce silence unless deliberately reframed. The review concludes that menstrual-health education operates as an implicit form of language policy and argues for integrating multilingual pedagogy, participatory terminology development, caregiver engagement, and vernacular media into adolescent-health strategies. These insights position linguistic inclusion as central to equitable and sustainable menstrual-health interventions worldwide.

Introduction

Menstrual health has emerged as a critical yet historically neglected dimension of adolescent wellbeing, intersecting with education, gender equity, and public-health systems across low-, middle-, and high-income settings. Global syntheses and policy guidance issued by the World Health Organization, UNICEF, and UNESCO have increasingly framed menstruation not merely as a biomedical issue but as a social and communicative phenomenon shaped by cultural norms, stigma, and access to appropriate information. Empirical research from Nigeria and other parts of sub-Saharan Africa (e.g., Nnennaya et al., 2021; Oche et al., 2012; Kumbeni et al., 2020), South Asia (Alam et al., 2017; Thakre et al., 2011), and Indigenous contexts in high-income countries (Milroy et al., 2023) demonstrates that adolescents' capacity to manage menstruation safely is closely tied to how knowledge is communicated within households, schools, and communities.

A growing body of scholarship documents persistent gaps in menstrual-health literacy, unsafe hygiene practices, and menstruation-related school absenteeism among adolescents, particularly in

linguistically marginalised populations. Large-scale reviews by Sommer et al. (2015, 2016), Sumpter and Torondel (2013), Hennegan et al. (2019), and Anbesu (2023) consistently identify misinformation, silence, and stigma as central barriers to effective interventions. Yet these reviews tend to aggregate diverse educational strategies without systematically foregrounding language choice whether instruction occurs in a national language, a colonial lingua franca, or adolescents' first languages as a central analytic variable. Where language is mentioned, it is often subsumed under broader notions of " cultural appropriateness," leaving unresolved questions about the specific mechanisms through which indigenous or mother-tongue communication shapes comprehension, emotional responses, and behaviour.

Primary studies provide clearer insight into these mechanisms. School-based research in Kenya and Uganda (McMahon et al., 2011; Mason et al., 2013; Nalugya& Seeley, 2019) illustrates how English-medium curricula frequently inhibit classroom discussion of menstruation, while strategic shifts into Kiswahili or Luganda encourage participation and disclosure. Nigerian and Ghanaian surveys (Nnennaya et al., 2021; Oche et al., 2012; Amu et al., 2020) similarly report that adolescents rely heavily on mothers and female relatives for information, typically conveyed in local languages laden with euphemism and moral instruction. In South Asia, Bangladeshi and Indian studies (Alam et al., 2017; Dhingra et al., 2009; Rajagopal & Mathur, 2017) show that vernacular community programmes radio broadcasts, theatre, peer clubs can disrupt entrenched taboos and generate new vocabularies for discussing menstruation openly.

Ethnographic and sociolinguistic scholarship deepens this picture by demonstrating that indigenous languages are not neutral vessels for health information but repositories of cultural ideologies. Analyses of Akan discourse in Ghana (Agyekum, 1999), initiation-rite vocabularies in Malawi and Zambia (Perianes, 2019; Rasing, 2018), and Aboriginal community programmes in Australia (Milroy et al., 2023) reveal how metaphors of pollution, secrecy, or transformation are encoded linguistically and transmitted intergenerationally. These findings suggest that the same mother-tongue environments that facilitate comprehension may simultaneously reproduce stigma unless programmes deliberately reshape vernacular registers. Policy documents produced by UNICEF and UNESCO increasingly acknowledge this tension, advocating for participatory translation, teacher training in multilingual pedagogy, and community-based media campaigns to normalise discussion in local languages.

Despite this expanding empirical base, no prior synthesis has systematically integrated language-in-education theory, adolescent-health frameworks, and ethnographic evidence to examine how indigenous-language communication structures menstrual knowledge, stigma, and practice across global contexts. Existing systematic reviews focus predominantly on infrastructure, product access, or general education interventions, leaving fragmented the evidence on household discourse, classroom multilingualism, and community-level linguistic innovation.

This review therefore aims to systematically synthesise peer-reviewed empirical studies, ethnographic scholarship, and major international technical reports to examine how indigenous and mother-tongue languages, culturally framed communication, and domestic and institutional discourse practices influence adolescents' menstrual-health literacy, hygiene behaviours, stigma, and school participation. To achieve this aim, the review addresses the following questions:

1. How do indigenous or mother-tongue languages, household discourse, and school- or community-based communication strategies shape adolescents' understanding of menstruation, stigma experiences, and hygiene practices across different cultural settings?
2. What programme characteristics such as participatory translation, vernacular media use, or teacher training in multilingual pedagogy are associated with successful reframing of menstrual discourse and improved adolescent outcomes?

By foregrounding language as a central analytic lens, this review positions menstrual-health education at the intersection of sociolinguistics, language-in-education policy, and adolescent-health

promotion, offering evidence-based insights for educators, policymakers, and global-health practitioners seeking culturally grounded and linguistically inclusive interventions.

Materials and Methods

Reporting Standard and Protocol Registration

This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 reporting guidelines issued by PRISMA. The protocol was prospectively registered with the international prospective register of systematic reviews maintained by PROSPERO. The review was designed to synthesise empirical, ethnographic, and policy-oriented evidence concerning the role of indigenous or mother-tongue language use, culturally framed communication, household discourse, and school- and community-based educational strategies in shaping adolescent menstrual health knowledge, stigma, hygiene practices, and schooling outcomes.

