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Building Leadership Pipelines for Public Health Change: Cultivating Girls as Future Women Leaders in Health Decision-Making Through Integrated Autonomy and Civic Participation Training in Secondary Schools

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Research Article

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Abstract

Background

Women leaders are significantly underrepresented in health policy and programme decision-making globally, and this gap often begins in adolescence. Namibia faces persistently high teenage pregnancy rates; a public health crisis linked to school dropout and constrained economic futures- yet adolescent girls are rarely positioned as future public health leaders or agents of community change. We hypothesised that early preparation of girls as informed decision-makers and civic advocates, integrated with Sexual and Reproductive Health and Rights (SRHR) education, leadership skill development, and body autonomy training, would not only improve health knowledge and agency but also establish foundational competencies for girls to become future women leaders shaping reproductive and public health outcomes in their communities.

Methods

A convergent mixed-methods design was applied in a pilot secondary school in Namibia. Baseline and post-intervention assessments measured SRHR knowledge, self-reported decision-making confidence, and emerging leadership competencies. Qualitative data were collected through participatory learning sessions, focus group discussions, and facilitator reflections. A Training-of-Trainers (ToT) model built local capacity among teachers and youth mentors, positioning them as advocates for girls' leadership development. Learner-led leadership clubs were established to sustain peer education and community advocacy beyond the intervention. Fifty-seven (57) female secondary school learners participated, with teachers and community stakeholders as secondary participants.

Results

Post-intervention assessments showed statistically significant improvements in SRHR literacy and self-reported decision-making confidence. Importantly, girls demonstrated emerging leadership competencies: greater capacity to advocate for themselves and peers, initiate health conversations with trusted adults, and envision themselves as agents of community health promotion. Learner-led clubs sustained high engagement, functioning as spaces where girls developed peer advocacy skills. Qualitative data revealed a fundamental shift in self-perception: girls moved from viewing themselves as passive recipients of health information to identifying as advocates for their own and their peers' reproductive and health rights. Curriculum alignment with the Namibian Ministry of Education framework, along with buy-in from school and community leaders, positioned the programme for policy integration and scale-up. Evidence of programme sustainability was demonstrated through local facilitator capacity-building and the autonomous functioning of learner-led clubs beyond external facilitation.

Conclusions

A school-based, multi-component intervention that integrates SRHR education, body autonomy training, and explicit leadership development cultivates girls as informed decision-makers and establishes early pathways to women's leadership in health. The model demonstrates feasibility, cultural acceptability, and effectiveness in sub-Saharan Africa and addresses a critical gap in women's pipeline development for public health leadership. Integration into national adolescent health policy and expansion to secondary schools nationally is warranted. The intervention's embedding of sustainability mechanisms—through a Training-of-Trainer's approach and learner-led clubs—positions the programme for continuation as standard school health practice. This work contributes to building the evidence base for leadership-informed public health interventions and demonstrates how strengthening girls' civic participation and community advocacy competencies during secondary school establishes foundations for lifelong engagement in health policy and systems change.

1. BACKGROUND

Women remain significantly underrepresented in health policy, planning, and governance structures globally. This leadership gap is particularly acute in low- and middle-income countries (LMICs), where women's voices are often marginalized in decisions affecting reproductive, maternal, and community health outcomes. Yet this pattern has roots in adolescence: girls are rarely prepared or positioned as future agents of health change during their formative years, contributing to a lifelong pattern of exclusion from health leadership pathways.

Namibia exemplifies this dual crisis. The country faces persistently high teenage pregnancy rates, with girls aged 13–19 years—particularly those from underserved rural and peri-urban communities—facing compounding vulnerabilities: limited access to accurate SRHR information, gender-based power imbalances, and a systemic lack of adults who meaningfully engage girls in health conversations or decision-making. Critically, this exclusion of girls from their own health decision-making mirrors and reinforces broader patterns in which women are absent from health governance. The consequences extend far beyond individual health: affected girls experience school dropout, curtailed economic opportunities, and reduced capacity to participate civically.

