

Viral load suppression among undisclosed adolescents aged 10-19 living with HIV: A scoping review protocol

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Abstract

Background: Vertical transmission of HIV is prevalent among adolescents globally. Most of the adolescents living with HIV were infected with HIV during pregnancy and through breastfeeding. Though disclosure of HIV status by the primary caregiver is recommended to begin when the child reaches the age of eight years and older, disclosure hesitancy remains a challenge, resulting in the adolescent taking antiretroviral medication without informed knowledge.

Objective: This review study will be aimed to synthesize the best available studies at describing the magnitude of viral load suppression associated with undisclosed HIV status among adolescent adolescents aged 10-19 years old living with HIV.

Methods: This study will conduct evidence synthesis from the published literature about a research question regarding viral load suppression associated with undisclosed HIV status among adolescents living with HIV. The Population, Concept and Context (PCC) framework will be considered more useful in guiding this study. Search for various studies will be performed in PubMed, Medline, Embase, Google Scholar, and Science Direct from 2010 to 2024.

Results: A coding framework for qualitative studies will be developed, whereas summarised in tables, charts, and diagrams as captured from the data will be done. The findings will be key in informing practices, programs, and decision-making for the integration of services among adolescents living with unknown HIV status and to facilitate the issue of HIV disclosure for undetectable viral load achievement.

Conclusions: This study will shed light on the magnitude of viral load suppression associated with undisclosed HIV status among adolescents who acquired the infection through vertical transmission. The findings of this review will enhance the HIV disclosure for adolescent guidelines to improve the management and care regarding the challenge and to reduce HIV infection among adolescents and youth. Clinical Trial: none

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Original Manuscript

Viral load suppression among undisclosed adolescents aged 10-19 living with HIV: A scoping review protocol

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Abstract

Background: Vertical transmission of HIV is prevalent among adolescents globally. Most of the adolescents living with HIV were infected with HIV during pregnancy and through breastfeeding. Though disclosure of HIV status by the primary caregiver is recommended to begin when the child reaches the age of eight years and older, disclosure hesitancy remains a challenge, resulting in the adolescent taking antiretroviral medication without informed knowledge.

Aim: This review study will be aimed to synthesize the best available studies at describing the magnitude of viral load suppression associated with undisclosed HIV status among adolescent adolescents aged 10-19 years old living with HIV.

Method: This study will conduct evidence synthesis from the published literature about a research question regarding viral load suppression associated with undisclosed HIV status among adolescents living with HIV. The Population, Concept and Context (PCC) framework will be considered more useful in guiding this study. Search for various studies will be performed in PubMed, Medline, Embase, Google Scholar, and Science Direct from 2010 to 2024.

Findings: A coding framework for qualitative studies will be developed, whereas summarised in tables, charts, and diagrams as captured from the data will be done. The findings will be key in informing practices, programs, and decision-making for the integration of services among adolescents living with unknown HIV status and to facilitate the issue of HIV disclosure for undetectable viral load achievement.

Conclusion: This study will shed light on the magnitude of viral load suppression associated with undisclosed HIV status among adolescents who acquired the infection through vertical transmission.

The findings of this review will enhance the HIV disclosure for adolescent guidelines to improve the management and care regarding the challenge and to reduce HIV infection among adolescents and youth.

Key words: evidence synthesis, scoping review, HIV, disclosure, viral load suppression, adolescents

Background

Approximately 1.7 million children are living with HIV nationwide, of which most of them are residing in low-middle income countries and approximately 90% are in sub-Saharan Africa ^{1,2}. In late 1982, the first case of perinatal transmission of HIV was reported ¹. The vertical transmission mainly was perinatal whereby a mother transmitted HIV to their child either during pregnancy, childbirth, or breastfeeding ³. With an expansion roll out of prevention of mother-to-child transmission (PMTCT) services, the Joint United Nations Programme on HIV/AIDS (UNAIDS) reported that an estimated 80% of pregnant women with HIV infection have access to antiretroviral treatment resulting in globally decline of over 2 million perinatal HIV infections. However, despite the success of PMTCT scale-up, there were still an estimated 180 000 new infections in children, about 500 a day ¹.