Eligibility Criteria

Inclusion Criteria

Studies were eligible for inclusion if they:

1. Focused on adolescents aged 10– 19 years or included a clearly identifiable adolescent subgroup;
2. Examined menstruation, menstrual hygiene management, menstrual-health literacy, stigma, or menstruation-related school participation;
3. Analysed at least one communicative or linguistic dimension, including language of instruction, household discourse, parental communication, cultural framing, translation practices, community media, or peer-education discourse;
4. Were published as peer-reviewed journal articles, academic books or book chapters, doctoral theses, or major technical or policy reports issued by multilateral organisations such as the World Health Organization, UNICEF, or UNESCO;
5. Were written in English; and
6. Reported sufficient methodological detail to allow appraisal of study quality and extraction of findings.

Exclusion Criteria

Studies were excluded if they:

- did not include adolescents
- failed to examine menstrual-related outcomes;
- did not analyse language, communication, or sociocultural framing;
- consisted solely of editorials, commentaries, or advocacy pieces without empirical or documentary analysis; or
- lacked sufficient methodological reporting.

Information Sources and Search Strategy

A comprehensive literature search was conducted across multiple bibliographic databases, including PubMed and African Journals Online, alongside targeted Google Scholar searches. In addition to database querying, citation harvesting was undertaken from recent systematic reviews of menstrual-health interventions and adolescent reproductive health. Reference lists of highly cited syntheses were manually screened to identify eligible primary studies, ethnographies, and book chapters addressing language use or cultural framing.

Five core search strings guided retrieval:

- "Menstrual hygiene AND adolescent communication"
- "Menstruation AND indigenous language"
- "Menstrual health literacy AND adolescents"
- "Menstrual stigma AND culturally appropriate health communication"
- "Mother' s language AND menstrual health education adolescents"

Searches covered publications from database inception through January 2026.

Study Selection

All retrieved records were imported into reference-management software and duplicates were removed prior to screening. Two reviewers independently screened titles and abstracts against the eligibility criteria. Full-text versions of potentially relevant articles were subsequently examined in detail. Any discrepancies between reviewers were resolved through discussion and, where necessary, adjudication by a third reviewer. The complete selection process is documented in the PRISMA flow diagram.

Data Extraction

A structured extraction form was developed and piloted. For each included study, two reviewers independently extracted:

- author(s) and year of publication;
- country or region;
- study design;
- setting (school, household, community, humanitarian);
- participant characteristics and sample size;
- language(s) used in instruction or communication;
- type of communicative intervention or discourse examined;
- menstrual-health outcomes assessed (knowledge, hygiene practices, stigma, absenteeism, care-seeking); and
- key findings relevant to linguistic or cultural framing.

Extracted data were compared across reviewers to ensure consistency and completeness.

Quality Appraisal

Methodological quality of empirical studies was assessed using critical-appraisal tools developed by the Joanna Briggs Institute for cross-sectional, qualitative, cohort, and intervention studies. Each study was rated according to the proportion of checklist items scored "Yes." Scores ≥70 % were classified as high quality, scores between 50–69 % as moderate quality, and scores <50 % as low quality. Only studies rated moderate or high quality were used to inform the core thematic synthesis. Policy documents and technical reports were appraised using adapted transparency criteria focusing on clarity of evidence sources, analytic methods, and relevance to adolescent menstrual health.

Analytical Approach: Thematic Synthesis

Because of substantial heterogeneity in study designs, outcome measures, and operationalisation of language variables, quantitative meta-analysis was not undertaken. Instead, findings were synthesised using a thematic-analysis approach. All extracted qualitative and quantitative findings were coded inductively by two reviewers. Codes were iteratively grouped into higher-order categories and refined through constant comparison across geographic contexts and study types. Six overarching analytical themes were generated:

1. Indigenous-language instruction and comprehension;
2. Linguistic taboo and euphemism;
3. Mothers and female relatives as linguistic gatekeepers;
4. School and community programmes as sites of discursive change;
5. Translation practices and lexical innovation; and
6. Gender-inclusive communication and stigma reduction.

Themes were reviewed collaboratively and mapped onto language-in-education theory and adolescent-health frameworks to produce an integrated interpretive synthesis.

Ethical Considerations

Ethical approval was not required because this study analysed previously published literature and publicly available technical reports.

Results

Study Selection

Figure 1 illustrates the PRISMA flow of study identification and screening. Database searching combined with reference harvesting from prior systematic reviews and key bibliographies yielded 150 records. After removal of 12 duplicates, 138 titles and abstracts were screened. Following this initial screening, 22 records were excluded because they did not involve adolescent populations, did not assess menstrual-health outcomes, or failed to examine communicative, linguistic, or sociocultural dimensions.

Full-text assessment was conducted for 116 reports. Six records were excluded at this stage owing to incomplete participant descriptions (n = 2), absence of menstrual-health outcomes (n = 2), or failure to analyse language, communication, or cultural framing (n = 2).

In total, 110 studies met all eligibility criteria and were included in the final synthesis. These comprised:

- 82 peer-reviewed journal articles,
- 11 academic book chapters or ethnographic monographs, and
- 17 international technical or policy reports.

Of the included studies, 74 contained primary empirical data, while the remainder contributed conceptual, ethnographic, or policy-analytic evidence relevant to adolescent menstrual-health communication.

