



College of Medicine

**Assessing implementation of Teen Clubs for HIV+ adolescents: case
study for Lilongwe and Dowa health facilities**

By

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CERTIFICATE OF APPROVAL

The Dissertation of Taona Tembo is approved by the Dissertation Examination Committee

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DECLARATION

I, Taona Tembo, hereby declare that this dissertation is my original work and has not been presented for any other awards at the University of Malawi or any other University.

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ABSTRACT

Introduction: Adolescents bear a significant proportion of global disease burden including HIV and AIDS. Despite the roll out of HIV and AIDS services and ART programs in sub-Saharan countries including Malawi, adolescents continue to face challenges in accessing the services. This is due to poor design of service delivery strategies that are not sensitive to their health needs. Differentiated care model, also known as Teen Club emerged as a proven intervention to bridge the gap for provision of HIV and AIDS services for HIV positive adolescents.

Objectives: The aim of this study was to assess how the Teen Club model is being implemented to establish service utilization and sustainability.

Methods This was a facility based cross-sectional study conducted at Dowa and Lilongwe District Hospitals. Mixed method approach was employed. Eight service providers were recruited using purposive sampling to collect qualitative data using in-depth interviews and analyzed using Nvivo 8.0. Quantitative data was collected using a checklist and analyzed using SPSS v 20. Ethical approval was sought from College of Medicine Research and Ethics Committee.

Study findings: The study revealed various gaps on how Teen Clubs are being implemented affecting sustainability of the model. Bottle necks include inadequate provider trainings, lack of permanent funding and poor integration of the model into HIV programs at facility level.

Conclusion: Poor implementation of Teen Club in the areas under study has affected maintenance of the model and service access by the adolescents. Therefore, there is need to develop a minimum standard service delivery package that would be adopted and supported by all key players in order to sustain the model and improve service utilization.

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ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ART	Ant-Retroviral Therapy
BIPAI	Baylor International Pediatric AIDS Initiative
CFIR	Consolidated Framework for Implementation Research
COMREC	College of Medicine Research and Ethics Committee
DHMT	District Health Management Team
FP	Family Planning
HIV	Human Immunodeficiency Virus
NSO	National Statistic Office
SRH	Sexual and Reproductive Health
WHO	World Health Organization

CHAPTER ONE: INTRODUCTION AND OBJECTIVES OF THE STUDY

This section aims at providing background of the study supported by existing literature from other studies. It further indicates the rationale of carrying out the study to address the existing gap using the broad and specific objectives. Conceptual framework is discussed in the chapter to guide methods of the study through analysis of the results.

1.1 Background

Attaining HIV free generation will still remain a dream if access to HIV and AIDS services continues to be a challenge among those who mostly need the services (1). Adolescents bear a significant proportion of global disease burden including HIV and AIDS, however, access to health information and services during this period is limited due to age, social and economic status among other factors (2).

The rise in HIV prevalence during the transition from childhood to adolescence further indicates clear evidence of the increasing HIV vulnerability in the second decade of life hence the need for efficacious HIV service programs for adolescents to address the problem (3). Despite having made some strides in improving HIV and AIDS indicators on morbidity and mortality globally, Sub Saharan Africa continues to face challenges to address the health problem especially among young people including adolescents (4).

Adolescence, the period between ages 10 to 19 is the most sensitive period when most people experiment and explore life not sparing sexuality. This heightens vulnerability for contracting Sexually Transmitted Infections (STI) including HIV (5). Given this increased vulnerability due

to evolving physiological, social and psychological needs during adolescence period, it is particularly important to provide the necessary sexual and reproductive health services that also integrate HIV and AIDS issues to reduce the spread of potential infections (6). Understanding the multilevel and overlapping nature of diseases and their social and structural determinants, is key to designing and implementing more effective health programs to address them (7).

Implementing health programs on HIV and AIDS that would improve efforts to reach out to the adolescents and youths will potentially contribute to achieving the 90-90-90 UNAIDS targets. The targets entails that by 2020, 90 percent of all people living with HIV will know their HIV status, 90 percent of all people with diagnosed HIV infection will receive sustained antiretroviral therapy (ART), and 90 percent of all people receiving ART will have viral suppression (4). In addition, a focus on adolescent health is fundamental to the success of many public health agendas and global health targets including efforts to attaining HIV free generation (8).

Health care system provides a window of opportunity to address most of health challenges that adolescents face including HIV and AIDS' information and services (9); however, some study results reveal reluctance of adolescents and young people to access health services as a result of poor health system (10). While acquisition of HIV and AIDS in some adolescents may be through perinatal transmission, evidence exists that suggests most adolescents acquire it through behavioral or social influences such as unprotected sex (11, 12). Hence need for integrated health services that will ensure that adolescents are provided with a range of services at any opportune visit at the health facility.

Despite the need for integrated health care, Sexual Reproductive Health (SRH) services are usually unappealing and unfriendly to adolescents and young people: there is inadequate skill for health providers to handle young people, poor timing of service provision and healthcare workers' negative attitudes towards young people seeking SRHR services (13). This prevents adolescents from accessing the services that are much vital to contribute to reducing HIV transmission among them.

1.1.1 Differentiated care model

Differentiated care model: Teen Clubs is one of the service delivery models recommended as a best practice for reaching out to adolescents with HIV and AIDS (14). This model was first developed in 2003 by Baylor International Pediatric AIDS Initiative (BIPAI) in Botswana (15). The model serves young people aged 10 to 19 years (15). The mission of Teen Club is to improve clinical and mental health outcomes for effective transition to adulthood by empowering HIV positive adolescents to build positive relationships, improve their self-esteem and acquire life skills through peer mentorship, adult role modeling and structured activities (15). However, it is vital to evaluate the implementation and strategize rolling out the model to maximize beneficiaries of the services.

The teen clubs are usually conducted on Saturdays once a month to ensure convenience for both school going and out of school adolescents. The Teen Clubs involve trained service providers, mentors and other volunteers to provide clinical care, psychological support and other sexual and reproductive services such as contraception. There are also recreation activities carried out during the visiting day that includes games, drama and sports. The design of Teen Clubs further

indicates that there should be provision of transport reimbursement and snacks for the teens accessing the services as a motivation package (15).

1.2 Statement of the problem

Majority of reviews done for Teen Club model focused on the endpoint health outcomes such as adherence to treatment and viral load suppression. These indicators are largely donor informed because objectives are attached to the funds provided that may not always consider implementation strategy (16, 17). Neglecting process indicators compromise fidelity of implemented interventions. This negatively affects effectiveness and maintenance of the interventions being carried out.

Teen Clubs like many other interventions require implementation evaluation. This will assist to assess the extent to which implementation is effective to optimize intervention benefits, spin out sustainability and facilitate dissemination of the findings in other context (18).

1.3 Literature review

Approximately 35.3 million people were living with HIV at the end of 2012; of these, 2.1 million were adolescents with eighty-two percent of these being in sub-Saharan Africa, and the majorities (58%) were females (19). About 300,000 new infections occurred among adolescents which accounted for about 13% of the 2.3 million new infections globally in 2012 [about 830 adolescents were infected with HIV everyday] (19). This high prevalence and incidence has led to increasing AIDS related morbidity and mortality among adolescents suggestive of inadequate access to required services resulting from individual or health system challenges (20). Despite

this overwhelming situation, there is poor data segregation to inform age specific initiatives as such most programs to fight HIV and AIDS are more general and not specific to adolescents (21).

Malawi like many other countries has a significant youth and adolescent population accounting up to nearly two-thirds of the country's population estimated at 17.2 million (22). Early sexual debut, poor knowledge and access to SRH services among Malawian youths and adolescents increases the chances of increased incidence and prevalence of HIV and AIDS (22, 23). This is consistent to the study results that revealed that youth and adolescents, aged 10-24, accounted for about 50% of new HIV infections in Malawi, with prevalence higher among 15-17 year olds.

Five percent of young women and 1.1% of young men aged 15-24 were living with HIV in the country, compared to a regional prevalence of 3.4% and 1.6% in East and Southern Africa, respectively (24). The same HIV and AIDS burden was revealed in some other low and middle income countries such as South Africa and Zimbabwe where significant number of adolescents are living and dying of HIV and AIDS (25, 26). Malawi is currently implementing Teen Clubs for provision of HIV and AIDS services to adolescents.

1.3.1 Teen Clubs in Malawi

Malawi adopted the differentiated care model as one of the HIV service provision initiative to address challenges that adolescents face in accessing HIV and AIDS care and services (27). Teen Club model was introduced in Malawi in 2007 at Baylor College of Medicine-Children's Foundation Malawi (BCM-CFM) clinical center of excellence in Lilongwe (28). The model was

rolled out in 26 out of 28 Districts including Dowa by 2016 operating in District and some rural health facilities making a total of 135 teen clubs (29). Teen clubs in Malawi are being implemented by Ministry of Health in partnership with various Non-Governmental Organizations such as Partners in Hope and Dignitas International (30). Uncertainty remains on whether all the established Teen clubs are functioning due to shrinking donor support that has affected funding for various health projects (31). Although this model begun as one of the solutions and efforts in shifting away from overburdened health care system through routine service provision to a more specific age targeted service provision, little has been published if the model has been effective enough in reducing the burden (31). It is therefore significant to conduct formative evaluation on how this model is being implemented to establish its impact on the beneficiaries and the health system as a whole. In order to come up with implementation evaluation, this study used two implementation frameworks.