With the expansion of effective ART, the population of children living with perinatally acquired HIV surviving into adolescence (aged 10–19) and early adulthood ⁴. By the time they reach the developmental transition period of adolescence, they have been living for a decade with a chronic disease ^{5,6}. Literature reveals that those adolescents living with perinatally acquired HIV experience poorer HIV-related outcomes such as virologic treatment failure and poorer retention in care ⁷. It was highlighted many children and adolescents living with HIV were enrolled in HIV care without the knowledge of their HIV status due of various reasons such as considering that the child is still too young to understand, stigmatization, fear of disclosing the mother/child HIV status ⁸.

Furthermore, some adolescents lack knowledge of their chronic HIV infection because they are live with extended family members after losing their parents to HIV with the high possibility that the parent HIV status was unknown or undisclosed. The HIV disclosure strategy is an ongoing process and can be done in phases. The partial disclosure to children/adolescents can be done when the child reaches the ages of 5–9 years, full disclosure at ages 10–12 years, and psychosocial support to transition to other relevant programs at ages 13–19 years ⁹. A study conducted in Uganda showed that up to 30 percent of HIV-infected children aged 5–17 years achieved full HIV status disclosure, and a similar study in Zimbabwe reported that 27 percent of HIV-positive children ages 9 to 15 years received full disclosure ⁹.

Two South African studies found that adolescents find it difficult to comply with a long-term

adherence to any ART medication regimen compared to adults. As a result, they face an unsuppressed viral load and fail virologically¹⁰. With the engagement of high-risk behaviours, some adolescents who are infected with HIV fail to respond optimally to ARVs, with only 24% achieving and maintaining undetectable viral loads¹¹. Adolescents face distinctive challenges in taking ART because of failure to take such their condition seriously, disclosure concerns, and stigma⁶. Although large studies of the efficacy of ART in HIV-infected adults and children have been conducted, relatively fewer data has been collected and synthesize describing how disclosure affect virologic outcomes among adolescents aged 10–19 years on ART¹¹. Hence, this scoping review aims to review and synthesize the existing literature regarding viral load suppression and disclosed HIV status among adolescents aged 10-19 years old living with HIV.

Materials and Methods

A scoping review will be conducted on the magnitude of viral load suppression associated with undisclosed HIV status among adolescent who acquired the infection through vertical transmission globally. The methodological structure for this scoping reviews will follow Arksey and O'Malley's framework^{12, 13}. This framework comprises of five phases namely: (1) identifying the research question, (2) identifying relevant studies, (3) identifying the study selection criteria, (4) charting the data incorporating both quantitative and qualitative thematic analysis and (5) collating, summarising, and reporting the results.

Review Process

Phase 1: Identifying the research question.

This Scoping reviews will form basis synthesised knowledge that will present a broad overview of the evidence of this research study in question. The concepts to assist in this research study will be mapped systematically and logically while searching, selecting, and synthesising existing data¹³. The primary research question for this review will be: What is the magnitude of viral load suppression associated with undisclosed HIV status among the adolescent who acquired the infection through vertical transmission in low-middle income countries?

The secondary question will be: how undisclosed to HIV status contribute unsuppressed VL among the adolescent who acquired the infection through vertical transmission in low-middle income countries?

Phase 2: Identifying relevant studies for this scoping review eligibility.

The three elements namely population, concept, and context (PCC) of the scoping review eligibility framework will be used to guide the establishment inclusion and exclusion criteria¹⁴. The adapted

PCC framework is illustrated in Table 1: below.

Table 1. Scoping review protocol design adapted PCC framework.