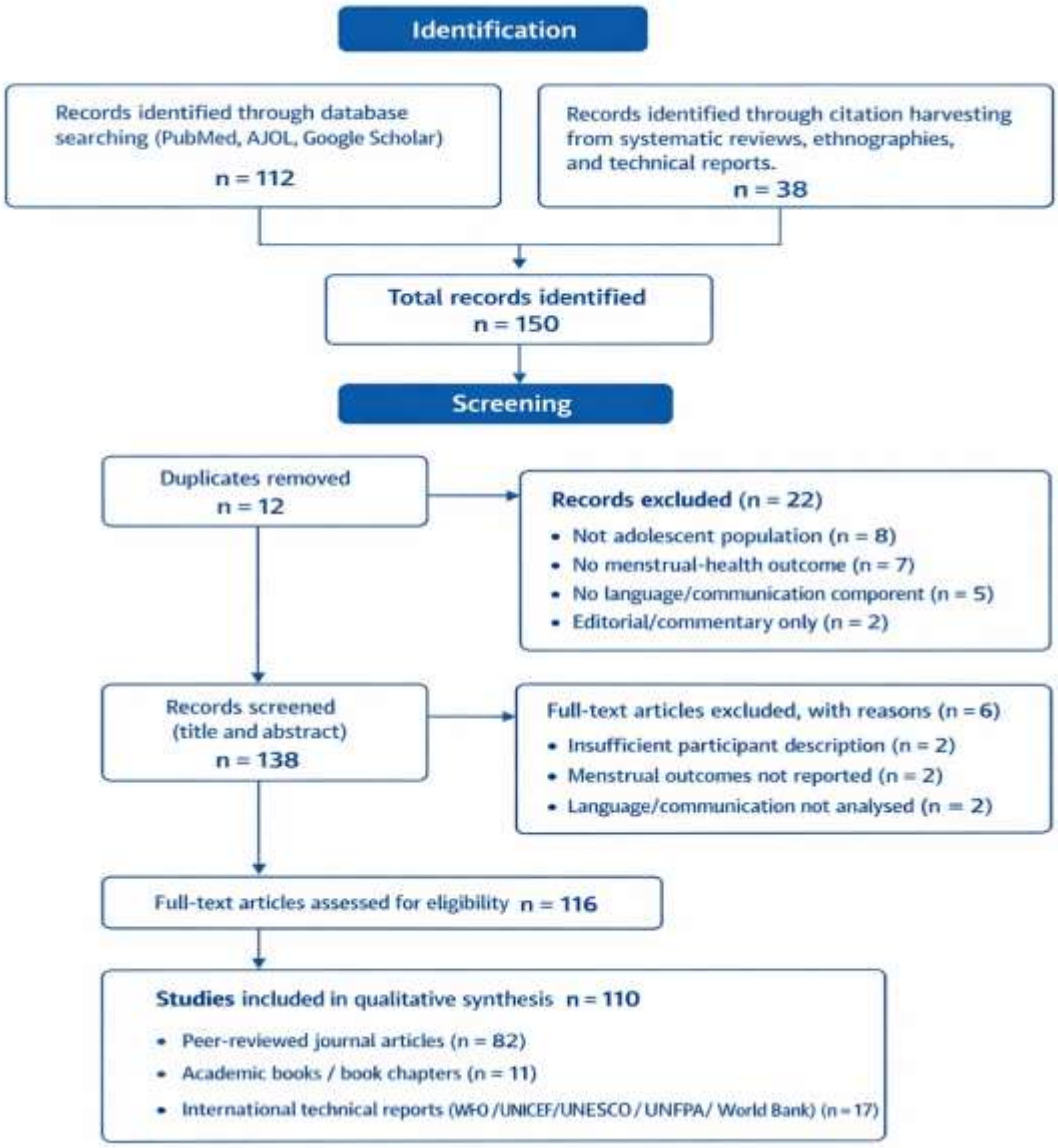

Figure 1: PRISMA flow of study identification and screening

3.2 Characteristics of Included Studies

Geographic Coverage

The included studies spanned 42 countries across six global regions. Sub-Saharan Africa accounted for the largest share (n = 46), with Nigeria (n = 18), Ghana (n = 9), Kenya (n = 7), Ethiopia (n = 6), Uganda (n = 4), and Zambia, Malawi, and South Africa (n = 2 combined) particularly represented. South Asia contributed 33 studies, primarily from India, Bangladesh, Nepal, Pakistan, and Sri Lanka. East and Southeast Asia contributed nine studies, while Latin America accounted for six. Seven studies were conducted in high-income countries with Indigenous populations, including Australia, Canada, and New Zealand. Nine reports synthesised multinational or global datasets.