1.3.2 Conceptual framework of the study

This study employed frameworks for implementation science to inform the process of assessment through analysis of results. Implementation science aims at addressing challenges associated with the use of research to achieve more evidenced-based practice (EPB) in the health care and other areas of professional practice (18, 32). It further promotes systematic uptake of research findings to improve quality and effectiveness of health services and care (18, 32). Implementation being the process of putting to use or integrating new practices/interventions within a setting, the study considered the use of Consolidated Framework For Implementation Research (CFIR) and implementation outcome framework [IOF] (32). This was to assess how

the Teen Club as a new intervention was being integrated with the facility settings and how the process affects sustainability of the intervention.

CFIR is one of the determinant frameworks that helped to carry out formative evaluation of the model implementation (18, 33). The framework is comprehensive outline that consolidate constructs from a synthesis of existing theories establishing what works, where and why across several context. IOF helped to assess the outcome of the implementation focusing on sustainability of the model (34). It is significant to note that implementation outcomes are different from and precede service outcomes such as equity and client outcomes such as satisfaction (34). Five domains from the frameworks informed the process of assessment.

1. Individual factors

Individuals include personnel involved in the implementation process. People involved have a great role in making new interventions work; individuals don't passively receive innovations rather try to find meanings, evaluate and sometimes modify them (33).

2. Characteristics of the intervention (Teen Club)

Every intervention has core components that are essential for implementation surrounded by adaptable elements, structures, and systems related to the intervention and organization into which it is being implemented. When these factors are not carefully considered an intervention becomes a poor fit and rejected by individuals that are involved in implementation process (33).

3. External and internal setting

These are factors that surround and affect implementation. External setting includes those factors within which an organization resides such as economic and social aspects. Inner setting includes factors through which the implementation process will proceed such as structural, political, and cultural contexts. Inner setting further includes targeted group and individuals that are directly affected by the intervention; in this study are the guardians (33).

4. Process

This involves interrelated activities that form implementation action. Despite that these activities could be done consciously or not, formally planned or spontaneous, the actions are geared at effective implementation of the intervention as designed (33).

5. Sustainability factors

This is an extent to which a newly implemented intervention is institutionalized to achieve long term viability. The integration may be through policies and practices. Stages of institutionalization include: (1) passage (transition from temporary to permanent funding), (2) cycle or routine (such as intervention reinforcement) and (3) niche saturation; the extent to which an evidence-based intervention is integrated into all subsystems of an organization (34).

1.4 Justification of the study

It is significant to establish whether the teen clubs are working in our Malawian setting. In the selected areas of study, no any review has been published on Teen Clubs despite being in operation for over five years (35, 36). Implementation evaluation of the model will assist to

establish existing gaps and adopt effective implementation strategies that are viable for roll out and sustainability of the model.

1.5 Objectives

1.5.1 Broad objective

To assess the implementation of Teen Clubs on HIV+ adolescents at Lilongwe and Dowa health facilities.

1.5.2 Specific objectives

1. To evaluate determinant factors affecting implementation of Teen Club in Dowa and Lilongwe Districts.
2. To establish utilization of the Teen Clubs in relation to demand of the services.
3. To assess sustainability of Teen Clubs.

CHAPTER 2: METHODS

This chapter gives an overview on how the study was designed and conducted to achieve the objectives. The sections include how data was collected, managed and analyzed.

2.1 Type of study

Facility based cross-sectional study was conducted using hybrid type three design to conduct a snap shot assessment of the implementation strategy and implementation outcome (37). Hybrid designs characterize implementation research. However, this type of study has dual focus in assessing clinical effectiveness and implementation. Among several approaches that the design takes, type three was considered to test implementation strategy through assessing fidelity to the new intervention; Teen Club in the health facilities (38, 39). The study used mixed method to collect both qualitative and quantitative data. Qualitative data was collected using in-depth interviews and quantitative data collected using a check list (structured questions).

2.2 Study place

The study was conducted in two Districts; Dowa and Lilongwe District Hospitals. Each health facility was conceptualized as a case for the purpose of understanding dynamics in change process while the model was introduced and implemented (40). Particularly for this study, two case studies allowed for assessing variations in contextual factors that have an impact on implementation.

2.3 Study population

Study participants included service providers at the teen clubs, two key informants representing implementing partners and Ministry of Health representative (key informant) under the department of HIV Unit. The study did not include adolescents themselves consistent to the considerations that in implementation and type three hybrid trials, units of randomization and analysis do not include patients/clients but provider, system, clinic unit or facility (38, 39).

2.4 Study period

The study was conducted from May 2018 to March 2019. This period covered proposal development, authorization, data collection and analysis.

2.5 Sample size

Two health facilities were visited; Dowa and Lilongwe District Hospitals. A total of five service providers, two representatives from implementing partners and one key informant from HIV Unit were interviewed.

2.6 Data collection

Data collectors were oriented on the data collection tools and tools tested before set dates of data collection exercise. QUAL → quant approach was used where collection and analysis of data. Qualitative data formed the largest part complimented with quantitative data (41, 42).

Table 1: Data collection summary

Framework	Domain assessed	Objective achieved	Data collection tool
CFIR	Intervention, inner and outer setting, individuals involved, and the process	1&2	In-depth interview (Annex 3), document review and check list (annex 5)
IOF	Funding, intervention reinforcement and niche saturation	3	In-depth interview (annex 4), document review, checklist

2.6.1 Qualitative data

Interviews

In-depth interviews were done to collect qualitative data from service providers and partners at the health facilities using interview guide. A total of seven in depth interviews were done from service providers, partners and HIV Unit personnel. The interview prompted service providers to evaluate implementation strategies of Teen Club in their institutions relating to the aspects of implementation frameworks such as intervention introduction and attached trainings (aim 1, 2 & 3). Interviews for partners and HIV Unit key informant mainly focused on funding and other sustainability aspects (aim 2 & 3).

Document review

Additionally document review was done to verify some of the information following interviews. Relevant documents were asked for from the units' in charges for review. These included guidelines/protocols, reporting tools and registers, reports and any other meeting minutes.

2.6.2 Quantitative data

Checklist was developed in relation to standard service package for Teen club model. Where ever the Teen Club is being introduced, a standard service package is adopted to provide the required standard care. The checklist aimed at assessing implementation strategies to achieve aims 1 & 2. This was done by observations and asking the participants. Aspects included in the checklist assessed external and internal environment for implementation, process of implementation and reinforcement of the intervention.

2.7 Data management

This section describes how the data was categorized and processed for analysis. Data collected using the checklist and all field notes were kept in a lockable cabinet then entered in computer with a pass word together with digitally collected data. This was to ensure that data was not tampered with and to maintain privacy. Below are the categories of data processing and analysis:

2.7.1 Mixed methods analysis

QUAL → quant approach was also applied in data analysis stage entailing that qualitative methods proceeded quantitative and comprise largest part of data (43). This serves the primary function of 'development,' as collecting qualitative data in aims 1 to 2 provides the opportunity to examine the impact of organizational context in objective 3. It also serves the function of

‘convergence’ by using quantitative and qualitative data to answer the same question in Aim objectives 1 and 2(43). For instance, separate tables were used to show how implementation patterns differ based upon organizational social context in this study; teen clubs with full funding for service provision and those partly/ no funding. Similar approach has been used by several other authors (44, 45).

To serve the function of ‘convergence,’ the qualitative data and quantitative were merged for the purpose of triangulation; in this study, to use the quantitative data from checklist to validate and confirm the qualitative findings from the interviews. A table was developed to depict data convergence by placing qualitative themes side by side with the quantitative findings (43).

2.7.2 Qualitative data analysis

All interviews conducted were digitally recorded, transcribed and checked for accuracy. Guided by theories developed for qualitative data analysis, the following steps were followed; firstly, already checked data was reviewed to develop a broad understanding of content as it relates to the study’s specific aims and to identify topics of emphasis and arguments. During this step, short descriptive memos were prepared to document initial impressions of topics and themes and their relationships and to define the inclusion and exclusion criteria for assigning a specific code. Secondly, open coding was done from all the data tools that were condensed into analysable units. Thirdly, final list of codes was developed from describing relationship between categories and between categories and subcategories. This helped to come up with themes and issues that relate to frameworks for data analysis. Lastly a computer program Nvivo 8 was then used to connect text segments that were grouped into nodes in order to further the process of pattern

coding and assess association between different emergent categories and draw meaning from the themes developed (46, 47).

2.7.3 Quantitative data analysis

Descriptive data was collected using a checklist to assess each institution as a case to supplement qualitative data from interviews and document review. Data was then entered into SPSS program for analysis.

2.7.4 Cross- case analysis

Case synthesis was done to determine differences and similarities between cases (35) Word table was created to display findings using the standard service package in the implementation framework. Cases were compared in relation to all aspects in objective 1 and 2 to reveal meaningful institution specific experiences in implementing the intervention.

2.8 Study limitations

Cross-sectional studies only show snap shot of the current situation and does not show temporal effect, however, semi-structured questionnaire was formulated to reduce confounders. Refusing participation of study participants during interviews with key informants was also inevitable but this was addressed by clearly explaining the aim of the study thus to gain consent.