While national reproductive health policies exist in Namibia, translating these into school-level programmes remains inconsistent. Furthermore, most existing programmes position girls as passive recipients of health information rather than as emerging leaders and future agents of health systems change. Critical gaps remain: the integration of body autonomy training, explicit leadership skill development, and civic participation competencies into SRHR education. Yet evidence increasingly demonstrates that girls who are equipped with decision-making skills, body autonomy, and leadership competencies not only make safer health choices for themselves but also become advocates within their families and communities—a pathway to adult leadership in health systems.

1.1 The Global Evidence Gap in Women's Leadership Pipeline Development

While substantial research demonstrates that women's underrepresentation in health governance has consequences for health equity and population health outcomes, critical gaps remain in understanding how to BUILD the leadership pipeline such that girls transition from adolescence into adult health leadership roles. The evidence base is characterized by:

Absence of Developmental Juncture Analysis: Most literature on women in health leadership focuses on adult women's barriers to advancement (glass ceiling, discrimination, work-family balance). Few studies examine the developmental juncture where girls' leadership pathways diverge from boys'—during adolescence. Yet longitudinal evidence suggests that educational and leadership experiences during secondary school have lasting consequences for adult civic and professional engagement. The absence of research on adolescent girls' preparation for health leadership represents a critical gap: we know adult women are underrepresented in health governance, but we have limited evidence on how to build girls' competencies, confidence, and identity as future health leaders during the formative secondary school years.

Limited School-Based Leadership Development for Girls: While school-based reproductive health education is increasingly common in LMICs, and while leadership development programmes exist, the integration of SRHR education WITH explicit leadership development AND body autonomy training—specifically designed to position girls as future health systems change-agents—remains uncommon. Most SRHR programmes focus on health knowledge or risk reduction; few explicitly frame girls' health decision-making as a leadership competency or position girls as future advocates within health governance structures. This represents a conceptual and programmatic gap: the opportunity to transform adolescent health education from individual health literacy into foundational women's development.

Absence of Evidence on Pathways from School-Based Advocacy to Health System Participation: Critically, evidence is lacking on whether girls who develop health advocacy competencies during school transition into adult participation in health governance. Without longitudinal evidence documenting these pathways, it is difficult to make the case to policymakers that adolescent leadership development represents a return-on-investment for health systems. This pilot provides preliminary evidence; larger longitudinal studies are needed.

Underinvestment in Sub-Saharan African Evidence: While some leadership development programmes for adolescent girls exist globally (primarily in high-income countries), evidence from sub-Saharan African contexts—where women's health leadership capacity-building is most urgent, and where context-specific barriers and enablers differ significantly—remains limited. Demonstrating that girls' leadership development is feasible, culturally acceptable, and effective in sub-Saharan African school settings is essential to informing regional investment.

The Current Study: This pilot addresses these evidence gaps by explicitly examining how a school-based intervention integrating SRHR education, body autonomy, and leadership development can: (1) cultivate girls' identity as health advocates; (2) build specific leadership competencies; (3) position girls as contributors to school and community health decision-making; and (4) establish early pathways to women's participation in health governance. By documenting this process in a Namibian secondary school context, this research contributes to building an evidence base for girls' leadership development as an intervention pathway to women's representation in health systems—addressing a critical gap in both women's leadership development and public health systems strengthening research.

The WomenLift Health fellowship framework, under which this project was developed, centres on four pillars of transformative leadership: Authentic, Inclusive, Strategic, and Impactful. Applied to adolescent programme design, these pillars offer a reconceptualization of SRHR education—not as a health literacy challenge alone, but as a foundational opportunity to cultivate the next generation of women leaders in public health and civic life. By explicitly positioning girls as emerging change-makers and future health leaders, integrated SRHR, autonomy, and leadership education addresses a critical gap in both public health and women's leadership development.

Study Aim: The primary aim of this study was to design, implement, and evaluate a school-based intervention that integrates SRHR education, body autonomy training, and explicit leadership development for female secondary school learners in Namibia, with the overarching goal of: (1) improving reproductive health knowledge and girls' decision-making agency, and (2) cultivating early pathways to girls' engagement as future women leaders in community health decision-making and health systems advocacy. A secondary aim was to assess the intervention's potential for policy integration and systemic scale-up, critical indicators of capacity for women's leadership in health governance.

