

PEER REVIEW HISTORY

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ARTICLE DETAILS

Title (Provisional)

Exploring the barriers and facilitators to HIV information and health services among youth in N'Djamena, Chad: a qualitative descriptive study

Authors

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VERSION 1 - REVIEW

Reviewer	1
Name	Reviewer 1
Affiliation	
Date	17-Sep-2023
COI	I have no competing interests.

Comments not published pending reviewer's consent

Reviewer	2
Name	Reviewer 2
Affiliation	
Date	17-Sep-2023
COI	I have no competing interests to disclose.

Comments not published pending reviewer's consent

VERSION 2 - REVIEW

Reviewer	1
Name	Basinda, Namanya
Affiliation	Catholic University of Health and Allied Sciences, Community Medicine
Date	24-Dec-2023
COI	I have no competing interest.

This is a very important topic; the reviewer commends authors for a good job. The following are few observations:

1. The introduction section is a bit unfocused, is this an evaluation of the BBC program or a study to understand what youth go through?
 2. Line 47-50 in data collection, the authors say BBC program did data collection, this should be clearly harmonized with line 24-26 of limitations as to who was involved or not involved. How did the author overcome bias generated by using program personnel to collect data?
 3. The reviewer does not understand how a Focus Group Discussion qualitative study can have the power to provide findings that show an increased condom use and proportion of sex safe.
 4. Line 44-47 in the conclusion section feels like an opinion that is not part of the study.
-

Reviewer	2
Name	Ndlovu, Sithembiso M. S.
Affiliation	University of KwaZulu-Natal
Date	15-Mar-2024
COI	None declared

This is an insightful paper.

[see annotated pdf]

BMJ Open

Exploring the barriers and facilitators to HIV information and health services among youth in N'Djamena, Chad: a qualitative descriptive study

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Exploring the barriers and facilitators to HIV information and health services among youth in N'Djamena, Chad: a qualitative descriptive study

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ABSTRACT

Objectives: Identifying the barriers and facilitators for Chadian youth (aged 15-24 years) along the pathway of access to HIV information and health services.

Study design: Qualitative study.

Study setting: The study was conducted in N'Djamena, Chad within 20 high schools that were purposefully selected based on participation in a Blue Cross Chad (BCC) peer-to-peer education programme.

Participants: A total of 10 focus groups, each consisting of 12 participants, stratified by gender and BCC program participation (5 each among participating and non-participating high schools), were conducted.

Methods: A descriptive qualitative study using thematic analysis of content was conducted. The qualitative software ATLAS.ti version 22 was used to organize and code the data.

Results: Five main categories of barriers and facilitators for HIV information and health services were identified, including (1) societal expectations and norms; (2) power dynamics; (3) social networks; (4) peer-education programmes; and (5) bypassing the system. Barriers and facilitators to information-seeking and access to health services were observed at individual, community, and system levels. High school students expressed that access to information and health services were important when it comes to HIV and AIDS prevention and treatment. Societal expectations and power dynamics were identified as key barriers, while trust through social networks and peer-education programmes were key facilitators to accessing information and health services.

Conclusion: This study allowed for the identification of both barriers and facilitators of HIV information and health-seeking in the context of N'Djamena, Chad. Our findings highlight the importance of comprehensive community- and youth-led approaches that are youth-friendly and -centric are needed to effectively communicate HIV information.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- In a context like Chad, the results of this qualitative study highlighted the importance of leveraging social networks, including friends, partners, and social media for future HIV prevention programmes for youth.
- Despite knowing about HIV and AIDS, the youth faced challenges when accessing care, including mistreatment and discomfort from healthcare providers, which is reported to have reduce their care-seeking behaviors.
- The study could have benefitted from the inclusion of high-risk groups, particularly those who are not enrolled in schools, who may have specific needs compared to the general youth population.

INTRODUCTION

There are an estimated 2.78 million children and adolescents living with HIV worldwide and approximately 88% reside in sub-Saharan Africa.¹ Chad is one of Central Africa's most affected countries by the HIV/AIDS epidemic with an overall prevalence of 1.6%; it is estimated there are 12,000 young people 15-24 years of age living with HIV in Chad.^{1,2} However, in the country existing programs interventions have largely focused prevention mother-to-child transmission (PMTCT), and HIV prevention efforts among adolescents and young people (aged 10-24 years) have been more limited.³

In 2012, Blue Cross Chad (BCC) launched the "Life Skills and Peer Education" programme, also called the BCC Lifeskills Project [BCC LBSE] (2012-2016) targeting vulnerable school youths aged 14-18 years.^{4,5} This programme is rooted in the life skills-based education [LBSE] approach, which has been widely used in youth programmes by many organizations around the world, especially for HIV and AIDS education.⁶ While such programmes have shown effectiveness in reducing risk behaviors and improving knowledge and attitudes related to HIV/AIDS, their effectiveness in sub-Saharan Africa (SSA) depends on various factors such as program design, cultural context, and resource availability.⁷

The program aimed to develop skills and knowledge to make informed decisions about alcohol, drug abuse, and associated risks, including HIV transmission.⁵ BCC LBSE included a wide range of stakeholders, including high school students, parents, community leaders, local and national political and administrative authorities who play a key role in shaping an enabling environment for the development and implementation of the programme.⁴ LBSE was implemented in 15 high schools in N'Djamena from 2012 to 2016 and expanded to 20 high schools until 2021.^{4,8} Peer educators, trained in life skills lessons, taught topics ranging from HIV transmission to prevention.⁴ Lessons utilized a combination of teaching methodologies, including group work and role-play.⁴ While the BCC LBSE has undergone evaluations in 2016 and 2021, these evaluations mainly focused on its impact on reducing substance use and failed to provide insights into HIV and AIDS sexual behaviors among youth.^{4,5} In addition to quantitative impact results, it is equally necessary to understand the contextual factors and mechanisms that influence access to information and health services among the youth within and outside the program. Therefore, by incorporating non-beneficiary high schools in N'Djamena city, we conducted a qualitative research study to assess barriers and facilitators to HIV and AIDS access to information-seeking and health services among the youth in N'Djamena, Chad from students at intervention schools and non-interventions schools. These results are intended to inform the development and implementation of future community- and youth-led interventions for HIV prevention and treatment in Chad.

METHODS

Study setting

The study was conducted in N'Djamena, the capital city of Chad and the most populous with an estimated 1.6 million people. It is composed of 10 districts (Appendix 1) and was purpose

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selected as the study setting for this qualitative study as BCC has implemented its programme in 20 high schools in the city.⁸ As previously mentioned, Chad is one of Central Africa's most affected countries by the HIV/AIDS epidemic with an overall prevalence of 1.6%.³ Data from UNIFEM show that HIV prevalence among young women and men (aged 15-24 years) is 1.3% and 0.8% respectively.³ When stratified, the prevalence among young women rises with age. For example, it is at 1.2% among women aged 15-19 years, 1.8% among 18-19, and 2.4% among 23-24.³ In the areas of prevention and medical care for pediatric HIV, only 22% of HIV-positive children (aged 0-14 years) have access to retroviral treatment.³ With a median age of 17 years, 65% of the population is under 25 years of age.⁹ The fertility rate is 6.35 births per woman, and 70% of girls under 18 and 29% of those under 15 are married.^{10,11}

Study design and sampling

We conducted a conventional qualitative content analysis method to identify the roadblocks that face Chadian youth (aged 15-24 years) along the pathway of getting access to information and health services when it comes to HIV and AIDS. A purposive criterion sampling method was utilized to identify and select information-rich subjects for each group of interest, including BCC LBSE participating high schools vs. non-participating high schools. Eligibility criteria for both groups included currently enrolled high school (9th to 12th grade) students. For students in participating high schools, eligibility criteria of programme participation in at least 6 months were implemented to ensure sufficient intervention exposure. In each high school, a list of currently enrolled students provided by the registrar office was used. From these lists, students with missing information were removed. A total of 4 groups of 12 participants (Figure 1) was formed. While FGDs often consist of 6-8 participants, our large group size (n=12) was chosen for diversity of perspectives and group dynamics. However, due to the exploratory nature of the study, saturation was not reached.