2.9 Ethical consideration

Authorisation was sought from COMREC and District Health Offices to conduct the study. Written consent was also obtained from study participants to gain cooperation and proper

support. In order to ensure audio-visual privacy and confidentiality of participants, anonymity was achieved by use of numbers and not names. This made respondents more open to provide necessary information.

CHAPTER 3: STUDY RESULTS

Results of the study followed the five domains of the conceptual frameworks that were used to inform the methods of the study.

Qualitative interviews

3.1 Demographics

Response rate was achieved. Respondents of the study represented the key individuals/health personnel involved in the implementation of the Teen club in the health facilities. The respondents included one Registered Nurse (in-charge of HIV and AIDS unit and provider), one Nurse-Midwife Technician (Youth Friendly Health Service Coordinator) two Clinical Officers, one mentor, two partner representatives from Partners in Hope and Light House and one key informant from HIV Unit. All respondents have had some knowledge about Teen Clubs with work experience of more than two years.

3.1.1 Individual's experiences as providers at Teen Club

Providers' experiences at Teen Clubs varied dependent on the support that was rendered to the Teen Clubs. Working at Teen Club is in itself interesting due to age group that providers interact with; however incentives such as lunch allowances motivate providers.

Their morale for work also depended on the support from each other, the main challenge was shortage of staff. One provider said: *"I am all alone, am even failing to go on off duty, every provider is assigned a ward so there is none to cover me up"*. One of the partners also commented on shortage of staff saying: *"the basic issue on the implementation of the teen clubs*

lies on the staffing levels in our facilities we have we don't have adequate staff to work as required".

3.1.2 Staff trainings

There have been no formal trainings for most of the respondents due to lack of funding. Apart from lack of continued trainings, some providers had to orient themselves on service provision at the Teen Club as evidenced by verbalization to have never seen protocols or reporting tools specific for Teen Clubs.

3.2 Characteristics of the intervention (Teen Club)

Characteristics of the Teen Club describe the core components essential for implementation of the intervention. Three components were assessed:

3.2.1 Introduction of the intervention

Providers were not aware how teen clubs were introduced in the facilities; no documents were also readily available to verify information. One of the providers who was assigned to provide services at the Teen Club taking over from other personnel said: *I will lie because in 2015 we were continuing from there".* The provider had no idea on how the Teen Club was introduced. This verified the information that there has been lack of proper orientation for providers working at the Teen Clubs.

Furthermore, It was evident that introduction of Teen Clubs has not been attached to permanent funding because efforts to open the Teen Clubs are usually by donors and government has taken

little responsibility. On introduction, every staff attached to the Teen Club is provided with incentives such as lunch allowances for government staff and transport reimbursement for volunteer staff. Where there are no partners, work is done without any incentive especially in government facilities which becomes de-motivating. One provider at Dowa facility recalled past days when they had full support from a donor and said; *‘During those times we were motivated because of incentives’*. While this is the case with Dowa, at Light House Teen Club, providers are allocated at Teen Club as part of their work and no special incentive is provided.

3.2.2 Cost of implementation

i. Cost related to accessing services

Cost related to accessing services was more evident on the side of care seekers where there are no partners for instance, guardians and adolescents have to fetch for transport and food to support their hospital visits. One of the concerned providers at Dowa Teen Club said: *“some come from very far, they need transport, but sometimes they travel on foot because not all can manage to source the transport, still they try by all means to come.”*

While that was the case for Dowa health facility, teens at Lilongwe Teen Club enjoyed the privilege of the partner supporting them and the provider said: *“they provide transport for each and every adolescent and mentor who comes, they provide food: starting with break snack, lunch and snack when going back”*.

ii. Cost related to service provision

Cost related to running Teen Club included proper infrastructure, staff allowances/salaries and continued trainings which was not currently the case for Dowa. It was also discovered that government staff involved in HIV and AIDS service provision and also involved in Teen Club supervision at Lilongwe Health facility have had no recent work related trainings and verbalized: *“for Light house staff are oriented almost frequently but not us”*. The facility is further required to provide food for the teens and transport reimbursement that was also absent at Dowa Teen Club. This is the requirement of the facility to support teens for service access.

There is also supervision cost of which key informant from HIV unit admitted that it has been a challenge to do the required supervision visits and said; *‘We also have made visits to selected Teen Clubs’*.

3.2.3 Protocols/guidelines

3.2.3.1 Provision of services

Guidelines for service provision include documents that guide service providers on course of actions from the time the teen reaches the services delivery point to the time the teen leaves. The documents indicate all activities to be carried out to receive the required care such as health education, individual counseling and recreation activities among other things. Study results indicated that protocols and guidelines for the Teen Club were not available at Dowa facility during the time of study, the provider at the facility said: *“I haven’t seen any guidelines but there are some routine works that are followed*. Although at Light house protocols were available, there was a gap on awareness of the guidelines, some volunteer staff were not sure of what was

supposed to be done as verbalized by one mentor; *‘we always wait for the staff to tell us what we should do’*.

3.2.3.2 Timing of service provision

The aspect of opening hours of the service delivery point is another important component in the guidelines which is crucial for the teens. Study results revealed that in all facilities, service provision is done during weekends with regular time.

3.3 External and internal setting

3.3.1 Internal setting

3.3.1.1 Utilization of services

Facilities offering service provision to the teens are unable meet the demand for the services although responses indicated that the Teen Clubs has played a great role in improving HIV indicators among teens. For Dowa, providers serve average of 60 teens per visit that is a great number compared to the available teens but these teens are those that are within reach and those that are far cannot access the services. Light House had five groups with 90 adolescents that keep on rotating and the facility have excess teens that are put on waiting list to be registered into the Teen Club when others are transferred or graduate to adult ART clinic.

3.3.1.2 Facility managers’ support

Despite the overwhelming situation commitment of the senior management (such as internal supervision and engagement) is dependent on the availability of funds available to support implementation. It has been shown that in government facilities services funded by donors attract

attention and commitment of the senior management than those not having any support. Provider at the Light House convincingly said *'for the commitment I would say it is perfect, because they make sure that each and every week the adolescent come for service the support provided is the same'*, this is because of the availability of funds. On the other hand, government provider indicated that internal supervisions and assessments are rarely done.

3.3.1.3 Physical setting

Physical building conducive for implementation of Teen Club was also found missing at Dowa facility. Teens meet in corridors and don't have proper space to conduct other activities such as group counseling and physical exercises.

3.3.2 Outer setting

3.3.2.1 External support

Teen Clubs have received less support compared to general HIV services. Most donor funds such as Global Fund target key populations specifically female sex workers and Men having Sex with Men (MSM). There are no clear national targets for HIV/AIDS among adolescents as evidenced by lack of data segregation in the registers.

3.3.2.2 External supervision

There have been no routine supervision visits to monitor progress in the facilities implementing teen clubs. Both health facilities revealed unduly supervisions to the work done under Teen Clubs by external authorities. Dowa health provider said: *'Nobody comes to supervise our work'* similarly, provider for Lilongwe verbalized that there have been rare supervisions by HIV unit.

In addition, quarterly coordination meetings on Pediatric and adolescent ART are conducted centrally when all issues pertaining to Pediatric ART including Teen Clubs are addressed but have proved to be a challenge because facilities are not routinely visited. These quarterly meetings are further dependent on donor support.

3.4 Process

This involves interrelated activities that form implementation action. Despite that these activities could be done consciously or not, formally planned or spontaneous, Teen Clubs have activities that need to be done though not sequentially (46).

3.4.1 Service provision package

Study results indicate that some important activities that form part of service provision such as individual counseling and physical exercises are not being done. Such activities are usually dependent on availability of funds to support staff and recreation materials. However, there activities that are similarly implemented at both teen clubs from the time a teen comes for services to the point of exit. These include registration, health education and drug refill.

3.4.2 Monitoring and evaluation of services

Evaluation forms another important part of implementation process. It was indicated that internal or external evaluation has not been done as required for Teen Club at Dowa facility while at Light House evaluation is part of planned activities that start with staff debriefings and other scheduled evaluations exercises.

3.5 Sustainability

3.5.1 Passage (resources)

Teen Clubs largely depend on volunteers to cover human resource. These include HIV Testing and Services (HTS) counselors, expert clients who usually makes follow ups of clients, mentors/social workers. Despite having volunteers as mentors in the Teen Clubs, Dowa health facility only has one permanent service provider available while the other providers are volunteers and staff employed by implementing partners.

It has also shown that there are no funds specifically allocated for Teen Clubs under HIV services by government, establishment and running of teen clubs is mainly supported by donors as such the support is only temporal.

3.5.2 Intervention reinforcement

Pediatric and adolescent HIV coordination happens centrally with secretariat at Ministry of Health. There are no evaluations being done at facility or district level. This has also made teen clubs not largely taking space in the District Implementation Plans (DIP). Furthermore, there are no routine reports submitted specific on Teen Clubs to enable evaluation progress or impact, for instance, Dowa facility did not have reporting tools for Teen Clubs, all reports were for general ART services This was verbalized by service provider for Dowa health facility on the Teen Club reports: *'we don't report to any, because we have none to report to, we don't even have any reporting tool'*.