2. METHODS

2.1 Study Design

A convergent parallel mixed-methods design was adopted, enabling simultaneous collection and integration of quantitative assessment data (knowledge, confidence, leadership competency indicators) and qualitative experiential data (narratives of empowerment, agency, and self-perceived leadership capacity). This design was selected to capture measurable shifts (quantitative) and the nuanced lived experiences of participants within culturally sensitive contexts (qualitative).

2.2 Setting and Participants

The intervention was implemented in a pilot secondary school in Namibia, selected in collaboration with school leadership and local education authorities. Inclusion criteria for learner participants were female gender, enrolment in secondary school, age 13–19 years, and assent (with guardian consent where required). Fifty-seven (57) female secondary school learners participated in the pilot cohort. Teachers,

youth mentors, parents, and community influencers were engaged as secondary stakeholders through sensitisation meetings, the Training-of-Trainer's programme, and learner-led community engagement activities. This multi-stakeholder approach reflected a systems change perspective, recognising that girls' emergence as health leaders requires supportive environments across school, family, and community.

2.3 Intervention Description

The intervention comprised four interconnected modules, each designed to build both health knowledge and leadership competencies:

Module 1—Consent and Body Autonomy: Participatory sessions exploring consent, personal boundaries, and the right to make autonomous decisions about one's body. Positioned as foundational to girls' leadership: the capacity to define and assert boundaries is essential both to reproductive health and to broader civic participation and leadership.

Module 2—Decision-Making and Advocacy Skills: Structured exercises, role-play scenarios, and peer-led discussions designed to strengthen girls' ability to assess risk, communicate assertively, resist coercive pressure, and advocate for themselves and peers. These competencies are explicitly framed as foundational to public health leadership.

Module 3—Leadership and Civic Participation: Facilitated discussions and activities grounding health decision-making within a broader leadership framework. Girls explored how women shape community health, examined barriers to women's participation in health decisions, and developed a vision for their own roles as future health advocates. Skills in community dialogue, peer education, and policy awareness were emphasised.

Module 4—Sexual and Reproductive Health and Rights (SRHR) Fundamentals: Age-appropriate, curriculum-aligned content covering reproductive anatomy, contraception, menstruation, pregnancy prevention, STI awareness, and girls' rights to health information and services. This content was consistently framed within a leadership context: understanding SRHR is presented as knowledge that equips girls to make informed decisions and to advocate for their peers.

Delivery modalities included participatory learning, safe-space group sessions, peer-led discussions, structured mentorship with trained teachers and youth mentors, and learner-led leadership clubs. A Training-of-Trainers (ToT) approach equipped teachers and youth mentors to serve as sustainable in-school facilitators and champions of girls' leadership development. Learner-led leadership clubs were explicitly designed as spaces where girls would sustain peer education, develop community advocacy skills, and begin to function as health leaders within their schools and communities.

Partnerships were established with local SRHR-focused NGOs to provide technical input and with community health workers and local government health officials to link school-based work to health system decision-making. Sensitisation meetings with parents, teachers, and community influencers

aimed to foster support for girls' health knowledge, autonomy, and emerging leadership roles. These partnerships reflected a systems-change approach, recognising that sustainable integration of girls' leadership into health governance requires buy-in across multiple stakeholder levels.

2.4 Data Collection and Leadership Outcome Measures

Quantitative Measures: Pre- and post-intervention knowledge assessments on SRHR topics (validated for the Namibian adolescent population). Self-reported confidence scales assessed participants' perceived ability to make autonomous reproductive health decisions, assert boundaries, communicate with trusted adults, and advocate for their peers. Emerging leadership competency indicators included items measuring girls' perception of themselves as health advocates and their confidence in initiating health conversations with others.

Qualitative Measures: Facilitator field notes, focus group discussions with participant learners and teachers, reflective documentation of safe-space sessions, and observation of learner-led club functioning. Thematic analysis was conducted using an inductive framework to identify emergent themes related to empowerment, agency, self-perceived leadership capacity, and systemic barriers to women's health leadership.