FGDs were stratified by gender and whether the high school participated in the BCC program to allow participants to feel comfortable sharing their beliefs. The first two groups (1 male, 1 female) included in-classroom participating high school students, whereas the last two groups (1 male, 1 female) included in-classroom non-participating high school students. After being identified, school administrators called parents of those under 18 years old and explained the purpose of the research. Following the call, for parents who have agreed on the phone, they were invited to the school to sign the parental written consent. If they could not make it in person, they provided verbal consent. We used the COREQ checklist to guide reporting of the qualitative methodology and study results (Supplementary File).⁹

Data collection

For the qualitative study, 6 BCC program staff members were used as interviewers, divided into two teams of 3 researchers, and each team was composed of at least one female interviewer. Prior to the study, they were trained in qualitative research methods, including how to conduct interviews. Using locally trained interviewers was beneficial to the study as it helped facilitate entrance and acceptability among members of the community. Although the interviewers were from the same organization whose programs were intended to increase HIV prevention

knowledge and service use, the ones chosen were not involved in the implementation of the intervention in the selected high schools.

FGDs were conducted by teams in French and Arabic, using a semi-structured topic guide (Appendix 2). The interviews took place in a secure private location of the BCC headquarters. Participants in each FGD were asked to come during their scheduled time, and their transportation expenses were reimbursed (not exceeding USD \$10). Interviews took between 90 and 120 minutes, and transcription of each FGD took approximately 3 to 4 hours. Each transcript was discussed with the entire team to ensure that all cultural nuances were captured.


Participants were asked to describe their views, perceptions, and beliefs on sexuality as it relates to HIV and AIDS transmission and prevention. Interviews started with an explanation of the interview purpose, reassurance on confidentiality and seeking of respondents' written or oral informed consent. All FGDs were transcribed and translated by the entire team to ensure that the translations captured cultural nuances. All interviews were recorded and transcribed verbatim.

Data analysis

The qualitative analysis software ATLAS.ti version 22 was used to analyze the data. The data were analyzed using inductive thematic analysis, codifying, and identifying the main emerging themes. Data analysis was carried out at the same time as data collection. During this process, each team member thoroughly read a subset of interviews and labeled each line with codes, resulting in 43 codes. These codes were examined for overlap and then collapsed into 12 broader codes. The codes were further organized into 5 overarching categories (Table 1). To ensure the validity and reliability of the data, in other words, trustworthiness, the research team used Lincoln and Goba's evaluative criteria, which include credibility, transferability, dependability, and confirmability. The texts associated with the codes were extracted and organized by category, and similarities and differences were compared. Since all interviewers were local and familiar with the region's culture, they all participated in this process. Dependability was achieved through a validation of the coding tree by consensus among team members regarding the definitions and inclusion/exclusion of the codes. The documentation and archiving of all stages and documents of the research process, multiple revisions, and exchange of main and subcategories identified by the authors allowed to achieve confirmability.

Reflexivity

The qualitative research team (multidisciplinary, multilingual, multicultural, and multinational) involved in the data collection (interviews) and analysis (transcription and translation) process minimized the presence of any research team member's bias in the analysis. As the data collection team included locally trained interviewers, it captured cultural nuances, as well as facilitated entrance and acceptability among members of the community. In fact, this latter was reflexive and collaborative as we continuously engaged with the NGO partner, which informed

school officials, government officials, and development organizations. Despite the involvement of multiple team members in the processes, there may still be bias present in the conclusions reached. The process of triangulation was applied by sharing findings from the study with members of the community who were not interviewed, as well as individuals who are service providers or experts on the issue within the community. They may be able to identify inaccuracies or biases that the research team failed to recognize. 

Ethical considerations

Ethical clearance was obtained from the Harvard T.H. Chan School of Public Health’s Institutional Review Board, protocol #IRB21-1641, and the National Committee on Bioethics of Chad #036CMT/PC/PMT/MESRI/SG/CNBT/2022. Informed consent forms were read aloud by the interviewers prior to the start of the FGDs. Participants were also given opportunities during the consent process to ask any questions. Participants provided a verbal agreement to indicate consent. Finally, it was not appropriate or possible to involve participants in the design, or conduct, or reporting, or dissemination plans of our research.

RESULTS

A total of 48 in-classroom high school students were divided into 4 FGDs as follows: male beneficiary high school students (BM), female beneficiary high school students (BF), male non-beneficiary high school students (NBM), and female non-beneficiary high school students (NBF). The mean age of all participants was 16.75 years with variations between groups and across gender (Table 2). Most participants were in the 10th and 11th grades representing 73% of the sample. Sociodemographic characteristics for the sample are presented in table 2.

Table 2. Sociodemographic characteristics of participants (N = 48).

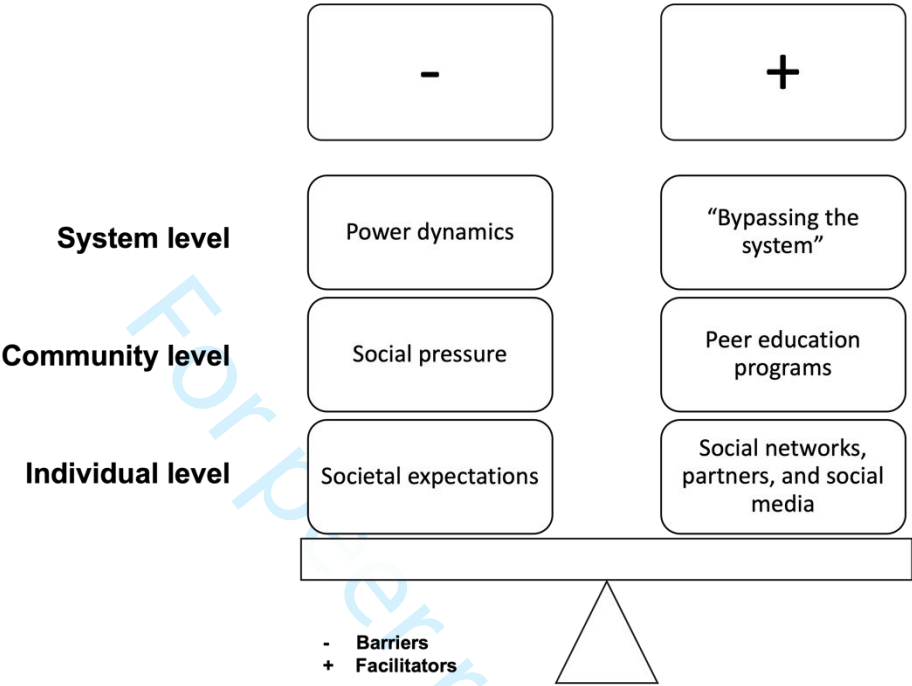
Participant characteristics	N (%) or mean (SD)
Mean age (years)	
All groups	16.75 (0.90)
Beneficiary males	16.92 (0.90)
Beneficiary females	17.25 (0.97)
Non-beneficiary males	16.58 (0.90)
Non-beneficiary females	16.25 (1.14)
High school student sex	
Male	24 (50%)
Female	24 (50%)
High school grade	
9 th grade	6 (12.5%)
10 th grade	17 (35.5%)
11 th grade	18 (37.5%)
12 th grade	7 (14.5%)

The following categories were developed from analyzing the interview transcripts: societal expectations, power dynamics, social networks, peer education programmes, and bypassing the system. Based on the similarity in meaning, we organized and structured the categories into a conceptual framework (Figure 2), outlining how identified barriers and facilitators support HIV and AIDS access to information-seeking and health services at different levels.

Barriers and facilitators

High school students expressed access to information and health services as important factors when it comes to HIV/AIDS prevention and treatment. We identified societal expectations and power dynamics as key barriers, while trust through social networks, as well as peer-education programmes were key facilitators to information-seeking and health services. We described each of these barriers and facilitators by levels in more detail below.