3.5.3 Niche saturation

While at national level Teen Clubs are part of the Differentiated Service Delivery Models and part of core integrated ART services in the Malawi National HIV Program, at district level little has been done to make the integration operational. Teen Club at Dowa facility has not received needed support to provide standard service package for teens and produce required reports to inform national HIV program as part of service delivery model. On the other hand, Teen Club for Lilongwe health facility was taken over and fully funded by Light House. The entity is a stand-alone institution despite being implemented within the government health facility. As such it is difficult to establish if the teen club activities are fully integrated into District HIV program.

3.6 Cross case analysis

Analysis was done using descriptive data collected using checklist as shown in appendix 4.

Table 2: Checklist for standard care and activities at the Teen Clubs

Teen club components	Dowa	Lilongwe	Comments
Conducive environment for Teen Club (private, cleanliness)	No	Yes	No space for meetings at Dowa facility
Regular opening days/time for adolescents meetings/activities	Yes	Yes	Meetings/activities done on weekends
Regular days/time for parents/guardians' meetings	Yes	Yes	Scheduled meetings done
Availability of registers	Yes	Yes	However for Dowa, the registers are for general ART not specific for teens
Availability of reporting tools	No	Yes	Not available for Dowa teen club
Follow up mechanisms	Yes	Yes	Available at both facilities volunteers
Health information provided	Yes	Yes	Done as part of service package
Standard clinical care: ART monitoring and refill, TB screening, Nutrition assessment and treatment, viral load monitoring	No	Yes	Clinical officer not allocated at Dowa teen club, health assessments are most of the times missed
Availability of psychosocial support services	Yes	Yes	Provided mainly by volunteers
Availability of SRH services contraceptives including condoms	Yes	Yes	Available at both facilities but not usually accessed by teens as part of

Teen club components	Dowa	Lilongwe	Comments
			services indicating lack of comprehensive sexual education
Availability of recreation materials	No	Yes	Available only at light House but mainly for younger teens
Snacks provided	No	Yes	Not available at Dowa teen club
Transport reimbursement	No	Yes	Not done at Dowa teen club

3.7 Quantitative checklist

The two health facilities were assessed against the checklist developed indicating the standard components for a Teen club. The quantitative checklist in the annex (4) revealed how each facility performed. Qualitative themes were put side by side with quantitative findings. Data was entered into SPSS V 20 and analysis concentrated on counts and frequencies.

Table 3: Frequency table for health facilities

		facility name			
	Facility name	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dowa	1	50.0	50.0	50.0
	Lighthouse	1	50.0	50.0	100.0
	Total	2	100.0	100.0	

Study findings revealed disparities on how care was provided in the health facilities. Out of the 13 required components under standard care package, Dowa health facility is only able to meet 53% of the required components as shown on the cross case analysis against 100% required.

CHAPTER 4: DISCUSSION

Reflecting from the qualitative and quantitative results of the study, this chapter synthesizes the findings while comparing and relating the results with other study findings and literature. The section further discusses the implications of the implementation strategies carried out in both facilities on sustainability and roll out of the model in other facilities. Four main themes emerged from the findings as discussed below:

4.1 Teen club personnel

Study findings for both Dowa and Lilongwe health facilities involve volunteers in service provision. This is similar to intervention design where service provision at Teen Clubs does not only depend on professional staff such as nurses and other medical personnel but also volunteers; usually called mentors that play important role in providing the services (28). However, this becomes a challenge when there is shortage of professional staff and care is mainly supported by volunteers like the case of Dowa where there is only one nurse solely allocated to the whole ART department supervising and serving clients.

Provider training is one of the most important capacity building aspects in provision of Youth Friendly Health Services (YFHS) that includes adolescents and is recommended to be ongoing (48,49). However, in this study it has been evident that providers are introduced to providing care without proper induction which is a threat to effective implementation of new interventions (18). This is more challenging in health facilities like Dowa that do not have partners to fund services provision; staff training being part of the package. Lack of necessary information by the providers has compromised how the intervention is implemented. For instance, most providers

have gained their own experience and redesigned the intervention without proper reference to the original model.

Other than trainings, there is critical shortage of staff further compromising implementation of the intervention; redesigning the model to fit the situation. The study results indicated one nurse at Dowa seeing an average of 60-70 teens per visit.

4.2 Cost of implementing a Teen Club

Teen Clubs are associated with great cost to both care seekers and the health facility. Similar were the results made by an evaluation in Malawi which focused on transport reimbursement and snack provision (29). However, the cost of running the Teen Club goes beyond that because it includes having well trained personnel, good infrastructure and routine supervision costs just to highlight few aspects. The cost is more evident where there are no partners to provide support. Teens and guardians have to fetch for transport and food to support their hospital visits which is the biggest barrier to accessing and retaining the adolescents into health care. On the other hand, in general, there is need for dedicated staff, trainings, infrastructure, food for teens and transport to meet the standard requirements that is the cost that health facility is supposed to meet. It is not doubtful that most Teen Clubs have been unable to thrive due to lack of permanent funding to support service provision and those currently running are facing a lot of challenges to provide standard package of care as per model design.

Poor infrastructure for teens' meetings such as corridors and tiny rooms for group counseling clearly indicate challenges that Teen Clubs face to be effectively implemented. This has further

led to a number of shortfalls that exist in provision of standard care such as lack of space for teens to play and ineffective counseling that are essential for addressing bio-psychosocial issues that adolescents are exposed to. Similar findings were identified by other studies that in terms of care provision, numerous unmet needs exist including adherence support, family planning service provision, mental health assessment and intervention (49, 50).

4.3 Sustainability of Teen Clubs

Poor sustainability strategies have also vividly been revealed where out of 99 Teen Club that were opened in Lilongwe districts, less than 10 are functional and those that are functional are those that are supported by partners in some ways. Results in Dowa also indicate that only one Teen Club is functional at Dowa District Hospital, Teen Clubs that were operational at other two health facilities in the district also ceased to function.

In addition, staff allowances were provided as incentives especially in government facilities as revealed by the study participants, however, this has proven to be a poor aspect of Teen Club introduction and implementation measure to achieve sustainability. This is because as funders exit, providers are no longer interested in their work and progress slows down eventually leading to extinction of the Teen Clubs. There is also a challenge where a Teen Club is solely manned by funders like the case at Lilongwe District health facility where Light House (as a donor) operates everything that relate to Teen Club and district staff are not directly involved. This entails that the time the donor will decide to leave, the Teen Club will also close because there will be no staff to continue service provision.

Lack of external support and supervision by donors and regulating bodies in this case HIV unit, result in poor commitment of facilities' senior management team. Key informant from HIV unit indicated that they have been unable to make supervision visits to facilities implementing Teen Club due to lack of funding. The findings were similar for both facilities difficult to establish if monitoring and evaluation of Teen Club service provision was done at national level by the HIV Unit.

Currently there is range of donors supporting teen club in one way or the other that include Light House and Partners in Hope, however, their funding is not permanent. This calls for integration of teen club into national budget for HIV services which has not been there as recently recommended in HIV guidelines to be one of the differentiated care model to meet set indicators (51). Due to fragmented support getting specific reports on Teen Club is a challenge except in facilities where donors fund service provision because reporting is part funding conditions.

These reports are usually used by the same donors funding some Teen Clubs and are not prioritized at national level as adolescent specific data for HIV services is not captured in facility registers hence not reported. This is similar to another literature that indicated that healthcare provision specific to adolescents is largely unprecedented worldwide largely attributed to by poor data capturing for proper planning (52).

4.4 Utilization of the Teen Clubs

There is high number of teens seeking care, however, available facilities are unable to absorb them and provide necessary services. Another author has the same view that there is low

utilization of SRH services among young people because the services are not available, accessible, acceptable and satisfactory (53).

Teen Club at Dowa health facility serves about 60 teens per visit in a month. These are teens that live within the surrounding areas. Most teens are missed due to long distances to the health facility and some shun away due to long waiting hours on an empty stomach. Lack of data segregation to capture and follow positive adolescents, further affects teen enrolment and retention to HIV care and services at Dowa health facility.

Current situation at Lilongwe District facility further reveal helplessness of the health system in meeting service demands. Teens are put on a waiting list to be enrolled into Teen Club because there is fixed number of teens that can be managed due to availability of funds by the donor. Despite facilities having similar hours and days for services thus weekends from morning to afternoon to reach out to many teens including school going, it has proven that the system of implementation is unable to serve all the teens.

4.5 Merging of study findings

Complimentarily, study findings from both the qualitative and quantitative results reveal that effective implementation of Teen Club is highly dependent on availability of funding to meet and provide standard service package. However, reinforcement of the intervention (Teen Club) does not only require funding. For Teen Clubs to produce intended results and sustain, there is need for effort from both the internal (management team) and external supervisors (HIV Unit).

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This study aimed at providing a snap shot on how Teen Clubs are being implemented. The assessment reveals various gaps that include in adequate service provider trainings and shortage of staff, lack of proper infrastructure and permanent funding for sustainability of the model.

There is also a huge burden on the care seekers to support service access as the design of the model and strategy of implementation does not correlate affecting utilisation of the services. It is therefore tempting to establish that the current situation is not near to the implementation design of the model. This entails that a more comprehensive evaluation is required if the model is to be rolled out and sustained.