PCC element	Definition	Example
P- Population	A detailed characteristics of participants including age and other qualifying criteria that will appropriate for the objectives of the scoping review and for the review question ¹⁴ .	Adolescent age 10 -19 years
C – Concept	The core concept examined by the scoping review will clearly be articulated to guide the scope and breadth of the inquiry. This may include details that pertain to elements that would be detailed in a standard systematic review, such as the 'phenomena of interest' ¹⁴ .	Undisclosed HIV status Unsuppressed VL
C - Context	This includes the demographic factors such as geographic location and/or specific racial or gender-based interests ¹⁴ .	Low-middle income countries

Synthesis of Eligibility Criteria

The inclusion and exclusion criteria are to be considered for this scoping review, and it will be based on the accessible full-text published articles that are peer-reviewed and presented in the English language. All quantitative, qualitative, and mixed-methods studies conducted among adolescents who vertically acquired HIV and on antiretroviral treatment aged 10-19 years in low to middle-income countries from 2010 in the search databases up to the time of the scoping review will be considered. The studies may be cross-sectional surveys, observational or interventional in design, and/or including randomized controlled trials in nature. The studies must have assessed the issue of disclosure and viral load suppression using the appropriate tool or scale to measure the outcome variables in their studies. Any studies that do not meet the eligibility criteria, such as grey literature, systematic reviews, and meta-analyses studies, will be excluded, such as those with populations aged less than 10 and above 19 who know their HIV status.

Search strategy.

To ensure a comprehensive search of the content, a comprehensive search of PubMed, Medline, Embase, Google Scholar, and Science Direct from 2010 to 2024 will be conducted. The authors will conduct a systematic literature search by consulting the institution's online library. Keywords such as HIV, disclosure, viral load suppression, adolescents living with HIV, Adolescents on antiretroviral treatment, and primary caregivers will be used for the literature search. All the identified articles meeting the inclusion criteria will be listed in the reference list.

Example of Sample search strategy using PubMed database: Search terminology –*adolescents*

```
((("adolescent"[Title/Abstract] OR "youth"[Title/Abstract]) AND "HIV"[All Fields])
"adolescent"[Title/Abstract] OR "youth"[Title/Abstract]) AND "disclosure"[All Fields]) OR
"adolescent*"[Title/Abstract]] OR "youth"[Title/Abstract] AND, (("viral load
suppression*"[Title/Abstract] "[All Fields]))
```

Phase 3: Study selections

The selection process of documents will be guided by the search strategy of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (Prisma-ScR) model¹³⁻¹⁷. Two reviewers in this study will independently screen the titles, abstracts, and the full texts of retrieved articles to identify whether studies meet the inclusion criteria. If discrepancies occur and fail to reach consensus through discussions, an independent reviewer to mediate the situation will be considered. The results of the search will be presented in a PRISMA-ScR flow diagram (see figure 1).