Figure 2. Barriers and facilitators to information-seeking and health services among the youth (aged 15-24) enrolled in high schools in N’Djamena, Chad.



Barriers to information-seeking and health services

At the individual level: Societal expectations and norms

Recognizing the country’s sociopolitical context, societal expectations and norms were observed as major barriers to accessing both information and health services at the individual level. Males in the beneficiary group mentioned that *“it takes a lot to talk about sex”* and highlighted the importance of knowing *“whom to talk with”* (BM, #8, 19-year). All groups mentioned that they were unable to freely speak about sex with their parents, shown by *“although I can speak about sex with my friends and girlfriend, I am not able to speak about it with my parents.”* (NBM, #30, 18-years). In addition to the topic being taboo, adolescents further explained that they assumed by asking questions about sex their parents would automatically assume that they are sexually active which was contrary to the highly encouraged practice of abstinence.

At the community level: Social pressure

At the community level, fear and public shame prevailed. Females in the beneficiary group noted that *“shame is what prevents people from getting the information they need”* (BF, #13, 17-years). This was also observed as a barrier when accessing care, exemplified by *“the main reason that prevents us from going to health centers are shame and fear.”* (NBF, #39, 17-years). Males and females in both the beneficiary and non-beneficiary groups further explained that this fear came from the fact that they did not want to be recognized by family members or

friends as this would mean that they are sexually active. This was particularly relevant to the aspect of “tight-knit communities” in which people know each other well. A quote exemplifying this phenomenon is presented below:

“...The second reason is that we are scared to find out if a family member. This will mean that we are actively practicing sex and can be problematic for our families.” (NBM, #33, 16-years)

At the system level: Power dynamics

At the system level, adolescents perceived power dynamics were at play. Age and gender dynamics emerged. Females shared that they were not feeling comfortable in hospitals as healthcare providers tend to be men, as exemplified by *“the services should be led by women as they are better placed to deal with these issues.”* (BF, #16, 16-years). On the contrary, males mentioned that female healthcare workers *“would make fun”* of them when talking about sex and their health, which made them *“uncomfortable.”* (NBM, #33, 16-years) Finally, it was noted by the youth that healthcare providers were perceived to have authority, which led to a one-way provider-patient relationship. This latter did not create a conducive environment for the youth to seek care, shown by *“improvements can be made in the way healthcare workers welcome us as well as create a safe climate in the clinics.”* (BM, #5, 16-years)

Facilitators to information-seeking and health services

At the individual level: Social networks

Social networks such as friends were an important knowledge-sharing platform for the youth: *“young people often talk about sex with their friends.”* (BF, #21, 18-years) For non-program beneficiaries, they relied more on social networks as they did not have sexual education available in schools. However, unlocking social networks was based on trust, as shown by *“it’s a matter of trust, and so I can talk about it with friends that I trust.”* (NBF, #41, 19-years) Although these discussions occurred between friends, there seemed to be preferences with gender; in other words, females were more comfortable speaking about sex with their female friends, as shown by *“we easily talk about sex between girls”* (NBF, #40, 17-years) while males were more open to their peers as follows: *“when we speak about sex with friends, we mostly speak about masturbation”* (NBM, #25, 16-years) and *“although it is a topic that is private, guys like to gossip about what other people do.”* (NBM, #26, 16-years) Despite some individuals had reliance on social networks, some males and females, particularly in the non-beneficiary high schools felt it was *“shameful to talk about sex with friends.”* (NBF, #42, 17-years); nevertheless, this confidentiality issue did not appear to be issue when it was about speaking with partners, shown by *“feel free to talk about contraception and sex with their partners.”* (BF, #13, 17-years) In all groups, the youth mentioned being comfortable speaking about sex with their partners, especially when they were not knowledgeable. Finally, the youth relied on social media when they did not have access to the information they needed. This was explicitly discussed among non-beneficiary females who stated that *“young women rely on social media to get information.”* (BF, #15, 16-years) This was further supported by males in the non-beneficiary

group as exemplified by “I get all the information from Facebook, Google, and WhatsApp.” (NBM, #30, 18-years)

At the community level: Peer education programmes

At the community level, peer-education programmes, such as the BCC LBSE were identified as an enabler. Among the programs beneficiaries, males mentioned that such programmes are beneficial because they provided knowledge about sex education and HIV. They further stated that “sexual education in schools is very beneficial for young people because it allows us to know the dangers that can be associated with practicing sex.” (BM, #10, 18-years). Moreover, beneficiary females shared that they give a chance to young women who are not proactive to learn and safely practice sex, characterized by “important for young women who ashamed to talk about sex.” (BF, #17, 16-years). When both non-beneficiary males and females were asked about the potential of having such programmes in their schools, they all agreed that their schools needed these programs.

At the system level: Bypassing the health system

At the system level, “bypassing the health system” (a term noted by the participants) for both access to information, and prevention and treatment was observed outside the family and health system. They shared that they preferred social clubs and NGOs instead of hospitals because the staff was more receptive and provided them with the information and health services they needed. This was illustrated by “we rely on associations, cultural centers, the Chadian Blue Cross, peer educators to obtain information.” (BM, #7, 17-years). Although condoms are distributed for free at hospitals, the youth mentioned that they preferred getting them from “street drug sellers or local shops” (BF, #20, 15-years) than going to the hospital to either protect their identity from their families or avoid mistreatment at the point of care.

DISCUSSION

In this qualitative study, we sought to assess the contextual factors and mechanisms that influence access to information and health services among youth (aged 15-24 years) in N’Djamena, Chad. We found that the youth heavily relied on their social networks to access information. This reliance on social networks, especially peer-to-peer network was mediated by gender, trust, and partner-relationship. Additionally, the youth refused to seek care due to the quality of care received at the facility and power dynamics exerted by healthcare providers. Our results were consistent with what other researchers have found in different contexts showing that HIV prevention messages through social networks and peer education were efficient.^{12,13} More specifically, its contribution to the existing literature lay in the fact that school-based HIV education was an opportunity for the youth to learn in a safe and enabling environment, as well as provide them with decision-making skills.^{13,14,15} Furthermore, young people suggested that these programs should be incorporated in their schools in Chad. Barriers identified in the study such as societal expectations^{16,17,18} and power dynamics^{12,19,20} were similar in other SSA countries. These findings, however, provide an opportunity to integrate HIV prevention into the needs expressed by study participants.

The results of the study suggest harnessing social networks for HIV interventions for youth shows promise. Our research highlighted the significance of social networks, such as friends and partners, in disseminating information and motivating youth to get tested for HIV. Notably, unlocking social networks appears to be influenced by gender-based factors. A systematic review by Fearon et al. (2015) yielded inconclusive results regarding the impact of peer exposures on adolescent sexual behavior in Sub-Saharan Africa (SSA).²¹ However, peers were found to play a crucial role in influencing adolescent sexual behaviors within romantic relationships,²¹ as supported by numerous qualitative studies.^{22,23,24,25} A baseline assessment of an HIV prevention trial in Tanzania revealed that network structure, composition, and norms were associated with HIV testing behavior among urban Tanzanian men.²⁶ Surprisingly, the study showed that men belonging to networks with a higher proportion of women were more likely to have tested for HIV, contrary to our findings.²⁶ This composition effect was found to outweigh the influence of descriptive norms among closest friends.²⁶ In another study in KwaZulu-Natal, Adeagbo et al. (2022) demonstrated the effectiveness of friends in promoting HIV prevention.²⁷ However, low PrEP uptake was attributed to doubts about the professional credibility of friends, as young people may not view them as genuine healthcare providers.²⁷ As a result, studies are needed in Chad to determine the best approaches to positively use social networks for HIV prevention efforts in the context.