5.2 Recommendations

- The HIV Department under Ministry of Health should embark on a comprehensive evaluation on how Teen Clubs are being implemented
- The Government of Malawi through the Ministry of Health should allocate funds towards adolescent specific HIV service provision and activities such as routine supervisions.
- The HIV Department under Ministry of Health should develop a standardised minimum package that should be adopted by facilities implementing Teen Clubs with or without donor support.

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APPENDICES

Appendix 1: Qualitative interview guide for in-depth interview service/health provider

Date conducted.....

Participant code.....

CFIR framework for objective 1 & 2

Domain	Assessment
<p>1. Individual involved</p>	<ul style="list-style-type: none"> ➤ Highest qualification (Specify exact qualification) <ul style="list-style-type: none"> • Doctor • Nurse • Clinical officer • Medical assistant. ➤ Role of the provider ➤ Work related experience and training (specify type of training and for how long) ➤ Ask how would the provider explain your experience being part of health providers at the Teen Club (look for expression of not being interested or interested, challenged with work, motivated or not)
<p>2. Characteristics of the</p>	<ul style="list-style-type: none"> ➤ Ask how was the Teen Club introduced if the provider has any idea (the information will be backed up by review of documents)

<p>intervention (Teen club)</p>	<ul style="list-style-type: none"> ➤ Ask for attached incentives for both providers and adolescents accessing services ➤ Ask for any attached training for the health providers in relation to their role at the Teen Club ➤ Ask for attached protocols/guidelines/policies for providing services (any complexity? Remember to verify during document review) ➤ When and how often is Teen Club open for services (include opening hours)? Does this have any effect on providers and clients? ➤ What are the costs associated with implementation of teen clubs on the part of the adolescents seeking care, providers and the health facility ➤ Is there any area that could be adjusted to make Teen Clubs successful?
<p>External and internal setting</p>	<ul style="list-style-type: none"> ➤ Ask and assess physical building for Teen Club activities (is it isolated or not, temporally or not and if this has any effect) ➤ Ask average enrolment of the adolescents and barriers faced by other adolescents in accessing the services (include gender) ➤ Ask for external bodies that regulates activities at the Teen Club (include their influence on the activities)

	<ul style="list-style-type: none">➤ Ask for commitment of senior management in the Teen Club activities, how are they engaged.
Process	<ul style="list-style-type: none">➤ Ask on how activities are planned➤ Ask for explanation on the process of activities from the time the clients come to the Teen Club to the time they leave (this will be verified by observation)➤ Ask on how evaluation is done and who is responsible.➤ Ask for feedback to staff.

IOF framework for sustainability for objective 3

Domain	Assessment
Passage (resources)	<ul style="list-style-type: none"> ➤ Ask where the facility get resources (support) including funding if any (is it temporally or permanent?)
Intervention reinforcement	<ul style="list-style-type: none"> ➤ Ask on how Teen Clubs are supervised for effective implementation (M & E assessments) ➤ Ask for routine report submission and how it is done (will be supported by review of documents)
Niche saturation	<ul style="list-style-type: none"> ➤ Ask on how Teen Club service provision is imbedded in monthly or annual facility plans (will be supported by review of documents) ➤ Ask on how facility departments get involved and are aware of the Teen Clubs

Appendix 2: Qualitative interview guide for in-depth interview HIV department: key informant and partners

For objective 1, 2 & 3

Date conducted.....

Participant code.....

1. Ask on how Teen Clubs are progressing, in terms of enrolment and contribution to indicators such as adherence,
2. Ask on how the department relate the access/enrolment rate compared to the adolescents in need of the services
3. Ask on supervision to Districts implementing Teen Clubs (how often and why) and their findings
4. Ask on how funding; whether there is any government commitment.
5. Ask for other partners involved in Teen Clubs; how is the relationship
6. Ask on integration of Teen Clubs in national HIV agendas and prioritization of the service provision at the Teen Clubs
7. Ask for challenges faced by the department in relation to Teen Club service provision
8. Ask for areas of adjustment of the model if any
9. Ask for the recommendations to the government for rolling out the model

Appendix 3: Quantitative check list for standard care and activities at the Teen Club

ASSESSMENT	YES	NO	COMMENT
Conducive environment for Teen club(privacy, cleanliness)			
Regular opening days/time for adolescents meetings/activities			
Regular days/time for parents/guardians' meetings			
Availability of registers			
Availability of reporting tools			
Follow up mechanisms			
Health information provided			
Standard clinical care; ART monitoring and refill, TB screening, nutrition assessment and treatment, viral load monitoring			
Availability of psychosocial support services			
Availability of SRH services: contraceptives including condoms			
Availability of recreation materials			
Snacks provided			
Transport reimbursement			

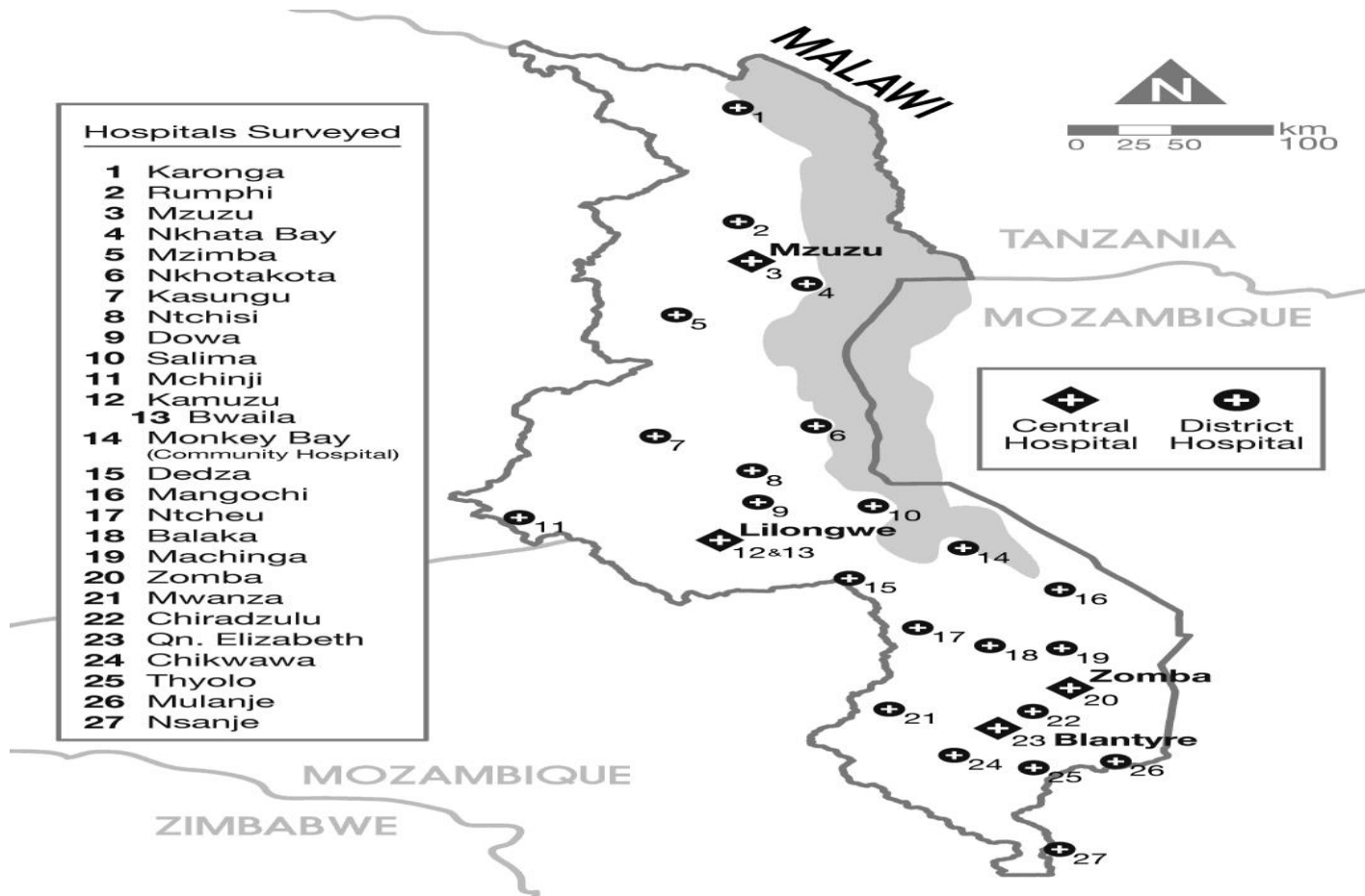
Appendix 4: Descriptive data

(N=2)

Frameworks' domains	Teen Club component	Dowa	Light house	%
1.Characteristics of the intervention	Regular opening days/time for adolescents meetings/activities	Yes	Yes	100
	Regular days/time for parents/guardians' meetings	Yes	Yes	100
	Transport reimbursement	No	Yes	50
	Snacks provided	No	Yes	50
2.Process	Standard clinical care: ART monitoring and refill, TB screening, Nutrition assessment and treatment, viral load monitoring	No	Yes	50
	Availability of SRH services contraceptives including condoms	Yes	Yes	100
	Health information provided	Yes	Yes	100
	Availability of psychosocial support services	Yes	Yes	100

3.Intervention reinforcement	Availability of registers	Yes	Yes	100
	Availability of reporting tools	No	Yes	50
4.External and internal setting	Follow up mechanisms	Yes	Yes	100
	Availability of recreation materials	No	Yes	50
	Conducive environment for Teen Club (private, cleanliness)	No	Yes	50

Appendix 5: Map of study areas



Number 9 for Dowa health facility and 13 for Lilongwe health facility: Bwaila

Appendix 6: Certificate of Ethical Approval



Appendix 7: Manuscript

Assessing acceptability and implementation of Teen Clubs for HIV+ adolescents; case study for Lilongwe and Dowa health facilities in Malawi

Taona Tembo¹ gift Kayira¹ Joseph Mfutso Bengo^{2*}Dombola¹ Yewo

ABSTRACT

Background: Adolescents bear a significant proportion of global disease burden including HIV and AIDS.