2.5 Monitoring and Evaluation Framework

Monitoring indicators were established across five domains:

Health Knowledge: Pre/post test scores on SRHR topics.

Decision-Making Agency: Self-reported ability to make decisions, assert boundaries, and seek health information.

Leadership and Civic Engagement: Self-reported perception as a health advocate; participation in leadership clubs; engagement in peer education and community advocacy activities.

Systemic Integration: Curriculum alignment with national education and health frameworks; school and community leader endorsement; positioning for policy adoption and scale-up.

Sustainability: Capacity building among teachers and youth mentors; functioning learner-led clubs; evidence of peer-to-peer health advocacy beyond the intervention period.

2.6 Ethical Considerations

The study was conducted in accordance with the Declaration of Helsinki. Ethical clearance was not required, as this was an evaluation rather than research requiring formal ethics review. Informed consent was obtained from all adult participants and guardians of minor participants; learner assent was obtained in line with age-appropriate protocols. All data were anonymised and stored securely. Participation was voluntary, with no consequences for withdrawal. Special attention was paid to

ensuring that participation did not cause harm and that girls' voices were centred in the design and implementation of the intervention.

3. RESULTS

3.1 Participant Engagement and Programme Fidelity

Fifty-seven female secondary school learners completed the pilot intervention. Participation rates in safe-space sessions and leadership club activities were high (mean attendance >85%), with facilitators reporting consistent engagement and active learner participation. Uptake of the Training-of-Trainers programme among teachers and youth mentors was strong, resulting in a cadre of locally embedded facilitators capable of sustaining the programme. The transition from a public to a private school during implementation—necessitated by institutional barriers—demonstrated the programme's adaptability and the facilitators' strategic problem-solving capacity, itself a model of the type of leadership the intervention aimed to cultivate.

3.2 SRHR Knowledge Outcomes

Comparative analysis of pre- and post-intervention knowledge assessments revealed statistically significant improvements in participant scores across all four SRHR module areas. The most pronounced gains were observed in the domains of consent and body autonomy, and in knowledge of contraceptive options—areas with the largest baseline deficits. Girls demonstrated an improved ability to articulate their reproductive health rights and to explain how these rights relate to their decision-making agency.

3.3 Decision-Making Agency and Leadership Competency Outcomes

Self-reported confidence and agency scales showed marked improvements post-intervention. Participants reported greater confidence in refusing unwanted sexual advances, discussing boundaries with peers and partners, and seeking support from trusted adults including teachers and parents. Critically, girls also reported increased confidence in discussing health topics with peers, initiating conversations about reproductive health with classmates and siblings, and seeing themselves as people who could help others understand health. These latter findings suggest emerging development of peer advocacy competencies.

3.4 Sustainability Outcomes: Structural Mechanisms for Continuation

A distinctive feature of the intervention design was the intentional embedding of sustainability mechanisms within the programme structure, ensuring that impact was not dependent on external facilitation or temporary project funding.

Training-of-Trainers Model and Local Facilitator Capacity

The ToT programme equipped 4 teachers and 2 youth mentors (6 local facilitators total) with competency-based training in: (a) facilitation of safe-space discussions; (b) adolescent reproductive health content delivery; (c) leadership skill development; (d) programme evaluation. Post-intervention, facilitators independently led safe-space sessions and mentorship activities with minimal external support. By end of pilot, facilitators reported feeling confident in programme delivery and expressed commitment to continuing the programme as part of their formal school responsibilities. Notably, facilitators themselves began advocating for girls' leadership development within school leadership meetings, demonstrating that the intervention created champions invested in programme sustainability. Teacher facilitators requested inclusion of health leadership training in their professional development records, signalling institutional integration and career incentive linkage.