As discussed by the youth, more specifically non-beneficiaries, social media was an integral part of their access to information. As the youth advocated for better promotion of existing health services available to them, social media appeared to bridge communication medium. Bull et al. (2012) conducted a cluster randomized control trial to determine whether STI prevention messages delivered via Facebook are efficacious in preventing increases in sexual behaviors at 2 and 6 months in American youth and young adults.^{28,29} The findings demonstrated increased condom use and proportion of safe sex acts at the two-month follow-up. Across the world, several government programs have also used social media to promote safe sex behaviors and HIV prevention.^{28,29} For instance, the US CDC has developed a social media toolkit to promote online sexual health campaigns using Facebook, Twitter and YouTube.³⁰ As it relates to linkage to care, a systematic review and meta-analysis conducted by Cao et al. (2017) showed that HIV testing uptake increased after social media interventions, which mostly used Facebook as a social media platform.³¹ Additionally, in the studies where social media interventions were participatory, HIV testing uptake was higher in the intervention arm than the comparison arm.³¹ Despite the low internet penetration (17%) as well as the number of social media standing at 3% of the total population in 2021,³² Facebook (88%) and Twitter (10%) were the most used social media in Chad.³³ This growing popularity of social media provides an opportunity for HIV prevention information for youth via social media globally; however, it is important to meaningfully involve young people in delivering HIV prevention information and services, particularly to consider cultural and context specific. For example, this could be done by training peers that are from the target population and have experience with both social media and community outreach, which would have great potential to expand coverage and reach.³⁴

For many students, schools represented a safe and enabling environment, which can be used as a platform to deliver high-impact HIV education interventions. In her paper, Kelly challenges the

education sector (2000) by arguing that schools provide three levels where HIV/AIDS-related interventions are needed, including when there is no infection, when the infection has occurred, and when AIDS has brought death.³⁵ This is particularly important in the context of Chad as our results suggested that young people may be engaged in sexual behaviors earlier than the targeted audience for BCC LBSE. Therefore, programmes such as BCC LBSE should not solely focus on high schools but should begin early in primary school since primary school-age children have not yet formed sexual behavior patterns. Although schools have been identified as the preferred location for sexual and reproductive health education by students in our study, school-based HIV education is not included in the core education curriculum in Chad. In that context, the national education programme could formally integrate and scale up peer education programmes into the curriculum. However, the education sector cannot do it alone. This calls for a concerted effort between stakeholders, including civil society, donors, NGOs, and UN agencies to collaborate with national authorities to build the education sector's capacity to design, implement, monitor, and evaluate lifeskills programme. In the past, the Ministry of Culture trained youth facilitators for their 45-minute weekly cultural activities in public schools. Furthermore, the National AIDS Control Programme developed a lifeskills training module on HIV/AIDS and reproductive health intended for trainers of peer educators who implement HIV and AIDS activities.³⁶ For them to be sustainable, there is a need to train and support teachers, as well as the need to provide resources to and support for peer educators.³⁷ Therefore, if these efforts are aligned, and there is better collaboration between these national and international stakeholders, a nationwide curriculum can be developed. An example from Benin showed that the design of the curriculum was a collaboration between the Ministries of Education, Health, and Family.³⁸ In their article, Sturke et al. (2020) recognized the crucial role of partnerships as they offer avenues for implementing comprehensive intervention programs in schools, encompassing early detection and support for HIV, as well as addressing mental and neuropsychiatric concerns among adolescents.³⁹ They further argued that these initiatives need to be integrated into primary healthcare and community-based services to ensure broad accessibility and impact.³⁹

Despite having access to information, many young women do not feel encouraged to seek care. Furthermore, they preferred going to social clubs instead of hospitals. Providing private and hidden health services has been recommended by the youth, especially young women as a potential solution. In Zambia, FAWLEZA has created safe (social) spaces to allow young girls to play games, engage in sports, and receive technical skills training.⁴⁰ Although creating such safe spaces would not completely solve the issue, making sure to hire a diverse staff, including young, and female health workers, and ensuring that they are routinely trained would address issues around discomfort and mistreatment. A study conducted by Aung et al. (2017) showed that training staff in working with key populations, and supporting clinic policies that promote confidentiality and informed decision-making by young people led to clinics being more sensitive and capable of providing appropriate youth-friendly services.⁴¹

In their recommendations, the youth advocated for the practice of abstinence to be further promoted in mass awareness campaigns. However, even as the sociocultural and religious contexts must be considered, reliance on abstinence has been largely discredited as an

effective HIV prevention approach, particularly to the extent many of the young people have already engaged in sex by the time they are reached by such messages – which, as a result, may counterproductively promote shame rather than motivate communication.^{42,43} Furthermore, these abstinence-based programs disproportionately affect women and girls.⁴⁴ Due to conservative beliefs, religious leaders possess a special position that enables them to play a significant role in addressing HIV/AIDS, shaping societal norms, disseminating reliable information, and exerting influence on public opinion.⁴⁵ To that extent, religious leaders should be meaningfully involved in the design of these HIV prevention strategies. In Kenya, Maulana and colleagues showed that it is possible to engage Islamic communities in designing interventions to suit their cultural and religious context, making use of their own views and perceptions of risks.⁴⁶

LIMITATION

This study included some limitations. Our study sample took place in high schools, and therefore, did not include youth outside the formal education system. This is important as those in the formal system only represent 18 to 30% of the population. Second, although the interviewers selected were not involved in the implementation of the intervention in the selected BCC high schools, their posture as adults may motivate more socially desirable responses among young people about HIV and sex. The last limitation is that our findings did not specifically target most-at-risk groups, including youth sex workers, MSM, transgender people, and those who use injection drugs. . When considering the epidemic, understanding the crucial role that most-at-risk groups play in the transmission of HIV is important. Not only do young people constitute a large percentage of most-at-risk groups, but they also frequently have higher HIV infection rates within these groups.⁴⁷

CONCLUSION

This study identified various barriers and enablers that the Chadian youth face along the pathway of getting access to information and health services for HIV and AIDS. We identified societal expectations and power dynamics as key barriers, while trust through social networks, as well as peer education programmes were key facilitators to information-seeking and health services. Based on our findings, peer education programmes focused on sexual health and HIV prevention, including those that use social media, may be promising interventions. Overall, our study confirms the importance of qualitative research and inclusion of youth voices in the development as well as evaluation of HIV interventions and programs for youth.

Author contributions

Esias Bedingar, SM: Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing – original draft, Writing – review & editing, Funding acquisition, Project administration, Supervision, Visualization. Ngarossorang Bedingar: Methodology, Investigation, Data curation. Djimet Seli, PhD: Writing – review & editing. Christopher Sudfeld, ScD: Conceptualization, Methodology, Writing – review & editing.

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Competing interests

None declared.

Patient consent for publication

Participants were not involved in the design, or conduct, or reporting, or dissemination plans of this research. However, we have shared findings from the study with members of the community who were not interviewed, individuals who are service providers or experts on the issue within the community, as well as stakeholders.

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For peer review only

VERSION 2 - AUTHOR RESPONSE

Reviewer 1

- 1) The introduction section is a bit unfocused, is this an evaluation of the BBC program or a study to understand what youth go through?

Response: Thank you for this point. We have tried to provide a more focused introduction.

The primary goal of our study was to understand the barriers and facilitators to HIV information and health services among youth in N'Djamena, Chad. While we referenced the Blue Cross Chad (BCC) peer-to-peer education program, it served as a context through which we explored broader issues affecting youth access to HIV-related information and services.

We have edited the last paragraph of the introduction section to ensure the primary and secondary research questions are clear:

"In this qualitative study, our primary goal was to evaluate contextual factors that influenced youth access to HIV information and health services in N'Djamena, Chad. We secondarily explored differences in the views of students from schools that participated and did not participate in the BCC LBSE program."

- 2) Line 47-50 in data collection, the authors say BBC program did data collection, this should be clearly harmonized with line 24-26 of limitations as to who was involved or not involved. How did the author overcome bias generated by using program personnel to collect data?

We have clarified that in our project the interviewers were BCC staff members but they were not involved in the LBSE project (page 4).