Despite the roll out of HIV and AIDS services and ART programs in Sub-Saharan countries including Malawi, adolescents continue to face challenges in accessing the services. This is due to poor design of service delivery strategies that are not sensitive to their health needs. Differentiated care model, also known as Teen Club emerged as a proven intervention to bridge the gap for provision of HIV and AIDS services for HIV positive adolescents. The objective of the study was to assess how the Teen Club model is being implemented, to enable roll out of the intervention and sustainability.

Methods: This was a facility based cross-sectional study conducted at Dowa and Lilongwe District Hospitals in Malawi from May 2018 to September 2019. Mixed methods approach was employed. Eight Participants were purposively recruited and interviewed on implementation strategy. Simultaneously, a checklist was also used to evaluate services provided in the health facilities against the standard service package of the intervention.

Qualitative data was analyzed using Nvivo 8.0 while quantitative data was analyzed using Statistical Package for Social Science program.

Results: The study revealed various gaps on how Teen Clubs are being implemented affecting sustainability of the model. Bottle necks included inadequate provider trainings, lack of permanent funding and poor integration of the model into HIV program at facility level. Dowa health facility implemented only 53% of the components of the standard service package unlike Lilongwe health facility which was able to implement 100%.

Conclusion: Poor implementation of Teen Club in the areas under study has affected maintenance of the model and service access by the adolescents. Despite Lilongwe health facility implementing all of the components, the Teen Club is totally managed by a donor challenging the sustainability of the model if the donor pulls out. Therefore, there is need to develop a minimum standard service delivery package that would be adopted and supported by all key players with or without support from implementing partners in order to sustain the model and improve service utilization.

Key words: HIV/AIDS, Teen club, implementation

Attaining HIV free generation will still remain a dream if access to HIV and AIDS services continues to be a challenge among those who mostly need the services (1). Adolescents bear a significant proportion of global disease burden including HIV and AIDS, however, access to health information and services during this period is limited due to age, social and economic status among other factors (2).

The rise in HIV prevalence during the transition from childhood to adolescence further indicate clear evidence of the increasing HIV vulnerability in the second decade of life hence the need for efficacious HIV service programs for adolescents to address the problem(3). Despite having made some strides in improving HIV/AIDS indicators on morbidity and mortality globally, Sub Saharan Africa continue to face challenges to address the health problem especially among young people including adolescents (4).

Adolescence, the period between ages 10 to 19 is the most sensitive period when most people experiment and explore life not sparing sexuality. This heightens vulnerability for contracting Sexually Transmitted Infections (STI) including HIV (5). Given this increased vulnerability due to evolving physiological, social and psychological needs during adolescence period, it is particularly important to provide the necessary sexual and reproductive health services that also integrate HIV and AIDS issues to reduce the spread of potential infections (6). Understanding the multilevel and overlapping nature of diseases and their social and structural determinants, is key to designing and implementing more effective health programs to address them (7).

Implementing health programs on HIV and AIDS that would improve efforts to reach out to the adolescents and youths will potentially contribute to achieving the 90-90-90 UNAIDS targets. The targets entails that by 2020, 90 percent of all people living with HIV will know their HIV status, 90 percent of all people with diagnosed HIV infection will receive sustained antiretroviral therapy (ART), and 90 percent of all people receiving ART will have viral suppression (4). In addition, a focus on adolescent health is fundamental to the success of many public health agendas and global health targets including efforts to attaining HIV free generation (8).

Despite the need for integrated health care, Sexual Reproductive Health (SRH) services are usually unappealing and unfriendly to adolescents and young people: there is inadequate skill for health providers to handle young people, poor timing of service provision and healthcare workers' negative attitudes towards young people seeking SRHR services (9). This prevents

adolescents from accessing the services that are much vital to contribute to reducing HIV transmission among them.

Differentiated care model: Teen Clubs is one of the service delivery models recommended as a best practice for reaching out to adolescents with HIV and AIDS services (10). This model was first developed in 2003 by Baylor International Pediatric AIDS Initiative (BIPAI) in Botswana (11). The model serves young people aged 10 to 19 years (11). The mission of Teen Club is to improve clinical and mental health outcomes for effective transition to adulthood by empowering HIV positive adolescents to build positive relationships, improve their self-esteem and acquire life skills through peer mentorship, adult role modeling and structured activities (11). However, it is vital to evaluate the implementation and strategize rolling out the model to maximize beneficiaries of the services. This study assess the implementation of Teen Clubs on HIV+ adolescents at Lilongwe and Dowa health facilities in Malawi

Malawi adopted the differentiated care model as one of the HIV service provision initiative to address challenges that adolescents face in accessing HIV and AIDS care and services (12). Teen Club model was introduced in Malawi in 2007 at Baylor College of Medicine-Children's Foundation Malawi (BCM-CFM) clinical center of excellence in Lilongwe (13). The model was rolled out in 26 out of 28 Districts including Dowa by 2016 operating in District and some rural health facilities making a total of 135 teen clubs (14). Teen clubs in Malawi are being implemented by Ministry of Health in partnership with various Non-Governmental Organizations such as Partners in Hope and Dignitas International (15). Uncertainty remains on whether all the established Teen clubs are functioning due to shrinking donor support that has affected funding for various health projects (16). Although this model begun as one of the solutions and efforts in shifting away from overburdened health care system through routine service provision to a more specific age targeted service provision, little has been published if the model has been effective enough in reducing the burden (16). It is therefore significant to conduct formative evaluation on how this model is being implemented to establish its impact on the beneficiaries and the health system as a whole. In order to come up with implementation evaluation, this study used two implementation frameworks.

This study employed frameworks for implementation science to inform the process of assessment through analysis of results. Implementation science aims at addressing challenges

associated with the use of research to achieve more evidenced-based practice (EPB) in the health care and other areas of professional practice (17,18). It further promotes systematic uptake of research findings to improve quality and effectiveness of health services and care (17, 18).

Implementation being the process of putting to use or integrating new practices/interventions within a setting, the study considered the use of Consolidated Framework For Implementation Research (CFIR) and implementation outcome framework [IOF] (18).

CFIR is one of the determinant frameworks that helped to carry out formative evaluation of the model implementation (17, 19). IOF helped to assess the outcome of the implementation focusing on sustainability of the model (20). Five domains from the frameworks included: (1) Individual factors, (2) characteristics of the intervention (3) external and internal setting (4) process (5) sustainability factors.

METHODS

Facility based cross-sectional study was conducted using hybrid type three design to conduct a snap shot assessment of the implementation strategy and implementation outcome (21). Hybrid designs characterize implementation research. However, this type of study has dual focus in assessing clinical effectiveness and implementation. Among several approaches that the design takes, type three was considered to test implementation strategy through assessing fidelity to the new intervention; Teen Club in the health facilities (22, 23). The study used mixed method to collect both qualitative and quantitative data. Qualitative data was collected using in-depth interviews and quantitative data collected using a check list.

Study setting

The study was conducted in two Districts; Dowa and Lilongwe District Hospitals. Each health facility was conceptualized as a case for the purpose of understanding dynamics in change process while the model was introduced and implemented (24). Particularly for this study, two case studies allowed for assessing variations in contextual factors that have an impact on implementation.

Study population

The study targeted service providers at the teen clubs, two key informants representing implementing partners and Ministry of Health representative under the department of HIV Unit.

The study did not include adolescents themselves consistent to the considerations that in implementation and type three hybrid trials, units of randomization and analysis do not include patients/clients but provider, system, clinic unit or facility (22, 23). The study did not include adolescents themselves consistent to the considerations that in implementation and type three hybrid trials, units of randomization and analysis do not include patients/clients but provider, system, clinic unit or facility.

Sample size

Two health facilities were visited; Dowa and Lilongwe District Hospitals. Purposive sampling was used to draw a total of five service providers, two representatives from implementing partners and one key informant from HIV Unit were interviewed.

Data collection

Data collector was recruited and trained. approach was QUAL → quant used where collection and analysis of data was done simultaneously answering same questions having the qualitative data forming largest part and preceding qualitative data (25, 26). The questions that guided data collection were on how the Teen Club was implemented and if the implementation strategy support sustainability of the model.

Qualitative data that was collected using in-depth interviews from service providers and partners at the health facilities. The interview prompted service providers to evaluate implementation strategies of Teen Club in their institutions relating to the aspects of implementation frameworks such as intervention introduction and attached trainings. Document review was also done to verify some of the information following interviews. Relevant documents included guidelines/protocols, reporting tools and registers, reports and any other meeting minutes.