Learner-Led Leadership Clubs as Self-Sustaining Structures

Three (3) learner-led health leadership clubs were established across the school, with girls taking primary responsibility for club leadership, agenda-setting, and peer education. Club functioning was characterized by:

• Girl-selected leadership structures (president, treasurer, health advocacy officer, community liaison officer).
• Girls autonomously scheduling club meetings (independent bi-weekly meetings by end of pilot).
• Documented activities including peer health education sessions, community health messaging, support for pregnant and parenting students, and engagement with school leadership on health issues.
• Peer mentoring of younger cohorts, with older girls training younger girls on club functioning.
• Evidence of institutionalization: School administration allocated space for regular club meetings; clubs were invited to present at school assemblies; and has plans underway to include health club leaders in school management committee meetings.

Sustainability indicators suggest learner-led clubs will likely continue post-programme: (95% of club members reported wanting to continue meeting; facilitator observations indicate girls can sustain 80%+ of club activities without external input; school administrations expressed commitment to providing space and light facilitation support to continue clubs; documented institutional support demonstrates pipeline of younger girls with interest in joining clubs, suggesting leadership succession and continuity).

School-Level Integration and Institutional Adoption

Beyond individual facilitators and clubs, systems-level indicators of sustainability included:

• Official recognition of health leadership clubs in school calendars and timetables
• Allocation of school resources (meeting space, modest materials budget) for club functioning
• Integration of facilitators' roles into formal job descriptions (teachers noted health leadership facilitation should be recognized in their teaching portfolios)

• School leadership endorsement: The school principal explicitly committed to continuing health leadership clubs as part of standard school health programming
• Parent and community support: Parents reported interest in seeing the programme continue and offered to support girls' health advocacy activities in their communities

These sustainability mechanisms suggest that the intervention has created conditions for continuation beyond the pilot phase without ongoing external support, a critical indicator of programme viability for scale-up. The structural embedding of the ToT model and learner-led clubs within existing school systems, combined with demonstrated local facilitator competence and institutional commitment, provides strong evidence that the programme can transition from a time-limited pilot to an institutionalized component of school health programming.

3.5 Qualitative Findings: From Recipient to Advocate

Thematic analysis of qualitative data yielded five primary themes, with significant implications for girls' emerging leadership:

Safe Spaces as Transformative Environments for Civic Participation: Girls consistently reported that the safe-space format—characterised by confidentiality, non-judgement, and facilitated peer dialogue—was essential to enabling honest engagement with SRHR topics typically silenced in school and home settings. Qualitatively, girls described these spaces as places where they could develop the confidence and skills to speak up and be heard foundational competencies for civic participation.

Leadership Framing as Transformative: Positioning SRHR education within an explicit leadership development framework powerfully shifted girls' self-perception. Rather than viewing themselves as passive recipients of health information, girls reported a fundamental shift in identity: describing themselves as advocates for their own and their peers' health, envisioning themselves as future health leaders, and recognising that reproductive health knowledge was a form of power they could exercise and share.

Peer Education and Community Advocacy as Leadership Practice: Learner-led clubs functioned not merely as peer education spaces but as forums where girls practised health advocacy. Girls reported initiating health conversations with siblings and parents, providing health information to peers, and identifying themselves as people to whom peers came with questions—early evidence of emerging health leadership.

Family and Community Enablement: Engagement of parents and community influencers contributed to a more supportive environment for girls' health learning and emerging leadership. Several participants reported that parents became more willing to discuss reproductive health following school sensitisation meetings, and some girls reported that parents explicitly encouraged them to use what they had learned to help younger siblings.

Structural and Cultural Barriers to Girls' Health Leadership: Facilitators and participants identified persistent socio-cultural norms equating girls' sexual assertiveness with promiscuity, limited school counselling resources, and broader gender norms limiting girls' civic voice. These findings underscore the need for complementary community-, policy-, and systems-level interventions to fully enable girls' transition from emerging advocates to established women leaders in health governance.

3.6 Systems-Level Outcomes and Capacity for Policy Integration

The curriculum developed through this intervention was strategically aligned with the Namibian Ministry of Education framework, a decision that facilitated institutional acceptance and positioned the programme for policy-level scale-up. Partnerships with local SRHR NGOs and coordination with health sector stakeholders during the pilot established sustainable technical support channels and created pathways for linking school-based girls' leadership development to health system decision-making structures. School and community leaders endorsed the programme and expressed commitment to its continuation, indicating readiness for integration into school health frameworks. These systems-level outcomes are critical indicators of the intervention's potential to influence public health governance and women's representation in health decision-making.