"For the qualitative study, 6 BCC program staff members were used as interviewers, divided into two teams of 3 researchers, and each team was composed of at least one female interviewer. However, these 6 staff members were not involved in the BCC LBSE project in any way."

- 3) The reviewer does not understand how a Focus Group Discussion qualitative study can have the power to provide findings that show an increased condom use and proportion of sex safe.

Response: We have clarified that this discussion section sentence was referring to the study by Bull et al. and also added citations to the second sentence to ensure the reader is clear we are referencing the results of the Bull et al study.

"Bull et al. (2012) conducted a cluster randomized control trial to determine whether STI prevention messages delivered via Facebook were efficacious in preventing increases in sexual behaviors at 2 and 6 months in American youth and young adults.^{28,29} This study found that the intervention increased condom use and the proportion of safe sex acts at the two-month follow-up.^{28,29}"

- 4) Line 44-47 in the conclusion section feels like an opinion that is not part of the study.

Response: Thank you for this point, we have adjusted the conclusion to ensure we anchor our conclusions to the study findings (page 13).

“This study identified barriers and enablers that the Chadian youth face along the pathway of getting access to information and health services for HIV and AIDS. We identified societal expectations and power dynamics as key barriers, while trust through social networks, as well as peer education programmes were key facilitators to information-seeking and health services. Our findings suggest there is potential for peer education programmes that integrate sexual health and HIV prevention, particularly leveraging social media platforms, to engage youth. Importantly, this work also highlighted the value of qualitative methods and the active involvement of youth in health services research. Youth insights may be crucial for designing future interventions that are not only effective but also culturally and contextually tailored to the needs and realities of young people in Chad.”

VERSION 3 - AUTHOR RESPONSE

Reviewer 2:

We have provided point-by-point responses in the pdf attached due to the number of specific and editorial comments.

In summary, all editorial and grammatical comments have been addressed. We include point-by-point comments in the attached PDF and reflect the changes in the main document – marked copy.

For all the non-editorial issues:

- a. In the Abstract section
 - i. The study design has been edited to be more complete that it is a “qualitative descriptive study”.
- b. In the Methods section
 - i. A discussion on the risks and benefits of participating in the study has been added. The following text has been added:

“Participating in this study had some risks, particularly due to the sensitive nature of the topics related to SRH and HIV. Participants may have found some questions uncomfortable or difficult to answer, even though measures such as separating FGDs by gender have been implemented to create a safe space. Additionally, loss of confidentiality was a potential risk, but the research team took steps to safeguard privacy. All data were stored securely using Harvard Dropbox with multiple layers of protection, including encryption and private keys. Only the research team members had access

to de-identified data, which were labeled using coded identifiers. However, the potential benefits of this research were significant. Insights from this study will contribute to the design, implementation, and scale-up of more effective, youth-centric, and youth-friendly health interventions in Chad, ultimately improving access and outcomes for young people in the country.”

BMJ Open

Exploring the barriers and facilitators to HIV information and health services among youth in N'Djamena, Chad: a qualitative descriptive study

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Exploring the barriers and facilitators to HIV information and health services among youth in N'Djamena, Chad: a qualitative descriptive study

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ABSTRACT

Objectives: Identifying the barriers and facilitators for Chadian youth (aged 15-24 years) along the pathway of access to HIV information and health services.

Study design: Qualitative study.

Study setting: The study was conducted in N'Djamena, Chad with 20 high schools that were purposefully selected based on participation in a Blue Cross Chad (BCC) peer-to-peer education programme.

Participants: A total of 12 focus groups, each consisting of 12 participants, stratified by gender and BCC program participation (6 each among participating and non-participating high schools), were conducted.

Methods: A descriptive qualitative study using thematic analysis of content was conducted. The qualitative software ATLAS.ti version 22 was used to organize and code the data.

Results: Five main categories of barriers and facilitators for HIV information and health services were identified, including (1) societal expectations and norms; (2) power dynamics; (3) social networks; (4) peer-education programmes; and (5) bypassing the system. Barriers and facilitators to information-seeking and access to health services were observed at individual, community, and system levels. High school students expressed that access to information and health services were important when it comes to HIV and AIDS prevention and treatment. Societal expectations and power dynamics were identified as key barriers, while trust through social networks and peer-education programmes were key facilitators to accessing information and health services.

Conclusion: This study allowed for the identification of both barriers and facilitators of HIV information and health-seeking in the context of N'Djamena, Chad. Our findings highlight the importance of comprehensive community- and youth-led approaches that are youth-friendly and -centric are needed to effectively communicate HIV information.

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STRENGTHS AND LIMITATIONS OF THIS STUDY

- In a context like Chad, the results of this qualitative study highlighted the importance of leveraging social networks, including friends, partners, and social media for future HIV prevention programmes for youth.
- Despite knowing about HIV and AIDS, the youth faced challenges when accessing care, including mistreatment and discomfort from healthcare providers, which is reported to have reduce their care-seeking behaviors.
- The study could have benefitted from the inclusion of high-risk groups, particularly those who are not enrolled in schools, who may have specific needs compared to the general youth population.

INTRODUCTION

There are an estimated 2.78 million children and adolescents living with HIV worldwide and approximately 88% reside in sub-Saharan Africa.¹ Chad is one of Central Africa's most affected countries by the HIV/AIDS epidemic with an overall prevalence of 1.6%; it is estimated there are 12,000 young people 15-24 years of age living with HIV in Chad.^{1,2} However, in the country existing programs interventions have largely focused prevention mother-to-child transmission (PMTCT), and HIV prevention efforts among adolescents and young people (aged 10-24 years) have been more limited.³

In 2012, Blue Cross Chad (BCC) launched the "Life Skills and Peer Education" programme, also called the BCC Lifeskills Project [BCC LBSE] (2012-2016) targeting vulnerable school youths aged 14-18 years.^{4,5} This programme is rooted in the life skills-based education [LBSE] approach, which has been widely used in youth programmes by many organizations around the world, especially for HIV and AIDS education.⁶ While such programmes have shown effectiveness in reducing risk behaviors and improving knowledge and attitudes related to HIV/AIDS, their effectiveness in sub-Saharan Africa (SSA) depends on various factors such as program design, cultural context, and resource availability.⁷

The program aimed to develop skills and knowledge to make informed decisions about alcohol, drug abuse, and associated risks, including HIV transmission.⁸ LBSE included a wide range of stakeholders, including high school students, parents, community leaders, local and national political and administrative authorities who play a key role in shaping an enabling environment for the development and implementation of the programme.⁴ LBSE was implemented in 15 high schools in N'Djamena from 2012 to 2016 and expanded to 20 high schools until 2021.^{4,8} Peer educators, trained in life skills lessons, taught topics ranging from HIV transmission to prevention.⁴ Lessons utilized a combination of teaching methodologies, including group work and role-play.⁴ While the BCC LBSE has undergone evaluations in 2016 and 2021, these evaluations mainly focused on its impact on reducing substance use and failed to provide insights into HIV and AIDS sexual behaviors among youth.^{4,5} In addition to quantitative impact results, it is equally necessary to understand the contextual factors and mechanisms that influence access to information and health services among the youth within and outside the program. Therefore, by incorporating non-beneficiary high schools in N'Djamena city, we conducted a qualitative research study to assess barriers and facilitators to HIV and AIDS access to information-seeking and health services among the youth in N'Djamena, Chad from students at intervention schools and non-interventions schools. These results are intended to inform the development and implementation of future community- and youth-led interventions for HIV prevention and treatment in Chad.