Quantitative data was collected using a checklist that was developed in relation to standard service package for Teen club model. Where ever the Teen Club is being introduced, a standard service package is adopted to provide the required standard care.

Data analysis

Process of data analysis included:

1. **Qualitative data analysis:** All interviews conducted were digitally recorded, transcribed and checked for accuracy. Guided by theories developed for qualitative data analysis, the following

data was reviewed to develop a broad understanding of content as it relates to the study's specific aims and to identify topics of emphasis and arguments.

Open coding was done and final list of codes was developed to come up with themes that were entered into computer program Nvivo 8 to connect text segments that were grouped into nodes in order to further the process of pattern coding and assess association between different emergent categories and draw meaning from the themes developed (27, 28).

2. Quantitative data analysis: Descriptive data was collected using a checklist to assess each institution as a case to supplement qualitative data from interviews and document review. Data was then entered into SPSS program for analysis.

3. Mixed methods analysis: This serves the primary function of 'development,' as collecting qualitative data on implementation strategy provided the opportunity to examine the impact of organizational context on sustainability of the intervention. It also serves the function of 'convergence' by using quantitative and qualitative data to answer the same question (29). A table was developed to depict data convergence by placing qualitative themes side by side with the quantitative findings (29).

4: Cross- case analysis: Case synthesis was done to determine differences and similarities between cases. Word table was created to display findings using the standard service package in the implementation framework. Cases were compared to reveal meaningful institution specific experiences in implementing the intervention (30, 31).

Results

Findings were based on the domains of the used frameworks:

Demographics (individuals involved)

Respondents of the study represented the key individuals/health personnel involved in the implementation of the Teen club in the health facilities. The respondents included one Registered Nurse (in-charge of HIV and AIDS unit and provider), one Nurse-Midwife Technician (Youth Friendly Health Service Coordinator) two Clinical Officers, one mentor, two partner representatives from Partners in Hope and Light House and one key informant from HIV Unit.

All respondents have had some knowledge about Teen Clubs with work experience of more than two years.

Staff trainings

There have been no formal trainings for most of the respondents due to lack of funding. Apart from lack of continued trainings, some providers had to orient themselves on service provision at the Teen Club as evidenced by verbalization to have never seen protocols or reporting tools specific for Teen Clubs.

Characteristics of the intervention (Teen Club)

Characteristics of the Teen Club describe the core components essential for implementation of the intervention. Three components were assessed:

1. Introduction of the intervention

Providers were not aware how teen clubs were introduced in the facilities; no documents were also readily available to verify information. One of the providers who was assigned to provide services at the Teen Club taking over from other personnel said: *I will lie because in 2015 we were continuing from there*". The provider had no idea on how the Teen Club was introduced. This verified the information that there has been lack of proper orientation for providers working at the Teen Clubs.

Furthermore, It was evident that introduction of Teen Clubs has not been attached to permanent funding because efforts to open the Teen Clubs are usually by donors and government has taken little responsibility. On introduction, every staff attached to the Teen Club is provided with incentives such as lunch allowances for government staff and transport reimbursement for volunteer staff. Where there are no partners, work is done without any incentive especially in government facilities which becomes de-motivating. One provider at Dowa facility recalled past days when they had full support from a donor and said; *'During those times we were motivated because of incentives'*. While this is the case with Dowa, at Light House Teen Club, providers are allocated at Teen Club as part of their work and no special incentive is provided.

2. Cost of implementation

Cost related to accessing services

Cost related to accessing services was more evident on the side of care seekers where there are no partners for instance, guardians and adolescents have to fetch for transport and food to

support their hospital visits. One of the concerned providers at Dowa Teen Club said: *“some come from very far, they need transport, but sometimes they travel on foot because not all can manage to source the transport, still they try by all means to come.”*

While that was the case for Dowa health facility, teens at Lilongwe Teen Club enjoyed the privilege of the partner supporting them and the provider said: *“they provide transport for each and every adolescent and mentor who comes, they provide food: starting with break snack, lunch and snack when going back”*.

Cost related to service provision

Cost related to running Teen Club included proper infrastructure, staff allowances/salaries and continued trainings which was not currently the case for Dowa. It was also discovered that government staff involved in HIV and AIDS service provision and also involved in Teen Club supervision at Lilongwe Health facility have had no recent work related trainings and verbalized: *“for Light house staff are oriented almost frequently but not us”*. The facility is further required to provide food for the teens and transport reimbursement that was also absent at Dowa Teen Club. This is the requirement of the facility to support teens for service access.

There is also supervision cost of which key informant from HIV unit admitted that it has been a challenge to do the required supervision visits and said; *‘We also have made visits to selected Teen Clubs’*

3. protocols/guidelines

Provision of services

Guidelines for service provision include documents that guide service providers on course of actions from the time the teen reaches the services delivery point to the time the teen leaves. The documents indicate all activities to be carried out to receive the required care such as health education, individual counseling, and recreation activities among other things. Study results indicated that protocols and guidelines for the Teen Club were not available at Dowa facility during the time of study, the provider at the facility said: *“I haven’t seen any guidelines but there are some routine works that are followed. Although at Light house protocols were available, there was a gap on awareness of the guidelines, some volunteer staff were not sure of what was supposed to be done as verbalized by one mentor; ‘we always wait for the staff to tell us what we should do’*.

Timing of service provision

The aspect of opening hours of the service delivery point is another important component in the guidelines which is crucial for the teens. Study results revealed that in all facilities, service provision is done during weekends with regular time.

External and internal setting

1. Internal setting

Utilization of services

Facilities offering service provision to the teens are unable meet the demand for the services although responses indicated that the Teen Clubs has played a great role in improving HIV indicators among teens. For Dowa, providers serve average of 60 teens per visit that is a great number compared to the available teens but these teens are those that are within reach and those that are far cannot access the services. Light House had five groups with 90 adolescents that keep on rotating and the facility have excess teens that are put on waiting list to be registered into the Teen Club when others are transferred or graduate to adult ART clinic.

Facility managers ‘support

Despite the overwhelming situation commitment of the senior management (such as internal supervision and engagement) is dependent on the availability of funds available to support implementation. It has been shown that in government facilities services funded by donors attract attention and commitment of the senior management than those not having any support. Provider at the Light House convincingly said *‘for the commitment I would say it is perfect, because they make sure that each and every week the adolescent come for service the support provided is the same’*, this is because of the availability of funds. On the other hand, government provider indicated that internal supervisions and assessments are rarely done.

Physical setting

Physical building conducive for implementation of Teen Club was also found missing at Dowa facility. Teens meet in corridors and don’t have proper space to conduct other activities such as group counseling and physical exercises.

2. Outer setting

External support

Teen Clubs have received less support compared to general HIV services. Most donor funds such as Global Fund target key populations specifically female sex workers and Men having Sex with

Men (MSM). There are no clear national targets for HIV/AIDS among adolescents as evidenced by lack of data segregation in the registers.

External supervision

There have been no routine supervision visits to monitor progress in the facilities implementing teen clubs. Quarterly coordination meetings on Pediatric and adolescent ART are conducted centrally when all issues pertaining to Pediatric ART including Teen Clubs are addressed but have proved to be a challenge because facilities are not routinely visited. These quarterly meetings are further dependent on donor support.

Process

This involves interrelated activities that form implementation action. Despite that these activities could be done consciously or not, formally planned or spontaneous, Teen Clubs have activities that need to be done though not sequentially (19).

4. Service provision package

Study results indicate that some important activities that form part of service provision such as individual counseling and physical exercises are not being done. Such activities are usually dependent on availability of funds to support staff and recreation materials. However, there are activities that are similarly implemented at both teen clubs from the time a teen comes for services to the point of exit. These include registration, health education and drug refill.

5. Monitoring and evaluation of services

Evaluation forms another important part of implementation process. It was indicated that internal or external evaluation has not been done as required for Teen Club at Dowa facility while at Light House evaluation is part of planned activities that start with staff debriefings and other scheduled evaluations exercises.

Sustainability factors

6. Passage (resources)

Teen Clubs largely depend on volunteers to cover human resource. These include HIV Testing and Services (HTS) counselors, expert clients who usually makes follow ups of clients, mentors/social workers. It has shown that there are no funds specifically allocated for Teen Clubs under HIV services by government, establishment and running of teen clubs is mainly supported by donors as such the support is only temporal.

1. Intervention reinforcement

Pediatric and adolescent HIV coordination happens centrally with secretariat at Ministry of Health. There are no evaluations being done at facility or district level. This has also made teen clubs not largely taking space in the District Implementation Plans (DIP). Furthermore, there are no routine reports submitted specific on Teen Clubs to enable evaluation progress or impact, for instance, Dowa facility did not have reporting tools for Teen Clubs, all reports were for general ART services

Niche saturation

While at national level Teen Clubs are part of the Differentiated Service Delivery Models and part of core integrated ART services in the Malawi National HIV Program, at district level little has been done to make the integration operational. Teen Club at Dowa facility has not received needed support to provide standard service package for teens and produce required reports to inform national HIV program as part of service delivery model. On the other hand, Light House is a stand-alone institution despite being implemented within the government health facility. As such it is difficult to establish if the teen club activities are fully integrated into District HIV program.