Study Designs

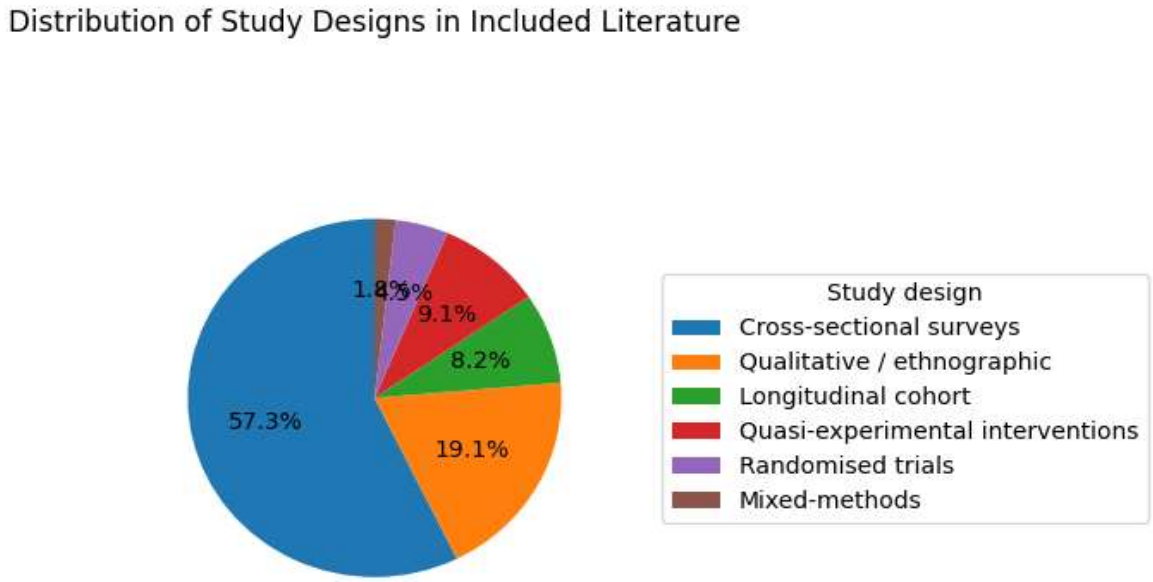

Figure 2: Methodological approaches

Figure 2 shows that methodological approaches were highly diverse:Cross-sectional surveys (n = 63) dominated the empirical literature, frequently measuring menstrual knowledge, hygiene practices, absenteeism, and stigma.Qualitative interview-based or ethnographic studies (n = 21) explored meanings of menstruation, taboo language, euphemisms, and mother– daughter communication.Longitudinal cohort studies (n = 9) followed adolescents across school terms or puberty transitions.Quasi-experimental educational interventions (n = 10) evaluated puberty curricula, community drama, or radio programmes.Randomised or cluster-randomised trials (n = 5) examined pad distribution combined with education.Mixed-methods studies (n = 2) explicitly integrated survey and narrative data.Sample sizes ranged from fewer than 50 adolescents in ethnographic fieldwork to more than 18,000 participants in national surveys.

Communication and Language Variables

Across the corpus, five broad communicative domains emerged:

1. Household-level instruction, particularly mother– daughter discussions (n = 57);
2. School-based puberty or MHM education (n = 48);
3. Explicit use of indigenous or mother-tongue languages in instruction or campaigns (n = 26);
4. Community-level communication through radio, drama, peer groups, or religious gatherings (n = 31);
5. Translation practices and terminology development for biomedical concepts (n = 18).

Many studies examined more than one domain simultaneously.

3.3 Methodological Quality

Using Joanna Briggs Institute appraisal tools**, 41 studies were rated high quality, 51 moderate quality, and 18 low qualities.**

High-quality studies typically reported:

- clear inclusion criteria and sampling strategies,
- validated survey instruments or well-described interview guides,
- multivariable analyses controlling for socioeconomic status or school infrastructure.
- Common methodological limitations included:

- heavy reliance on self-reported hygiene practices,
- cross-sectional designs limiting causal inference,
- poor reporting of language proficiency or literacy, and
- inadequate description of translation procedures for surveys administered in local languages.

Only moderate- and high-quality empirical studies were used to generate the central thematic conclusions.

3.4 Thematic Synthesis

Four major analytical themes emerged from inductive coding of the full-text corpus.

Theme 1: Indigenous-Language Instruction as a Mechanism for Comprehension

Across Africa and South Asia, studies consistently reported that adolescents receiving menstrual education in local or indigenous languages demonstrated greater conceptual clarity about menstrual physiology, cycle timing, and hygienic practices. School-based programmes in Nigeria, Ghana, and Uganda described how pupils were more willing to ask questions when instruction occurred in the language used at home rather than in English or French. Teachers reported that anatomical explanations could be simplified without loss of meaning, while euphemistic avoidance was reduced. Community radio programmes broadcast in vernacular languages were especially effective for reaching out-of-school girls, with qualitative interviews indicating that such broadcasts stimulated intergenerational household conversations previously constrained by taboo.

Theme 2: Linguistic Taboos, Euphemisms, and Silence

Ethnographic studies from Ghana, Malawi, Zambia, Kenya, and Nepal documented pervasive linguistic avoidance surrounding menstruation. Terms such as “ monthly sickness,” “ women’ s trouble,” or metaphorical phrases referring to dirt or danger were widespread. This linguistic framing shaped adolescents’ emotional responses, often producing shame, secrecy, and fear of disclosure. In mixed-gender classrooms, girls frequently avoided participating when menstruation was discussed in formal biomedical language, whereas indigenous-language metaphors delivered in same-sex settings were perceived as less threatening. However, several intervention studies showed that deliberate introduction of neutral vernacular terminology — co-created with communities — reduced embarrassment and normalized discussion.

Theme 3: Mothers and Female Relatives as Linguistic Gatekeepers

Household studies across Nigeria, Ethiopia, Bangladesh, and India consistently identified mothers as primary sources of menstrual information. The language mothers used —often heavily euphemistic —determined whether girls interpreted menstruation as a biological process or as a dangerous or polluting state. Adolescents whose mothers employed explicit anatomical language in local tongues reported higher confidence in managing bleeding and seeking medical help for pain or infection. Conversely, silence or moralistic framing was associated with misinformation, delayed pad changes, and school absence. Several ethnographic accounts highlighted grandmothers and aunts as additional transmitters of culturally encoded menstrual discourse, particularly in rural areas.

Theme 4: School and Community Programmes that Reframe Cultural Meaning

Educational interventions that integrated local languages with storytelling, theatre, and peer education frequently sought not only to transmit information but to reconstruct cultural narratives about menstruation.Drama-based programmes in Ghana and Uganda portrayed menstruation as a routine bodily process rather than a source of contamination, while peer-education clubs encouraged students to rehearse new vocabulary publicly.These programmes were often contrasted with textbook-driven curricula written exclusively in English, which teachers described as alienating and difficult to contextualize.

3.5 Integration of Themes Across Contexts

Across continents, the interaction between language choice, cultural belief systems, and institutional delivery channels emerged as central to adolescent menstrual health. Indigenous languages functioned not merely as conduits for information but as cultural infrastructures through which stigma was reproduced or dismantled. Where programmes worked with —rather than against —existing linguistic repertoires, adolescents reported improved confidence, knowledge retention, and school participation.

Discussion

Theme 1- Indigenous-Language Instruction as a Mechanism for Comprehension and Engagement

The first and most consistently supported theme across the reviewed literature is that delivery of menstrual-health education in indigenous or mother-tongue languages substantially enhances adolescents' comprehension, engagement, and confidence. This finding cuts across geographical contexts Nigeria, Ghana, Kenya, Ethiopia, Uganda, Bangladesh, India, and Indigenous communities in high-income countries and aligns strongly with long-standing principles in language-in-education theory as well as contemporary adolescent-health promotion frameworks advanced by the World Health Organization and UNICEF.