METHODS

Study setting

The study was conducted in N'Djamena, the capital city of Chad and the most populous with an estimated 1.6 million people. It is composed of 10 districts (Appendix 1) and was purpose

selected as the study setting for this qualitative study as BCC has implemented its programme in 20 high schools in the city.⁸ As previously mentioned, Chad is one of Central Africa's most affected countries by the HIV/AIDS epidemic with an overall prevalence of 1.6%.³ Data from UNICEF show that HIV prevalence among young women and men (aged 15-24 years) is 1.3% and 0.8% respectively.³ When stratified, the prevalence among young women rises with age. For example, it is at 1.2% among women aged 15-19 years, 1.8% among 18-19, and 2.4% among 23-24.³ In the areas of prevention and medical care for pediatric HIV, only 22% of HIV-positive children (aged 0-14 years) have access to retroviral treatment.³ With a median age of 17 years, 65% of the population is under 25 years of age.⁹ The fertility rate is 6.35 births per woman, and 70% of girls under 18 and 29% of those under 15 are married.^{10,11}

Study design and sampling

We conducted a conventional qualitative content analysis method to identify the roadblocks that face Chadian youth (aged 15-24 years) along the pathway of getting access to information and health services when it comes to HIV and AIDS. A purposive criterion sampling method was utilized to identify and select information-rich subjects for each group of interest, including BCC LBSE participating high schools vs. non-participating high schools. Eligibility criteria for both groups included currently enrolled high school (9th to 12th grade) students. For students in participating high schools, eligibility criteria of programme participation in at least 6 months were implemented to ensure sufficient intervention exposure. In each high school, a list of currently enrolled students provided by the registrar office was used. From these lists, students with missing information were removed. A total of 4 groups of 12 participants (Figure 1) was formed. While FGDs often consist of 6-8 participants, our large group size (n=12) was chosen for diversity of perspectives and group dynamics. However, due to the exploratory nature of the study, saturation was not reached.

FGDs were stratified by gender and whether the high school participated in the BCC program to allow participants to feel comfortable sharing their beliefs. The first two groups (2 male, 1 female) included in-classroom participating high school students, whereas the last two groups (2 male, 1 female) included in-classroom non-participating high school students. After being identified, school administrators called parents of those under 18 years old and explained the purpose of the research. Following the call, for parents who have agreed on the phone, they were invited to the school to sign the parental written consent. If they could not make it in person, they provided verbal consent. We used the COREQ checklist to guide reporting of the qualitative methodology and study results (Supplementary File).⁹

Data collection

For the qualitative study, 6 BCC program staff members were used as interviewers, divided into two teams of three researchers, and each team was composed of at least one female interviewer. Prior to the study, they were trained in qualitative research methods, including how to conduct interviews. Using locally trained interviewers was beneficial to the study as it helped facilitate entrance and acceptability among members of the community. Although the interviewers were from the same organization whose programs were intended to increase HIV prevention

knowledge and service use, the ones chosen were not involved in the implementation of the intervention in the selected high schools.

FGDs were conducted by teams in French and Arabic, using a semi-structured topic guide (Appendix 2). The interviews took place in a secure private location of the BCC headquarters. Participants in each FGD were asked to come during their scheduled time, and their transportation expenses were reimbursed (not exceeding USD \$10). Interviews took between 90 and 120 minutes, and transcription of each FGD took approximately 4 hours. Each transcript was discussed with the entire team to ensure that all cultural nuances were captured.

Participants were asked to describe their views, perceptions, and beliefs on sexuality as it relates to HIV and AIDS transmission and prevention. Interviews started with an explanation of the interview purpose, reassurance on confidentiality and seeking of respondents' written or oral informed consent. All FGDs were transcribed and translated by the entire team to ensure that the translations captured cultural nuances. All interviews were recorded and transcribed verbatim.

Data analysis

The qualitative analysis software ATLAS.ti version 22 was used to analyze the data. The data were analyzed using inductive thematic analysis, codifying, and identifying the main emerging themes. Data analysis was carried out at the same time as data collection. During this process, each team member thoroughly read a subset of interviews and labeled each line with codes, resulting in 43 codes. These codes were examined for overlap and then collapsed into 12 broader codes. The codes were further organized into 5 overarching categories (Table 1). To ensure the validity and reliability of the data, other words, trustworthiness, the research team used Lincoln and Guba's evaluative criteria, which include credibility, transferability, dependability, and confirmability. The texts associated with the codes were extracted and organized by category, and similarities and differences were compared. Since all interviewers were local and familiar with the region's culture, they all participated in this process. Dependability was achieved through a validation of the coding tree by consensus among team members regarding the definitions and inclusion/exclusion of the codes. The documentation and archiving of all stages and documents of the research process, multiple revisions, and exchange of main and subcategories identified by the authors allowed to achieve confirmability.

Reflexivity

The qualitative research team (multidisciplinary, multilingual, multicultural, and multinational) involved in the data collection (interviews) and analysis (transcription and translation) process minimized the presence of any research team member's bias in the analysis. As the data collection team included locally trained interviewers, it captured cultural nuances, as well as facilitated entrance and acceptability among members of the community. In fact, this latter was reflexive and collaborative as we continuously engaged with the NGO partner, which informed

school officials, government officials, and development organizations. Despite the involvement of multiple team members in the processes, there may still be bias present in the conclusions reached. The process of triangulation was applied by sharing findings from the study with members of the community who were not interviewed, as well as individuals who are service providers or experts on the issue within the community. They may be able to identify inaccuracies or biases that the research team failed to recognize.

Ethical considerations

Ethical clearance was obtained from the Harvard T.H. Chan School of Public Health’s Institutional Review Board, protocol #IRB21-1641, and the National Committee on Bioethics of Chad #036CMT/PC/PMT/MESRI/SG/CNBT/2022. Informed consent forms were read aloud by the interviewers prior to the start of the FGDs. Participants were also given opportunities during the consent process to ask any questions. Participants provided a verbal agreement to indicate consent. Finally, it was not appropriate or possible to involve participants in the design, or conduct, or reporting, or dissemination plans of our research.

RESULTS

A total of 48 in-classroom high school students were divided into 4 FGDs as follows: male beneficiary high school students (BM), female beneficiary high school students (BF), male non-beneficiary high school students (NBM), and female non-beneficiary high school students (NBF). The mean age of all participants was 16.75 years with variations between groups and across gender (Table 2). Most participants were in the 10th and 11th grades representing 73% of the sample. Sociodemographic characteristics for the sample are presented in table 2.

Table 2. Sociodemographic characteristics of participants (N = 48).

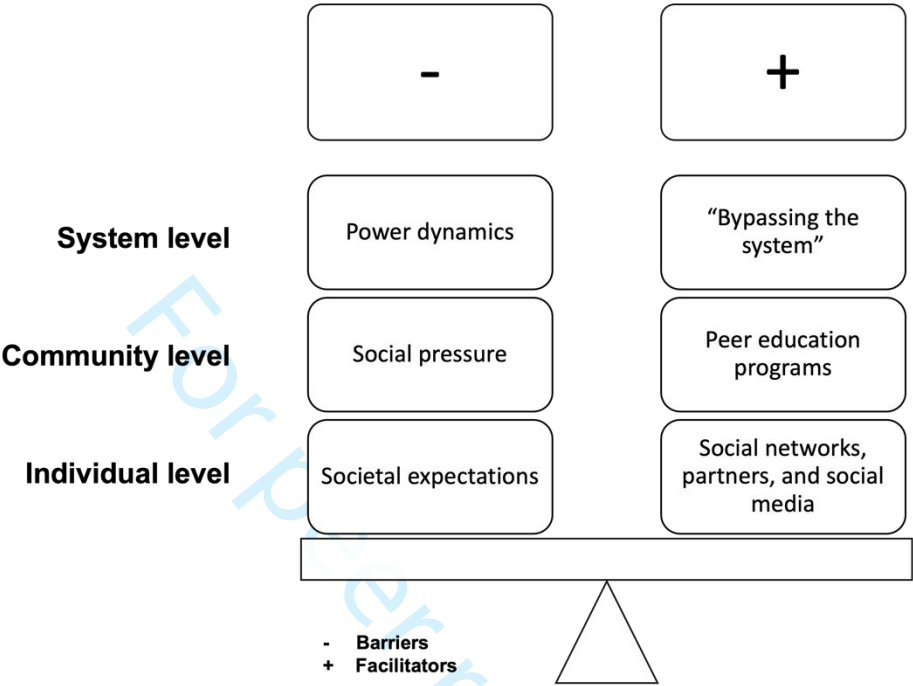
Participant characteristics	N (%) or mean (SD)
Mean age (years)	
All groups	16.75 (0.90)
Beneficiary males	16.92 (0.90)
Beneficiary females	17.25 (0.97)
Non-beneficiary males	16.58 (0.90)
Non-beneficiary females	16.25 (1.14)
High school student sex	
Male	24 (50%)
Female	24 (50%)
High school grade	
9 th grade	6 (12.5%)
10 th grade	17 (35.5%)
11 th grade	18 (37.5%)
12 th grade	7 (14.5%)

The following categories were developed from analyzing the interview transcripts: societal expectations, power dynamics, social networks, peer education programmes, and bypassing the system. Based on the similarity in meaning, we organized and structured the categories into a conceptual framework (Figure 2), outlining how identified barriers and facilitators support HIV and AIDS access to information-seeking and health services at different levels.