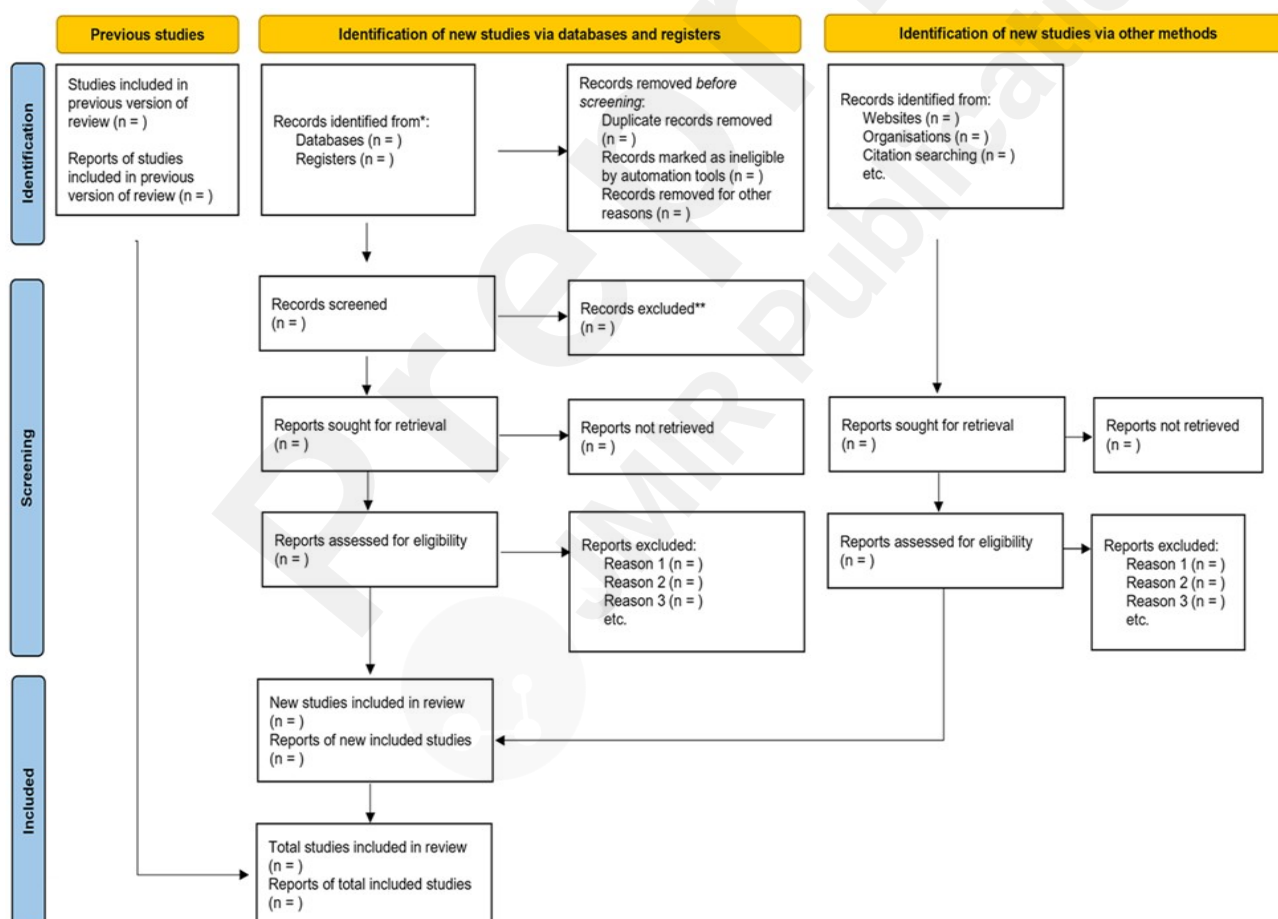


Figure 1. PRISMA-ScR flow diagram example for Scoping Reviews

Phase 4: Charting the data.

Data from eligible studies will be charted independently by two researchers using a standardized data

extraction tool. The chart will capture the relevant information using the key study terminology and characteristics such as the demographics, the study objectives, the study setting, the population, and the key results of the study reviewed. For each article, the table will be used to capture such information¹⁸. The process will include reviewing the whole text to identify the variables relevant to this scoping review. A random sample of twelve articles will be assigned to the two reviewers to capture the findings in a data extraction tool. After the data has been captured, the two reviewers will independently chart the information retrieved from all the eligible studies, to compare. Modification and merging will follow when the agreement is reached. Should the conflict still arise, a mediator will be approached to facilitate the disagreement until a consensus is achieved.

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Phase 5: collating, summarising, and reporting the results.

This scoping review will synthesize extracted data following thematic analysis for qualitative data and frequency analysis, with the counts and percentages for quantitative data to summarize the existing knowledge on the magnitude of viral load suppression associated with undisclosed HIV status among the adolescents who acquired the infection through vertical transmission in low-middle income countries. A coding framework for qualitative studies will be developed by the two reviewers, whereas summarised in tables, charts and diagrams as captured from the data will be done. Manuscripts will be written and submitted for peer review and for publication in a selected accredited journal. Conference posters will be designed and presented. The results will also be presented orally at relevant healthcare-related conferences locally and internationally. The findings will also be shared with the various stakeholders in the Department of Health, locally and nationally, including various Nonprofit organizations responsible for youth-friendly services.