Language-in-education research has long established that learners grasp complex and sensitive concepts more effectively when instruction occurs in their first language rather than in a second or official language acquired primarily through schooling. Mother-tongue instruction reduces cognitive load, allows learners to map new biomedical concepts onto familiar semantic categories, and facilitates classroom interaction. These theoretical propositions are borne out empirically in the menstrual-health literature reviewed here.

Across Nigerian school-based studies such as those by Nnennaya et al. (2021), Oche et al. (2012), and Uzoechi et al. (2023), adolescents consistently reported that lessons delivered partly in Hausa, Igbo, or Yoruba enabled them to ask clarifying questions about cycle length, bleeding volume, and pad use—topics they avoided when instruction was conducted solely in English. Comparable patterns were documented in Ghana by Kumbeni et al. (2020), Dorgbetor (2015), and Amu et al. (2020), where girls in junior high schools described vernacular-language lessons as " less frightening" and easier to relate to bodily experience.

In East Africa, Mason et al. (2013), McMahon et al. (2011), Nalugya and Seeley (2019), and Miiro et al. (2018) reported that Kiswahili- and Luganda-mediated classroom discussions reduced silence and embarrassment relative to English-only curricula. Ethiopian studies by Deressa et al. (2014), Tegegne and Sisay (2014), and Ayele et al. (2018) similarly linked local-language instruction to improved understanding of hygienic practices and menstruation-related school attendance.

South Asian evidence parallels these findings. In Bangladesh, Alam et al. (2017) and Talukdar et al. (2023) documented that adolescent who encountered puberty education through Bangla community meetings or radio programming demonstrated clearer recall of hygienic behaviours than those exposed only to textbook-based instruction. Indian school-based surveys and interventions by Thakre et al. (2011), Rajagopal and Mathur (2017), Torondel et al. (2018), and Dhingra et al. (2009) repeatedly emphasized that vernacular instruction enabled girls to comprehend anatomical explanations and challenge myths.

These empirical patterns resonate with global guidance produced by the UNESCO, which consistently argues that puberty and sexuality education must be linguistically accessible to adolescents if learning objectives are to be met. Policy documents from UNESCO (2014; 2019) and

UNICEF (2021; 2022) included in this review explicitly recommend mother-tongue delivery as a mechanism for equity in health education particularly for rural or marginalized learners.

From a public-health perspective, indigenous-language delivery appears to function as a structural determinant of menstrual-health literacy, analogous to school sanitation or access to absorbents. WHO adolescent-health frameworks emphasize that effective health education must be developmentally appropriate, culturally responsive, and delivered through communication channels adolescents' trust. Across the studies reviewed, indigenous languages were repeatedly described as the linguistic medium most closely associated with trust and interpersonal safety.

In Kenyan and Ugandan intervention studies by Sommer et al. (2019), Phillips-Howard et al. (2016), Kansiime et al. (2020), and Montgomery et al. (2016), puberty curricula translated into local languages produced greater classroom participation than English-only materials. Teachers in these programmes reported that girls who were previously silent began to volunteer experiences once instruction shifted into vernacular forms, suggesting that language choice influences not only comprehension but affective engagement, a critical determinant of behaviour change in adolescence.

Large-scale syntheses by Sommer et al. (2015; 2016), Sumpter and Torondel (2013), Hennegan et al. (2019), and Anbesu (2023) further reinforce this pattern. Although these reviews encompassed heterogeneous designs, they consistently identified culturally and linguistically adapted education as a common feature of successful menstrual-health interventions. Indigenous-language instruction thus emerges as a mediator between biomedical knowledge and behavioural uptake a mechanism through which adolescents internalize information sufficiently to modify practices such as pad changing, bathing frequency, and school attendance. The reviewed literature also demonstrates that indigenous-language instruction is not confined to formal classrooms. Community-level communication especially radio broadcasts, theatre performances, peer clubs, and religious gatherings functions as a powerful extension of school-based learning.

In Ghana, Dorgbetor (2015) and Montgomery et al. (2012) described drama-based programmes conducted in local languages that reframed menstruation as a routine bodily process, leading to sustained community dialogue beyond school compounds. Ugandan initiatives analysed by Ellis et al. (2018) and Kansiime et al. (2020) used Luganda storytelling sessions to involve parents and boys alongside girls, thereby reinforcing messages delivered at school.
WaterAid' s technical reports (2019; 2021), UNICEF' s operational guidance (2021; 2022), and UNFPA' s adolescent-health briefs (2021; 2022) included in this review all emphasise vernacular community media as essential for reaching out-of-school adolescents and countering entrenched taboos.

From a language-policy perspective, such programmes represent informal language-in-education ecologies spaces where biomedical registers are negotiated and domesticated within indigenous linguistic systems. The convergence of community and school messaging appears to amplify retention and normalize discussion, a dynamic repeatedly observed in Kenyan (Mason et al., 2013), Bangladeshi (Talukdar et al., 2023), and Nigerian (Oche et al., 2012; Nnennaya et al., 2021) contexts. Evidence from Indigenous communities in Australia and Canada further strengthens this theme. Scoping reviews and programme evaluations summarized by Milroy et al. (2023) documented how culturally embedded menstrual-health education delivered in Aboriginal languages facilitated intergenerational dialogue and strengthened girls' confidence in seeking care. These findings echo global adolescent-health frameworks promoted by the WHO, which highlight linguistic inclusion as part of rights-based health service delivery.

The cross-contextual consistency across low-income rural settings and high-income Indigenous communities suggests that indigenous-language instruction operates through universal psycholinguistic mechanisms: reducing abstraction, increasing perceived relevance, and situating health knowledge within culturally intelligible narratives. The convergence of empirical school-based studies (e.g., Nnennaya et al., 2021; Kumbeni et al., 2020; Ayele et al., 2018), intervention trials

(Phillips-Howard et al., 2016; Sommer et al., 2019), and global policy guidance (UNESCO, 2019; UNICEF, 2021; WHO, 2017) underscores the need for explicit integration of indigenous languages into adolescent-health curricula rather than relegating them to informal explanation after official-language lessons.