Barriers and facilitators

High school students expressed access to information and health services as important factors when it comes to HIV/AIDS prevention and treatment. We identified societal expectations and power dynamics as key barriers, while trust through social networks, as well as peer-education programmes were key facilitators to information-seeking and health services. We described each of these barriers and facilitators by levels in more detail below.

Figure 2. Barriers and facilitators to information-seeking and health services among the youth (aged 15-24) enrolled in high schools in N’Djamena, Chad.



Barriers to information-seeking and health services

At the individual level: Societal expectations and norms

Recognizing the country’s sociopolitical context, societal expectations and norms were observed as major barriers to accessing both information and health services at the individual level. Males in the beneficiary group mentioned that it “it takes a lot to talk about sex” and highlighted the importance of knowing “whom to talk with” (BM, #8, 19-year). All groups mentioned that they were unable to freely speak about sex with their parents, shown by “although I can speak about sex with my friends and girlfriend, I am not able to speak about it with my parents.” (NBM, #30, 18-years). In addition to the topic being taboo, adolescents further explained that they assumed by asking questions about sex their parents would automatically assume that they are sexually active which was contrary to the highly encouraged practice of abstinence.

At the community level: Social pressure

At the community level, fear and public shame prevailed. Females in the beneficiary group noted that “shame is what prevents people from getting the information they need” (BF, #13, 17-years). This was also observed as a barrier when accessing care, exemplified by “the main reason that prevents us from going to health centers are shame and fear.” (NBF, #39, 17-years) Males and females in both the beneficiary and non-beneficiary groups further explained that this fear came from the fact that they did not want to be recognized by family members or

friends as this would mean that they are sexually active. This was particularly relevant to the aspect of “tight-knit communities” in which people know each other well. A quote exemplifying this phenomenon is presented below:

“...The second reason is that we are scared to find out if a family member. This will mean that we are actively practicing sex and can be problematic for our families.” (NBM, #33, 16-years)

At the system level: Power dynamics

At the system level, adolescents perceived power dynamics were at play. Age and gender dynamics emerged. Females shared that they were not feeling comfortable in hospitals as healthcare providers tend to be men, as exemplified by *“the services should be led by women as they are better placed to deal with these issues.”* (BF, #16, 16-years). On the contrary, males mentioned that female healthcare workers *“would make fun”* of them when talking about sex and their health, which made them *“uncomfortable.”* (NBM, #33, 16-years) Finally, it was noted by the youth that healthcare providers were perceived to have authority, which led to a one-way provider-patient relationship. This latter did not create a conducive environment for the youth to seek care, shown by *“improvements can be made in the way healthcare workers welcome us as well as create a safe climate in the clinics.”* (BM, #5, 16-years)

Facilitators to information-seeking and health services

At the individual level: Social networks

Social networks such as friends were an important knowledge-sharing platform for the youth: *“young people often talk about sex with their friends.”* (BF, #21, 18-years) For non-program beneficiaries, they relied more on social networks as they did not have sexual education available in schools. However, unlocking social networks was based on trust, as shown by *“it’s a matter of trust, and so I can talk about it with friends that I trust.”* (NBF, #41, 19-years) Although these discussions occurred between friends, there seemed to be preferences with gender; in other words, females were more comfortable speaking about sex with their female friends, as shown by *“we easily talk about sex between girls”* (NBF, #40, 17-years) while males were more open to their peers as follows: *“when we speak about sex with friends, we mostly speak about masturbation”* (NBM, #25, 16-years) and *“although it is a topic that is private, guys like to gossip about what other people do.”* (NBM, #26, 16-years) Despite some individuals had reliance on social networks, some males and females, particularly in the non-beneficiary high schools felt it was *“shameful to talk about sex with friends.”* (NBF, #42, 17-years); nevertheless, this confidentiality issue did not appear to be issue when it was about speaking with partners, shown by *“feel free to talk about contraception and sex with their partners.”* (BF, #13, 17-years) In all groups, the youth mentioned being comfortable speaking about sex with their partners, especially when they were not knowledgeable. Finally, the youth relied on social media when they did not have access to the information they needed. This was explicitly discussed among non-beneficiary females who stated that *“young women rely on social media to get information.”* (BF, #15, 16-years) This was further supported by males in the non-beneficiary

group as exemplified by “I get all the information from Facebook, Google, and WhatsApp.” (NBM, #30, 18-years)

At the community level: Peer education programmes

At the community level, peer-education programmes, such as the BCC LBSE were identified as an enabler. Among the programs beneficiaries, males mentioned that such programmes are beneficial because they provided knowledge about sex education and HIV. They further stated that “sexual education in schools is very beneficial for young people because it allows us to know the dangers that can be associated with practicing sex.” (BM, #10, 18-years). Moreover, beneficiary females shared that they give a chance to young women who are not proactive to learn and safely practice sex, characterized by “important for young women who ashamed to talk about sex.” (BF, #17, 16-years). When both non-beneficiary males and females were asked about the potential of having such programmes in their schools, they all agreed that their schools needed these programs.

At the system level: Bypassing the health system

At the system level, “bypassing the health system” (a term noted by the participants) for both access to information, and prevention and treatment was observed outside the family and health system. They shared that they preferred social clubs and NGOs instead of hospitals because the staff was more receptive and provided them with the information and health services they needed. This was illustrated by “we rely on associations, cultural centers, the Chadian Blue Cross, peer educators to obtain information.” (BM, #7, 17-years). Although condoms are distributed for free at hospitals, the youth mentioned that they preferred getting them from “street drug sellers or local shops” (BF, #20, 15-years) than going to the hospital to either protect their identity from their families or avoid mistreatment at the point of care.

DISCUSSION

In this qualitative study, we sought to assess the contextual factors and mechanisms that influence access to information and health services among youth (aged 15-24 years) in N’Djamena, Chad. We found that the youth heavily relied on their social networks to access information. This reliance on social networks, especially peer-to-peer network was mediated by gender, trust, and partner-relationship. Additionally, the youth refused to seek care due to the quality of care received at the facility and power dynamics exerted by healthcare providers. Our results were consistent with what other researchers have found in different contexts showing that HIV prevention messages through social networks and peer education were efficient.^{12,13} More specifically, its contribution to the existing literature lay in the fact that school-based HIV education was an opportunity for the youth to learn in a safe and enabling environment, as well as provide them with decision-making skills.^{13,14,15} Furthermore, young people suggested that these programs should be incorporated in their schools in Chad. Barriers identified in the study such as societal expectations^{16,17,18} and power dynamics^{12,19,20} were similar in other SSA countries. These findings, however, provide an opportunity to integrate HIV prevention into the needs expressed by study participants.