4. DISCUSSION

This pilot study provides evidence that a structured, school-based intervention integrating SRHR education, body autonomy training, and explicit leadership development is feasible, culturally responsive, and effective in improving health knowledge, decision-making agency, and emerging leadership competencies among adolescent girls in Namibia. These results align with growing evidence of multi-component school-based adolescent health interventions while making a distinctive contribution: the explicit positioning of girls as future women leaders in public health.

Cultivating Women's Leadership Pathways through Adolescent Intervention

The integration of leadership development as a core intervention component is both a conceptual and programmatic innovation. Women's underrepresentation in health governance is a persistent global challenge; yet few interventions explicitly target adolescence as a critical juncture for building the foundation of girls' engagement in health leadership. By framing reproductive decision-making as a leadership competency—rather than purely a health literacy challenge—the intervention repositioned girls as active agents in their own futures and as potential contributors to health systems change.

Safe Spaces as Foundational to Civic Participation

The use of safe spaces as the primary delivery modality addressed a critical gap in conventional school health programmes: the absence of psychologically safe environments for girls to discuss sensitive topics and to develop the confidence to speak up. Qualitative observations indicate that safe spaces

enabled disclosure, peer learning, and the development of girls' confidence in articulating their own perspectives—foundational competencies for civic participation.

Building Systemic Capacity for Women's Health Leadership and Embedding Sustainability

The Training-of-Trainer's approach was a key structural feature, ensuring that programme impact was not solely dependent on an external facilitator. By building the capacity of teachers and youth mentors to serve as facilitators and advocates for girls' leadership development, the intervention fostered local ownership and established a foundation for longitudinal sustainability. The establishment of learner-led clubs' functions similarly: by creating structures where girls practise health advocacy and peer education, the intervention embeds leadership development into the school system.

The embedding of sustainability mechanisms—through a Training-of-Trainers model and learner-led clubs—ensures that the programme can transition from a time-limited pilot into an institutionalized component of school health programming. Teachers expressed commitment to continue facilitating; girls demonstrated ability to lead clubs with minimal adult direction; and school administrations allocated resources for programme continuation. These outcomes suggest that with modest scaling support and policy-level enabling, the intervention can achieve true sustainability and move from a time-limited pilot to an institutionalized component of school health programming.

Policy Alignment and Institutional Readiness

The strategic alignment of the intervention with the Namibian Ministry of Education framework was intentional and critically important. Integration into existing policy frameworks removes a major barrier to scale-up and signals to policymakers that girls' leadership development in health is not an add-on but a core component of national health and education strategy. The expressed commitment of school and community leaders to programme continuation suggests institutional readiness for integration into standard school health practice.

Positioning for Long-Term Leadership Pathway Tracking

While this pilot provides evidence of short-term effectiveness, a critical next step involves longitudinal tracking of girls' health leadership engagement post-secondary school. This study establishes the foundation for a prospective cohort study following these 57 girls over 5–10 years to document: (1) Transition from school-based health advocacy to adult health leadership roles (community health worker positions, health facility committees, district health management team participation); (2) Engagement in health-related tertiary education and careers; (3) Sustained peer and family health advocacy in adult years; (4) Influence on reproductive health outcomes in their own families and communities; (5) Participation in health policy dialogue and advocacy at local and national levels.

The girls in this cohort are aged 13–19 years at intervention; a 5-year follow-up (when they are 18–24) would capture critical transition points from secondary school into higher education and early career pathways, illuminating whether school-based leadership development establishes durable pathways to

women's health leadership in adulthood. A 10-year follow-up would assess whether girls who developed leadership competencies during secondary school are represented in formal health system decision-making structures—a critical indicator of intervention impact on women's participation in health governance.

This longitudinal vision positions the current pilot as foundational evidence for a larger, multi-phase research agenda examining how early investment in girls' health leadership development translates to women's participation in health systems across the lifespan.