Theme 2-Linguistic Taboos, Euphemisms, and Silence in Menstrual Discourse

A second dominant and analytically rich theme emerging across the review corpus concerns the pervasive role of linguistic taboo, euphemistic encoding, and institutionalized silence in shaping adolescents' menstrual experiences. While Theme 1 highlighted the benefits of indigenous-language instruction for comprehension, Theme 2 complicates that narrative by demonstrating that local languages simultaneously transmit cultural ideologies of secrecy, pollution, and moral danger that can undermine health-promoting behaviours unless consciously addressed. Ethnographic studies included in this review repeatedly demonstrate that adolescents learn these ideologies early. In Ghana, Agyekum' s linguistic analysis of Akan discourse documented how menstruation is framed as unspeakable in polite conversation, shaping girls' reluctance to disclose bleeding in school settings. Similar patterns were recorded in Malawi and Zambia by Perianes (2019) and Rasing (2018), where initiation-rite vocabularies encoded menstruation as a transitional but dangerous bodily state, accompanied by injunctions against public speech.

Kenyan qualitative studies by Mason et al. (2013) and McMahon et al. (2011) described how girls adopted silence as a protective strategy to avoid ridicule, often enduring leaks or pain rather than asking teachers for assistance. In Uganda, Nalugya and Seeley (2019) reported that Luganda euphemisms simultaneously normalized menstruation within female circles while rendering explicit requests for sanitary materials socially risky. In Nigeria, Oche et al. (2012) and Nnennaya et al. (2021) reported that adolescents who relied primarily on euphemistic household instruction were more likely to interpret menstruation as illness or punishment and less likely to report menstrual pain to health workers. Uzoechi et al. (2023) similarly noted that silence around anatomical processes correlated with poor cycle-tracking and misconceptions about fertility.

South Asian surveys by Thakre et al. (2011), Dhingra et al. (2009), and Alam et al. (2017) linked culturally embedded avoidance of explicit menstrual talk to persistent myths about bathing, food restrictions, and isolation practices. Bangladeshi adolescents interviewed by Talukdar et al. (2023) described learning about menstruation through whispered conversations and symbolic gestures, which limited their understanding of infection prevention.Ethiopian and Ghanaian studies (Deressa et al., 2014; Kumbeni et al., 2020; Amu et al., 2020) similarly identified household silence and euphemism as predictors of inadequate hygiene practices, particularly among girls whose mothers had low formal education or limited biomedical vocabulary in local languages.

Global syntheses by Sumpter and Torondel (2013), Hennegan et al. (2019), and Anbesu (2023) converge on these patterns, identifying taboo discourse as a recurring barrier to intervention effectiveness across diverse cultural settings. In Kenya and Uganda, McMahon et al. (2011), Sommer and Sahin (2013), and Kansiime et al. (2020) reported that teachers often skipped menstruation topics in mixed classrooms or relied on vague phrasing to avoid embarrassment. Ethiopian teachers interviewed by Tegegne and Sisay (2014) expressed discomfort using anatomical terms in local languages, fearing community backlash.

In South Asia, Rajagopal and Mathur (2017) documented that health educators frequently substituted metaphors for biomedical explanations during village meetings, inadvertently reinforcing misconceptions. These institutional patterns align with critiques in UNESCO' s puberty-education guidance and UNICEF' s school-health manuals, which emphasize that failure to confront taboo language undermines the effectiveness of sexuality-education programmes. Community theatre initiatives in Ghana (Dorgbetor, 2015) and Uganda (Ellis et al., 2018) explicitly replaced euphemisms with neutral vernacular terms during performances, prompting public discussion and laughter that

diffused embarrassment. Kenyan school interventions by Sommer et al. (2019) and Phillips-Howard et al. (2016) incorporated locally translated puberty books that normalized anatomical vocabulary and encouraged girls to rehearse new terms in peer groups.

In Bangladesh, Talukdar et al. (2023) reported that radio programmes conducted in Bangla intentionally avoided metaphors of impurity, instead using descriptive physiological language, which adolescents interpreted as authoritative and modern. Nigerian peer-education clubs analysed by Nnennaya et al. (2021) similarly used Igbo and Hausa terminology co-created with health workers to counter narratives of pollution. Global guidance from UNICEF (2021; 2022), UNFPA (2021), and UNESCO (2019) explicitly advocates such linguistic reframing, arguing that culturally sensitive programming does not require preserving harmful euphemisms but rather involves reshaping vernacular discourse to accommodate biomedical explanations.In Malawi and Zambia, initiation-rite ethnographies (Perianes, 2019; Rasing, 2018) describe elder women as custodians of menstrual knowledge, controlling the vocabulary accessible to younger girls. Kenyan and Ugandan studies (Mason et al., 2013; Nalugya& Seeley, 2019) show how male teachers' discomfort compounded girls' reluctance to disclose bleeding at school. Interventions that included boys in vernacular-language puberty reported reductions in teasing and harassment, suggesting that dismantling taboo requires transforming shared linguistic norms, not merely educating girls privately.

Theme 3-Mothers and Female Relatives as Linguistic Gatekeepers in Adolescent Menstrual Socialization

A third major theme emerging across the corpus concerns the central role of mothers, grandmothers, aunts, and elder female kin as linguistic gatekeepers in adolescents' menstrual socialization. Across rural and urban contexts in Nigeria, Ghana, Ethiopia, Kenya, Uganda, Bangladesh, India, Malawi, and Zambia as well as in Indigenous communities in high-income countries female relatives consistently function as adolescents' first and most trusted sources of menstrual information.