The results of the study suggest harnessing social networks for HIV interventions for youth shows promise. Our research highlighted the significance of social networks, such as friends and partners, in disseminating information and motivating youth to get tested for HIV. Notably, unlocking social networks appears to be influenced by gender-based factors. A systematic review by Fearon et al. (2015) yielded inconclusive results regarding the impact of peer exposures on adolescent sexual behavior in Sub-Saharan Africa (SSA).²¹ However, peers were found to play a crucial role in influencing adolescent sexual behaviors within romantic relationships,²¹ as supported by numerous qualitative studies.^{22,23,24,25} A baseline assessment of an HIV prevention trial in Tanzania revealed that network structure, composition, and norms were associated with HIV testing behavior among urban Tanzanian men.²⁶ Surprisingly, the study showed that men belonging to networks with a higher proportion of women were more likely to have tested for HIV, contrary to our findings.²⁶ This composition effect was found to outweigh the influence of descriptive norms among closest friends.²⁶ In another study in KwaZulu-Natal, Adeagbo et al. (2022) demonstrated the effectiveness of friends in promoting HIV prevention.²⁷ However, low PrEP uptake was attributed to doubts about the professional credibility of friends, as young people may not view them as genuine healthcare providers.²⁷ As a result, studies are needed in Chad to determine the best approaches to positively use social networks for HIV prevention efforts in the context.

As discussed by the youth, more specifically non-beneficiaries, social media was an integral part of their access to information. As the youth advocated for better promotion of existing health services available to them, social media appeared to bridge communication medium. Bull et al. (2012) conducted a cluster randomized control trial to determine whether STI prevention messages delivered via Facebook are efficacious in preventing increases in sexual behaviors at 2 and 6 months in American youth and young adults.^{28,29} The findings demonstrated increased condom use and proportion of safe sex acts at the two-month follow-up. Across the world, several government programs have also used social media to promote safe sex behaviors and HIV prevention.^{28,29} For instance, the US CDC has developed a social media toolkit to promote online sexual health campaigns using Facebook, Twitter and YouTube.³⁰ As it relates to linkage to care, a systematic review and meta-analysis conducted by Cao et al. (2017) showed that HIV testing uptake increased after social media interventions, which mostly used Facebook as a social media platform.³¹ Additionally, in the studies where social media interventions were participatory, HIV testing uptake was higher in the intervention arm than the comparison arm.³¹ Despite the low internet penetration (17%) as well as the number of social media standing at 3% of the total population in 2021,³² Facebook (88%) and Twitter (10%) were the most used social media in Chad.³³ This growing popularity of social media provides an opportunity for HIV prevention information for youth via social media globally; however, it is important to meaningfully involve young people in delivering HIV prevention information and services, particularly to consider cultural and context specific. For example, this could be done by training peers that are from the target population and have experience with both social media and community outreach, which would have great potential to expand coverage and reach.³⁴

For many students, schools represented a safe and enabling environment, which can be used as a platform to deliver high-impact HIV education interventions. In her paper, Kelly challenges the

education sector (2000) by arguing that schools provide three levels where HIV/AIDS-related interventions are needed, including when there is no infection, when the infection has occurred, and when AIDS has brought death.³⁵ This is particularly important in the context of Chad as our results suggested that young people may be engaged in sexual behaviors earlier than the targeted audience for BCC LBSE. Therefore, programmes such as BCC LBSE should not solely focus on high schools but should begin early in primary school since primary school-age children have not yet formed sexual behavior patterns. Although schools have been identified as the preferred location for sexual and reproductive health education by students in our study, school-based HIV education is not included in the core education curriculum in Chad. In that context, the national education programme could formally integrate and scale up peer education programmes into the curriculum. However, the education sector cannot do it alone. This calls for a concerted effort between stakeholders, including civil society, donors, NGOs, and UN agencies to collaborate with national authorities to build the education sector's capacity to design, implement, monitor, and evaluate lifeskills programme. In the past, the Ministry of Culture trained youth facilitators for their 45-minute weekly cultural activities in public schools. Furthermore, the National AIDS Control Programme developed a lifeskills training module on HIV/AIDS and reproductive health intended for trainers of peer educators who implement HIV and AIDS activities.³⁶ For them to be sustainable, there is a need to train and support teachers, as well as the need to provide resources to and support for peer educators.³⁷ Therefore, if these efforts are aligned, and there is better collaboration between these national and international stakeholders, a nationwide curriculum can be developed. An example from Benin showed that the design of the curriculum was a collaboration between the Ministries of Education, Health, and Family.³⁸ In their article, Sturke et al. (2020) recognized the crucial role of partnerships as they offer avenues for implementing comprehensive intervention programs in schools, encompassing early detection and support for HIV, as well as addressing mental and neuropsychiatric concerns among adolescents.³⁹ They further argued that these initiatives need to be integrated into primary healthcare and community-based services to ensure broad accessibility and impact.³⁹

Despite having access to information, many young women do not feel encouraged to seek care. Furthermore, they preferred going to social clubs instead of hospitals. Providing private and hidden health services has been recommended by the youth, especially young women as a potential solution. In Zambia, FAWLEZA has created safe (social) spaces to allow young girls to play games, engage in sports, and receive technical skills training.⁴⁰ Although creating such safe spaces would not completely solve the issue, making sure to hire a diverse staff, including young, and female health workers, and ensuring that they are routinely trained would address issues around discomfort and mistreatment. A study conducted by Aung et al. (2017) showed that training staff in working with key populations, and supporting clinic policies that promote confidentiality and informed decision-making by young people led to clinics being more sensitive and capable of providing appropriate youth-friendly services.⁴¹

In their recommendations, the youth advocated for the practice of abstinence to be further promoted in mass awareness campaigns. However, even as the sociocultural and religious contexts must be considered, reliance on abstinence has been largely discredited as an

effective HIV prevention approach, particularly to the extent many of the young people have already engaged in sex by the time they are reached by such messages – which, as a result, may counterproductively promote shame rather than motivate communication.^{42,43} Furthermore, these abstinence-based programs disproportionately affect women and girls.⁴⁴ Due to conservative beliefs, religious leaders possess a special position that enables them to play a significant role in addressing HIV/AIDS, shaping societal norms, disseminating reliable information, and exerting influence on public opinion.⁴⁵ To that extent, religious leaders should be meaningfully involved in the design of these HIV prevention strategies. In Kenya, Maulana and colleagues showed that it is possible to engage Islamic communities in designing interventions to suit their cultural and religious context, making use of their own views and perceptions of risks.⁴⁶

LIMITATION

This study included some limitations. Our study sample took place in high schools, and therefore, did not include youth outside the formal education system. This is important as those in the formal system only represent 18 to 30% of the population. Second, although the interviewers selected were not involved in the implementation of the intervention in the selected BCC high schools, their posture as adults may motivate more socially desirable responses among young people about HIV and sex. The last limitation is that our findings did not specifically target most-at-risk groups, including youth sex workers, men who have sex with men, transgender people, and those who use injection drugs. . When considering the epidemic, understanding the crucial role that most-at-risk groups play in the transmission of HIV is important. Not only do young people constitute a large percentage of most-at-risk groups, but they also frequently have higher HIV infection rates within these groups.⁴⁷

CONCLUSION

This study identified various barriers and enablers that the Chadian youth face along the pathway of getting access to information and health services for HIV and AIDS. We identified societal expectations and power dynamics as key barriers, while trust through social networks, as well as peer education programmes were key facilitators to information-seeking and health services. Based on our findings, peer education programmes focused on sexual health and HIV prevention, including those that use social media, may be promising interventions. Overall, our study confirms the importance of qualitative research and inclusion of youth voices in the development as well as evaluation of HIV interventions and programs for youth.

Author contributions

Esias Bedingar, SM: Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing – original draft, Writing – review & editing, Funding acquisition, Project administration, Supervision, Visualization. Ngarossorang Bedingar: Methodology, Investigation, Data curation. Djimet Seli, PhD: Writing – review & editing. Christopher Sudfeld, ScD: Conceptualization, Methodology, Writing – review & editing.

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Competing interests

None declared.

Patient consent for publication

Participants were not involved in the design, or conduct, or reporting, or dissemination plans of this research. However, we have shared findings from the study with members of the community who were not interviewed, individuals who are service providers or experts on the issue within the community, as well as stakeholders.

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