Addressing Barriers to Women's Health Leadership

Qualitative findings highlight enduring structural and cultural barriers—gender norms limiting girls' sexual assertiveness, restricted access to counselling resources, and broader patterns of gender inequality in health systems. These findings emphasise that school-based programmes, however well designed, cannot alone create the systemic conditions necessary for girls to transition from emerging advocates into established women leaders in health. Complementary community engagement, policy reform to mandate women's representation in health governance, and systemic gender-transformative approaches are essential.

Contribution to Women's Leadership Equity and Public Health

By explicitly cultivating girls as future women leaders in health during their secondary school years, this intervention addresses a critical gap in both women's development and public health systems. The research documents not only improved health outcomes for individual girls but also the emergence of health advocacy competencies and the beginnings of girls' positioning as contributors to community health—elements essential to women's participation in health governance.

The WomenLift Health fellowship model—centred on authentic, inclusive, strategic, and impactful leadership—provided an effective framework not only for programme design but also for the lead facilitator's own development as a health leader and systems change agent. This underscores the value of leadership fellowships as mechanisms for scaling evidence-based health interventions through empowered, purpose-driven practitioners.

5. CONCLUSION

This study demonstrates that a multi-component, school-based intervention integrating SRHR education, body autonomy training, and explicit leadership development can improve health knowledge, decision-making agency, and cultivate girls as emerging leaders in their communities' health. The pilot provides evidence that strategic investment in girls' development as health advocates and future women leaders during secondary school establishes critical foundations for women's participation in health governance and systems change.

5.1 Specific Policy Integration and Implementation Recommendations

Integration into National Frameworks: The Namibian Ministry of Education and Ministry of Health and Social Services should formally integrate the school-based girls' leadership development curriculum into: (a) the National Curriculum Framework for Life Skills and Social Sciences; (b) the Namibian National Adolescent Sexual and Reproductive Health Strategy 2016-2021 (renewal cycle); and (c) the National School Health Policy. This integration removes barriers to adoption and signals that girls' health leadership development is a core national priority, not an add-on.

Teacher Training Curricula: Girls' health leadership development must be embedded into pre-service and in-service teacher training. We recommend:
• Inclusion of modules on "Gender-Transformative Health Education Leadership" in all initial teacher education programmes
• Mandatory professional development on facilitating safe spaces and adolescent health advocacy in teacher continuing education requirements
• Certification of teachers as "Health Leadership Facilitators" creating formal recognition and career pathway incentives for teachers engaging in this work

Linkages to Health System Decision-Making: Formal mechanisms must link school-based girls' leadership development to health system structures:
• Inclusion of youth representatives (ideally including girls who have participated in health leadership programmes) on District Health Management Team boards and health facility committees (currently male and adult-dominated)
• Establishment of "Girls' Health Advisory Committees" at regional level, comprising secondary school girls, to provide input on adolescent health policy
• Integration of girls' health leadership club representatives into school health committees and district health planning processes
• Annual "Girls' Health Leadership Forums" at district and national levels where girls can present findings and recommendations to policymakers

Resource Allocation and Budget Estimates: Scale-up to national level requires dedicated funding:
• Cost of teacher training (ToT): Approximately USD 200-300 per teacher for 5-day intensive programme (based on reasonable costs)
• Curriculum development and materials: USD 15,000-20,000 for national curriculum adaptation
• Programme implementation per school: USD 3,000-5,000 annually (facilitator time, materials, transportation, learner incentives for peer leaders)
• For scale-up to 100 secondary schools nationally: Estimated annual investment of USD 350,000-500,000
• Cost per girl served: USD 150-250 annually (based on projected 2,000-2,500 girls in 100 schools)
• This compares favourably to other girls' health interventions and represents investable commitment to women's leadership development pipeline

Scale-Up Strategy: Phased implementation is recommended:
• Phase 1 (Years 1-2): Expand to 10 high-performing public secondary schools in 3 regions (Khomas, Oshana, Erongo), with intensive monitoring
• Phase 2 (Years 2-4): Scale to 30 additional schools with lighter-touch support and peer facilitator mentorship
• Phase 3 (Year 4+): National coverage targeting all urban and accessible rural secondary schools
• Parallel advocacy for policy integration should occur in Phase 1, ensuring institutional readiness precedes scale-up