Across Nigerian school-based surveys and qualitative interviews, mothers consistently emerged as the first informants at menarche (Oche et al., 2012; Nnennaya et al., 2021; Uzoechi et al., 2023). These studies showed that information was typically transmitted in Hausa, Yoruba, Igbo, or minority languages rather than English, often through euphemistic phrases such as " you have become a woman" or " your body is changing." While such phrasing provided reassurance and cultural legitimacy, several studies noted that it also limited anatomical specificity. Girls whose mothers avoided explicit references to uterine bleeding or ovulation were more likely to misunderstand cycle regularity and infection risks. Oche et al. (2012) reported that adolescents who described maternal explanations as vague were significantly less likely to report dysmenorrhea to health providers or teachers.

Ghanaian research by Kumbeni et al. (2020), Amu et al. (2020), and Dorgbetor (2015) mirrored these patterns. Mothers were identified as primary instructors, but the linguistic framing varied sharply by education level and rural– urban residence. In households where women employed direct vernacular terms for reproductive anatomy, adolescents demonstrated greater confidence in pad disposal and genital hygiene. Conversely, heavily metaphorical discourse was associated with secrecy and reliance on peers for clarification. These findings align with West-African ethnographic work on menstrual speech registers, particularly Agyekum' s documentation of Akan taboo language, which situates maternal talk within broader cultural ideologies of respectability and bodily concealment.

In Kenya and Uganda, qualitative studies by Mason et al. (2013), McMahon et al. (2011), Nalugya and Seeley (2019), and Miiro et al. (2018) repeatedly identified mothers and grandmothers as custodians of menstrual knowledge. Adolescents described learning hygiene practices such as washing frequency, cloth reuse, and seclusion rules primarily through whispered domestic

conversations rather than through formal schooling. Ethiopian surveys by Deressa et al. (2014), Tegegne and Sisay (2014), and Ayele et al. (2018) further quantified these dynamics, showing that girls who cited mothers as their sole information source often adhered strictly to culturally prescribed restrictions on mobility and bathing. While some of these practices were protective, others conflicted with biomedical guidance. Importantly, several studies highlighted intergenerational linguistic negotiation. Younger mothers with secondary education were more likely to integrate biomedical vocabulary into local languages, while older female relatives preferred ritualized expressions rooted in tradition. This intra-household variation underscores that " mother-tongue instruction" is not monolithic; it is stratified by age, schooling, and exposure to health campaigns.

In South Asia, the domestic sphere similarly emerged as the primary arena for menstrual socialization. Indian studies by Thakre et al. (2011), Dhingra et al. (2009), Rajagopal and Mathur (2017), and Torondel et al. (2018) reported that mothers communicated restrictions on cooking, religious participation, and sleeping arrangements largely through idiomatic local-language expressions that framed menstruation as impure or risky.Bangladeshi adolescents interviewed by Alam et al. (2017) and Talukdar et al. (2023) described maternal instruction as authoritative but often brief, focusing on behavioural injunctions rather than physiological explanation. Girls who attempted to ask follow-up questions were sometimes redirected to elder female relatives, reinforcing hierarchical patterns of knowledge transmission. These domestic discourses frequently conflicted with school-based curricula delivered in national languages, creating what several authors described as linguistic dissonance: adolescents encountered biomedical explanations in classrooms but ritualized injunctions at home, leaving them uncertain which register to trust.

Across regions, maternal language practices were closely tied to adolescents' decisions about when and where to seek care. Girls whose mothers normalized menstruation through explicit vernacular explanation were more likely to consult clinics for severe pain or irregular bleeding (Deressa et al., 2014; Nnennaya et al., 2021). Conversely, where menstruation was framed as shameful or dangerous, adolescents often delayed disclosure, even in cases of suspected infection (Talukdar et al., 2023; Kumbeni et al., 2020). These dynamics closely track WHO adolescent-health models, which emphasize family communication as a determinant of timely health-service utilization.

Theme 4 - School and Community Programmes as Sites for Reframing Cultural Meaning through Language

Where Themes 1– 3 focused on the instructional benefits of indigenous languages and the domestic reproduction of menstrual discourse, Theme 4 shifts attention to schools and community-based programmes as institutional arenas in which menstrual meanings are actively renegotiated. Formal schooling is repeatedly depicted in the reviewed studies as a site of implicit language policy. Even when national curricula are written in English, French, or Portuguese, teachers routinely engage in ad-hoc translation into local languages to manage sensitive topics. Several Nigerian studies (Oche et al., 2012; Nnennaya et al., 2021; Uzoechi et al., 2023) described how teachers switched strategically into Hausa, Igbo, or Yoruba when addressing menstrual pain, pad disposal, or cycle regularity areas where students remained silent in English-only lessons.

Ghanaian work by Dorgbetor (2015) and Kumbeni et al. (2020) similarly portrayed classrooms as multilingual spaces in which teachers navigated between official curricular registers and vernacular explanatory frames. Importantly, teachers reported that when they relied exclusively on textbooks written in English, girls were reluctant to ask questions, whereas locally framed discussion invited participation. East African qualitative studies reinforce this pattern. Mason et al. (2013), McMahon et al. (2011), Nalugya and Seeley (2019), and Sommer et al. (2019) documented how Kiswahili- or Luganda-mediated puberty sessions generated more open dialogue than English lessons, particularly in rural settings. Ethiopian research by Tegegne and Sisay (2014) and Ayele et

al. (2018) further showed that teachers who incorporated indigenous languages were better able to correct myths about bathing or physical activity during menstruation.

A striking feature of the interventions reviewed is their reliance on performative and dialogic pedagogies delivered in local languages. Community theatre programmes in Ghana (Dorgbetor, 2015) and Uganda (Ellis et al., 2018) used dramatized scenarios to depict girls managing menstruation confidently, confronting teasing peers, or seeking help from teachers. Because these narratives were enacted in vernacular languages, audiences described them as authentic reflections of everyday life rather than externally imposed health messaging. Peer-education clubs in Kenya and Uganda (Sommer et al., 2016; Kansiime et al., 2020) trained adolescents to facilitate discussions in local languages, allowing new terminologies to circulate horizontally among youth rather than flowing solely from adults to children. These clubs were frequently credited with altering the " tone" of menstrual talk in schools from whispered secrecy to open discussion suggesting that linguistic change is accelerated when adolescents themselves become agents of discourse reform.