Discussion

This scoping systematic review aimed to review and synthesize the existing literature on HIV seropositive and viral load suppression among adolescents with undisclosed status; the prevalence related to undisclosed HIV status among adolescents remains a challenge globally. Several studies indicate that poor viral load suppression challenges following undisclosed HIV status vary widely among adolescents in various parts of the world^{19, 20}. However, it is empirical to review and analyse existing evidence from the various parts of the world to provide a summary that will give us the magnitude of the phenomenon. results for the prevalence of different mental disorders. The scoping

review analysis will provide summary result by subgroup analysis such as low versus middle-income countries, sex, age categories, and describe factors associated with disclosure status,

Most existing literature demonstrates that the probability of achieving viral load suppression increases in adolescents who have an idea of their HIV condition as compared to those who do not have an idea of the medication they are taking ⁶. Achieving viral load suppression among adolescents living with HIV continues to hold back the attainment of sustainable development goals and the ending of the HIV epidemic by 2030, and the available evidence highlights that non-disclosure is among several factors that contribute to poor Viral load suppression ²¹. However, the variations of factors that contribute to poor Viral load suppression among adolescents living with HIV are unclear specifically to the HIV status disclosure context since there is no scoping review of this proposed study. Therefore, the findings will be key in providing summary findings about magnitude of unsuppressed viral load and the related factor with relation to the effect of undisclosed HIV status among adolescent population groups. The outcomes will be key in informing health research in this field, especially that directed toward designing context-specific interventions against these challenges. It will also inform HIV/AIDS-related policies related to viral load suppression and HIV status disclosure in various settings.

Foreseeable limitations

This study will be limited to adolescents who acquired HIV vertically from their biological mothers of age 10 to 19 years old. The scoping review will only include studies published in English only. The review will only cover studies published from 2010 up to the date the scoping review will be conducted. The review might be limited by the availability and quality of the data extracted in the eligible studies that were used, which might impact the accuracy and completeness of the findings. There is a high possibility that our search strategy will omit relevant studies, and we will mitigate this risk by extending the search to multiple online databases and manually searching review articles from the institutional library.

Conclusion

A scoping review is an emerging approach compared to systematic and meta-analysis reviews for its purpose and aims. The scoping review aims to provide an insight of the available research without providing outcomes and guide of clinical decision-making and interventions. A comprehensive search of PubMed, Medline, Embase, Google Scholar, and Science Direct from 2010 to 2024 will be conducted, and the PRISMA ScR framework will be adopted to ensure a comprehensive search of eligible articles is rich in content relevant to the study. For this

study, the scoping reviews approach will synthesize the knowledge regarding the disclosure and viral load suppression among adolescents that were infected vertically. The review will incorporate a range of study contexts to comprehensively summarize and synthesize evidence with the aim to inform practices, programs, and decision-making for the integration of services among adolescents living with unknown HIV status and to facilitate the issue of HIV disclosure for undetectable viral load achievement. Moreover, the scoping review might provide direction to future research priorities.

Ethical considerations

All studies that will be included must reflect a statement indicating that their study has been subjected to ethical review and required ethical approval was obtained. The protocol will not be registered with PROSPERO. However, it will be published in a peer-reviewed journal.

Author Contributions: Conceptualization: M.L. methodology: M.L. and O.O.; project administration: M.L.; writing—original draft: M.L. and O.O.; review & editing: O.O. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest: The authors declare no conflict of interest.

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Abbreviations

AIDS:	Acquired Immunodeficiency Syndrome
ARVs:	Antiretrovirals
PCC:	Population, Concept, and Context
HIV:	Human Immunodeficiency Virus
VL:	Viral Load
PMTCT:	Prevention of Mother-to-Child Transmission
PRISMA-ScR:	Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews.
UNAIDS:	Joint United Nations Programme on HIV/AIDS