Complementary Policy Advocacy: Beyond curriculum and resource allocation, the following policy changes are essential to enabling girls' transition from school-based advocates to health system leaders:
• Legislation mandating women's representation (minimum 40%) on all school and health system governance committees
• Health system career pathways for youth health leaders (e.g., community health worker, health facility committee member, health system apprenticeships)
• Girls' Health Rights Charter articulating girls' entitlements to health information, services, and meaningful participation in health decisions—integrated into school and health system policies
• Annual monitoring and reporting on girls' representation in health governance structures (currently absent from health ministry reporting frameworks)

Development of digital SRHR and leadership content tailored to this programme would extend cost-effective reach, particularly in geographically remote regions. Critical for expansion, however, is the establishment of systems-level support for girls' leadership development—mechanisms ensuring that girls transition from school-based advocacy into adult participation in health governance, community health worker roles, or health system careers. Similar mechanisms at scale could systematically strengthen women's voices in health systems across sub-Saharan Africa.

5.2 Future Research Agenda

This pilot establishes the foundation for a multi-phase research programme examining girls' leadership development as a pathway to women's health governance participation:

Longitudinal Cohort Study (5–10-year follow-up): Prospective tracking of girls through secondary school completion and into early adulthood (ages 18-24 and 25-30), documenting pathways from school-based health advocacy into formal health leadership roles (health system employment, committee participation, community health worker positions, tertiary health education).

Comparative Implementation Study: Replication of the intervention in 2-3 additional sub-Saharan African countries (e.g., Zambia, Kenya, Zimbabwe) to assess adaptation requirements, contextual facilitators and barriers, and generalizability of effectiveness. This would generate evidence for continental scale-up.

Cost-Effectiveness Analysis: Rigorous documentation of programme costs, cost per girl, cost-effectiveness relative to other adolescent health interventions, and return-on-investment for health systems. This is essential for policymaker decision-making and resource mobilisation.

Digital Adaptation and Scale-Up: Development and evaluation of digital SRHR and leadership content tailored to this curriculum, enabling cost-effective delivery in geographically remote regions where in-person facilitation is challenging.

Large-Scale Randomised Controlled Trial: With longer-term follow-up (10+ years) tracking girls' health leadership engagement, employment in health-related roles, and influence on health outcomes in their families and communities. This would provide high-level evidence of intervention effectiveness for health systems policy.

Policy Evaluation: Assessment of policy adoption, implementation fidelity, quality of scale-up, and effectiveness of different policy models (e.g., integration into teacher training curricula vs. health system-led models) in driving girls' leadership development at scale.

These research priorities, emerging from this pilot, would build the evidence base necessary to establish girls' leadership development as a standard, evidence-based component of adolescent health programming and women's health governance strengthening across sub-Saharan Africa.

Abbreviations

SRHR – Sexual and Reproductive Health and Rights

ToT – Training-of-Trainers

MoH – Ministry of Health and Social Services, Namibia

MoE – Ministry of Education, Namibia

NGO – Non-Governmental Organisation

WLH – WomenLift Health

LMIC – Low- and Middle-Income Countries

BMC – BioMed Central

Declarations

Ethics Approval and Consent to Participate

The study was conducted in accordance with the Declaration of Helsinki. Ethical clearance was not required, as this was an evaluation rather than research requiring formal ethics review. Informed consent was obtained from all adult participants and guardians of minor participants; learner assent was obtained in line with age-appropriate protocols. All data were anonymised and stored securely. Participation was voluntary with no consequences for withdrawal.

Consent for Publication

Not applicable. No individual personal data is published in this article.

Availability of Data and Materials

The datasets used and/or analysed in the current study are available from the corresponding author on reasonable request.

Competing Interests

The author declares no competing interests.

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Authors' Contributions

LIO: Conceptualisation, project design, transport and logistics, intervention facilitation, data collection and analysis, manuscript writing, and final approval of the submission.

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