In South Asia, Rajagopal and Mathur (2017) reported similar effects from village-level dialogue sessions conducted in Hindi and regional languages, where adolescent facilitators modelled how to ask questions about cramps or irregular bleeding using neutral vocabulary. Torondel et al. (2018) observed that hygiene-promotion workshops in Odisha that adopted local idioms for anatomy and infection achieved greater community attendance than sessions delivered solely in biomedical registers. Beyond schools, vernacular media emerged as one of the most powerful mechanisms for reshaping menstrual discourse at scale. Bangladeshi radio programmes analysed by Talukdar et al. (2023) and Alam et al. (2017) deliberately avoided euphemisms associated with impurity, instead introducing physiologically precise Bangla terminology. Adolescents reported replaying segments for family members, thereby extending the pedagogical reach into households.

In Nigeria and Ghana, radio jingles and talk shows cited in Oche et al. (2012), Nnennaya et al. (2021), and Dorgbetor (2015) functioned as linguistic legitimators, signalling that public discussion of menstruation in local languages was socially sanctioned. Several adolescents described using phrases learned from broadcasts when speaking to mothers or teachers, illustrating how media can seed vocabulary that migrates into interpersonal domains. Evidence from Indigenous communities in Australia and Canada summarized by Milroy et al. (2023) further illustrates the transformative potential of institutionally supported vernacular programming. School-community partnerships that incorporated Aboriginal languages into puberty curricula were credited with revitalizing cultural pride while simultaneously improving girls' willingness to engage with health services.

Conclusion

This systematic review synthesised evidence from more than one hundred peer-reviewed studies, ethnographic monographs and chapters, and international technical reports to examine how indigenous languages, household discourse, school-based programmes, and community communication systems shape adolescent menstrual health knowledge, stigma, hygiene practices, and school participation.

Across regions Nigeria, wider sub-Saharan Africa, South Asia, and Indigenous communities in high-income countries the findings converge on a central conclusion: language is not a peripheral variable in menstrual-health education but a structural determinant of adolescent wellbeing. Indigenous and mother-tongue languages mediate comprehension of biomedical concepts, regulate emotional responses to menarche, and delimit which questions adolescents can ask and to whom. When vernacular languages are mobilised deliberately and reflexively through participatory curricula, community theatre, radio programming, and intergenerational dialogue they function as powerful tools for destigmatisation, literacy building, and behavioural change. When left

unexamined, however, the same linguistic systems may reproduce euphemism, silence, and moralised interpretations that impede hygiene practices and delay care-seeking.

The review demonstrates that households, particularly mothers and elder female relatives, remain adolescents' primary sites of menstrual socialisation. These domestic conversations conducted overwhelmingly in indigenous languages transmit culturally embedded understandings of menstruation that may complement or contradict school curricula. Schools and community programmes emerge as pivotal institutional arenas capable of renegotiating these meanings, especially when they incorporate local languages into teaching, train educators to confront taboo discourse, and involve adolescents themselves as peer educators. Vernacular media extend these effects beyond classrooms, seeding new registers of menstrual talk that circulate through families and neighbourhoods.

Taken together, the evidence positions menstrual-health education as an implicit form of language policy. Decisions about which languages are authorised in classrooms, which terms are considered acceptable in public discourse, and whose linguistic knowledge is legitimised in health messaging directly shape adolescents' capacity to manage menstruation safely and confidently. This insight has important implications for national education systems, reproductive-health strategies, and rights-based adolescent-health initiatives championed by WHO, UNICEF, and UNESCO.

Recommendations

Drawing on the thematic synthesis, the review advances the following policy, programme, and research recommendations.

1. Ministries of education and health should move beyond informal teacher translation and formally integrate indigenous and local languages into puberty and menstrual-health curricula. Instructional materials—textbooks, teacher guides, audiovisual resources—should be developed in dominant local languages alongside national or colonial languages, with attention to culturally acceptable yet anatomically precise terminology.
2. Curricular reform should recognise menstrual-health education as a priority domain for mother-tongue instruction, particularly in rural and linguistically marginalised communities where second-language proficiency remains limited. Many studies in this review highlighted lexical gaps for biomedical concepts such as ovulation, uterine lining, or infection in indigenous languages. Governments and development partners should therefore fund participatory glossary-building initiatives involving adolescents, mothers, elders, linguists, teachers, and clinicians. These efforts should be coordinated nationally to avoid fragmented or contradictory registers across regions.
3. Given the central role of mothers and elder female relatives as linguistic gatekeepers, menstrual-health programmes must extend beyond schools to engage adult women directly. Recommended strategies include; mother– daughter dialogue workshops delivered in local languages; community radio segments aimed at caregivers; women' s-group discussions facilitated by trained health workers; and printed vernacular guides for household use.
4. Teacher-training colleges and continuing professional-development programmes should include modules on; multilingual pedagogy for sensitive health topics;managing taboo discourse in classrooms;translating biomedical concepts accurately into local languages; and fostering gender-inclusive discussion spaces.Similarly, frontline health workers should receive training in communicating menstrual issues in indigenous languages in ways that respect cultural norms while challenging harmful misconceptions.
5. Radio programmes, theatre groups, storytelling sessions, and social-media campaigns in local languages should be scaled up as complements to school curricula, particularly for reaching out-of-school adolescents. These platforms can normalise public discussion of menstruation, circulate new vocabulary, and involve boys and men in stigma-reduction efforts. Coordination

between schools, community organisations, and national broadcasters would maximise message consistency and reach.

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