Cross case analysis

Analysis was done using descriptive data collected using checklist

Table 1: Checklist for standard care and activities at the Teen Clubs

Teen club components	Dowa	Lilongwe	Comments
Conducive environment for Teen Club (private, cleanliness)	No	Yes	No space for meetings at Dowa facility
Regular opening days/time for adolescents meetings/activities	Yes	Yes	Meetings/activities done on weekends
Regular days/time for parents/guardians' meetings	Yes	Yes	Scheduled meetings done
Availability of registers	Yes	Yes	However for Dowa, the registers are for general ART not specific for teens
Availability of reporting tools	No	Yes	Not available for Dowa teen club

Teen club components	Dowa	Lilongwe	Comments
Follow up mechanisms	Yes	Yes	Available at both facilities volunteers
Health information provided	Yes	Yes	Done as part of service package
Standard clinical care: ART monitoring and refill, TB screening, Nutrition assessment and treatment, viral load monitoring	No	Yes	Clinical officer not allocated at Dowa teen club, health assessments are most of the times missed
Availability of psychosocial support services	Yes	Yes	Provided mainly by volunteers
Availability of SRH services contraceptives including condoms	Yes	Yes	Available at both facilities but not usually accessed by teens as part of services indicating lack of comprehensive sexual education
Availability of recreation materials	No	Yes	Available only at light House but mainly for younger teens
Snacks provided	No	Yes	Not available at Dowa teen club
Transport reimbursement	No	Yes	Not done at Dowa teen club

Quantitative results

The two health facilities were assessed against the checklist developed indicating the standard components for a Teen club. Qualitative themes were put side by side with quantitative findings. Data was entered into SPSS V 20 and analysis concentrated on counts and frequencies.

Study findings revealed disparities on how care was provided in the health facilities. Out of the 13 required components under standard care package, Dowa health facility is only able to meet 53% of the required components as shown on the cross case analysis against 100% required.

Discussion

Firstly, study findings for both Dowa and Lilongwe health facilities involve volunteers in service provision. This is similar to intervention design where service provision at Teen Clubs does not only depend on professional staff such as nurses and other medical personnel but also volunteers; usually called mentors that play important role in providing the services (13). However, this becomes a challenge when there is shortage of professional staff and care is mainly supported by volunteers like the case of Dowa where there is only one nurse solely allocated to the whole ART department supervising and serving clients.

Provider training is one of the most important capacity building aspects in provision of Youth Friendly Health Services (YFHS) that includes adolescents and is recommended to be ongoing (32). However, in this study it has been evident that providers are introduced to providing care without proper induction which is a threat to effective implementation of new interventions (17). This is more challenging in health facilities like Dowa that do not have partners to fund services provision; staff training being part of the package. Lack of necessary information by the providers has compromised how the intervention is implemented. For instance, most providers have gained their own experience and redesigned the intervention without proper reference to the original model.

Other than trainings, there is critical shortage of staff further compromising implementation of the intervention; redesigning the model to fit the situation. The study results indicated one nurse at Dowa seeing an average of 60-70 teens per visit.

Secondly, Teen Clubs are associated with great cost to both care seekers and the health facility. Similar were the results made by an evaluation in Malawi which focused on transport reimbursement and snack provision (14). However, the cost of running the Teen Club goes beyond that because it includes having well trained personnel, good infrastructure and routine supervision costs just to highlight few aspects. The cost is more evident where there are no partners to provide support. Teens and guardians have to fetch for transport and food to support their hospital visits which is the biggest barrier to accessing and retaining the adolescents into health care. On the other hand, in general, there is need for dedicated staff, trainings, infrastructure, food for teens and transport to meet the standard requirements that is the cost that health facility is supposed to meet. It is not doubtful that most Teen Clubs have been unable to

thrive due to lack of permanent funding to support service provision and those currently running are facing a lot of challenges to provide standard package of care as per model design.

Poor infrastructure for teens' meetings such as corridors and tiny rooms for group counseling clearly indicate challenges that Teen Clubs face to be effectively implemented. This has further led to a number of shortfalls that exist in provision of standard care such as lack of space for teens to play and ineffective counseling that are essential for addressing bio-psychosocial issues that adolescents are exposed to. Similar findings were identified by other studies that in terms of care provision, numerous unmet needs exist including adherence support, family planning service provision, mental health assessment and intervention (33, 34).

Thirdly, there was poor sustainability strategies have also vividly been revealed where out of 99 Teen Club that were opened in Lilongwe districts, less than 10 are functional and those that are functional are those that are supported by partners in some ways. Results in Dowa also indicate that only one Teen Club is functional at Dowa District Hospital, Teen Clubs that were operational at other two health facilities in the district also ceased to function.

In addition, staff allowances were provided as incentives especially in government facilities as revealed by the study participants, however, this has proven to be a poor aspect of Teen Club introduction and implementation measure to achieve sustainability. This is because as funders exit, providers are no longer interested in their work and progress slows down eventually extinction of the Teen Club. There is also a challenge where a Teen Club is solely manned by funders like the case at Lilongwe District health facility where Light House (as a donor) operates everything that relate to Teen Club and district staff are not directly involved. This entails that the time the donor will decide to leave, the Teen Club will also close because there will be no staff to continue service provision.

Lack of external support and supervision by donors and regulating bodies in this case HIV unit, result in poor commitment of facilities' senior management team. Key informant from HIV unit indicated that they have been unable to make supervision visits to facilities implementing Teen Club due to lack of funding.

Currently there is range of donors supporting teen club in one way or the other such as Light House, Partners In Hope and Beila, their funding is not permanent. This calls for integration of teen club into national budget for HIV services which has not been there as recently

recommended in HIV guidelines to be one of the differentiated care model to meet set indicators (35). Due to lack of proper support, getting specific reports on Teen Club is a challenge except in facilities where donors fund service provision.

These reports are usually used by donors and not prioritized at national level as adolescent specific data for HIV services is not captured in facility registers hence not reported. Service provider at Dowa sadly said on Teen Club reports. This is similar to another literature that indicated that healthcare provision specific to adolescents is largely unprecedented worldwide largely attributed to by poor data capturing for proper planning (36)

Lastly, there is high number of teens seeking care, however, available facilities are unable to absorb them and provide necessary services. Another author has the same view that there is low utilization of SRH services among young people because the services are not available, accessible, acceptable and satisfactory (37).

Teen Club at Dowa health facility serves about 60 teens per visit in a month. These are teens that live within the surrounding areas. Most teens are missed due to long distances to the health facility and some shun away due to long waiting hours on an empty stomach. Lack of data segregation to capture and follow positive adolescents, further affects teen enrolment and retention to HIV care and services at Dowa health facility.

Current situation at Lilongwe District facility further indicate that teens are put on a waiting list to be enrolled into Teen Club because there is only a number of teens that can be managed due to availability of funds by the donor. Despite facilities having similar hours and days for services thus weekends from morning to afternoon to reach out to many teens including school going, it has proven that the system of implementation is unable to serve all the teens.

Limitations

This study only show snap shot of the current situation and does not show temporal effect, however, semi-structured questionnaire was formulated to reduce confounders. Refusing participation of study participants during interviews with key informants was also inevitable but this was addressed by clearly explaining the aim of the study thus to gain consent.

Conclusion

This study aimed at providing a snap shot on how Teen Clubs are being implemented. The assessment reveals various gaps that include in adequate service provider trainings and shortage of staff, lack of proper infrastructure and permanent funding for sustainability of the model. There is also a huge burden on the care seekers to support service access as the design of the model and strategy of implementation does not correlate affecting utilisation of the services. It is therefore tempting to establish that the current situation is not near to the implementation design of the model. This entails that a more comprehensive evaluation is required if the model is to be rolled out and sustained. To this end The HIV Department under Ministry of Health should embark on a comprehensive evaluation on how Teen Clubs are being implemented. There is also need for the Government of Malawi through the Ministry of Health should allocate funds towards adolescent specific HIV service provision and activities such as routine supervisions. Furthermore, the HIV Department under Ministry of Health should develop a standardised minimum package that should be d adopted by facilities implementing Teen Clubs with or without donor support.

Abbreviation

STI: Sexually Transmitted Infections; ART: Antiretroviral Therapy; SRH: Sexual and Reproductive Health; BCM-CFM: Baylor College of Medicine-Children's Foundation Malawi; Evidence Based Practice: EPB; CFIR: Consolidated Framework For Implementation Research, IOF: Implementation Outcome Framework.

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Authors' contribution

The study was developed and conducted by TT under the supervision of JMB. Initial draft of the manuscript was done by TT, GD and YK. All authors participated in reading and approving the final manuscript.

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Availability of data and materials

The datasets used are available from the corresponding author on request.

Ethics approval and consent to participate

Ethical approval was obtained from Malawi's College of Medicine Research and Ethics Committee (COMREC- Number **P.09/18/2479**) prior to commencing the study. Consent was obtained from the institutions where the study took place and necessary support was provided. Written informed consent was obtained from each study respondents prior to participation in the study. Confidentiality, anonymity and privacy of the participants and collected data was maintained by holding interviews in a private and quiet room and use of participants codes. All audios and transcripts were saved in a password protected computer with limited access to the researchers.

Consent for publication

Not Applicable.

Competing interests

The author declares that there are no competing interests.

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