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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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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 4 focus groups, each consisting of 12 participants, stratified by gender and BBC program participation (2 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 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.

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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] BCC 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 IBC 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 purposefully

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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 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 purposeful 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

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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). FGDs 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

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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.

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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	
9th grade	6 (12.5%)
10th grade	17 (35.5%)
11th grade	18 (37.5%)
12th 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.

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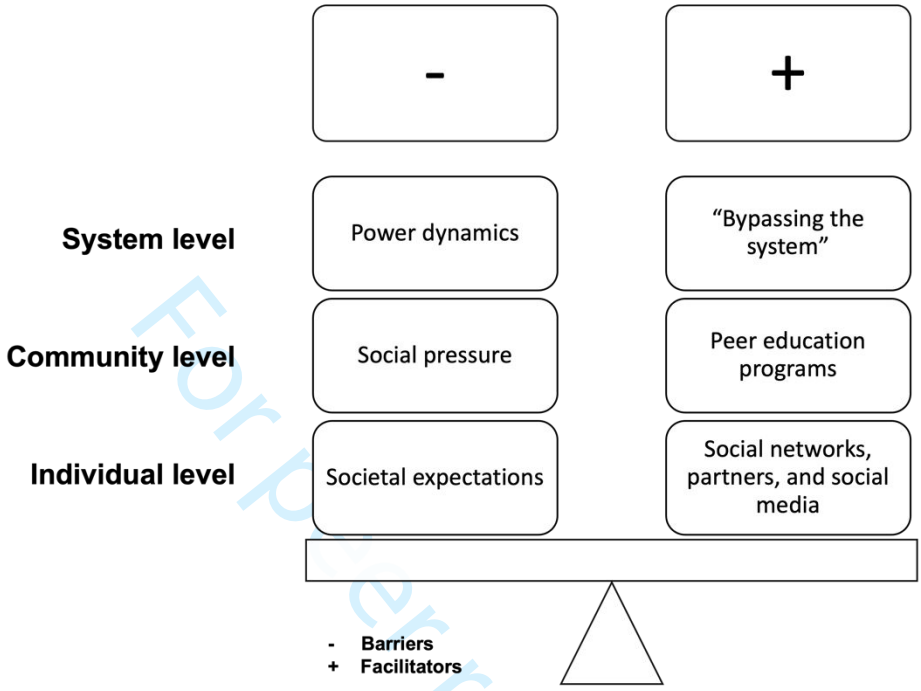
Figure 2. Barriers and facilitators to information-seeking and health services among the youth (aged 15-24) enrolled in high schools in N'Djamena, Chad.



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-years) 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

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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 one 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 within 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

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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.

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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

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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, FAWEZA 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

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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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Tables and illustrations

Figure 1. Flowchart of participants in the focus group discussions.

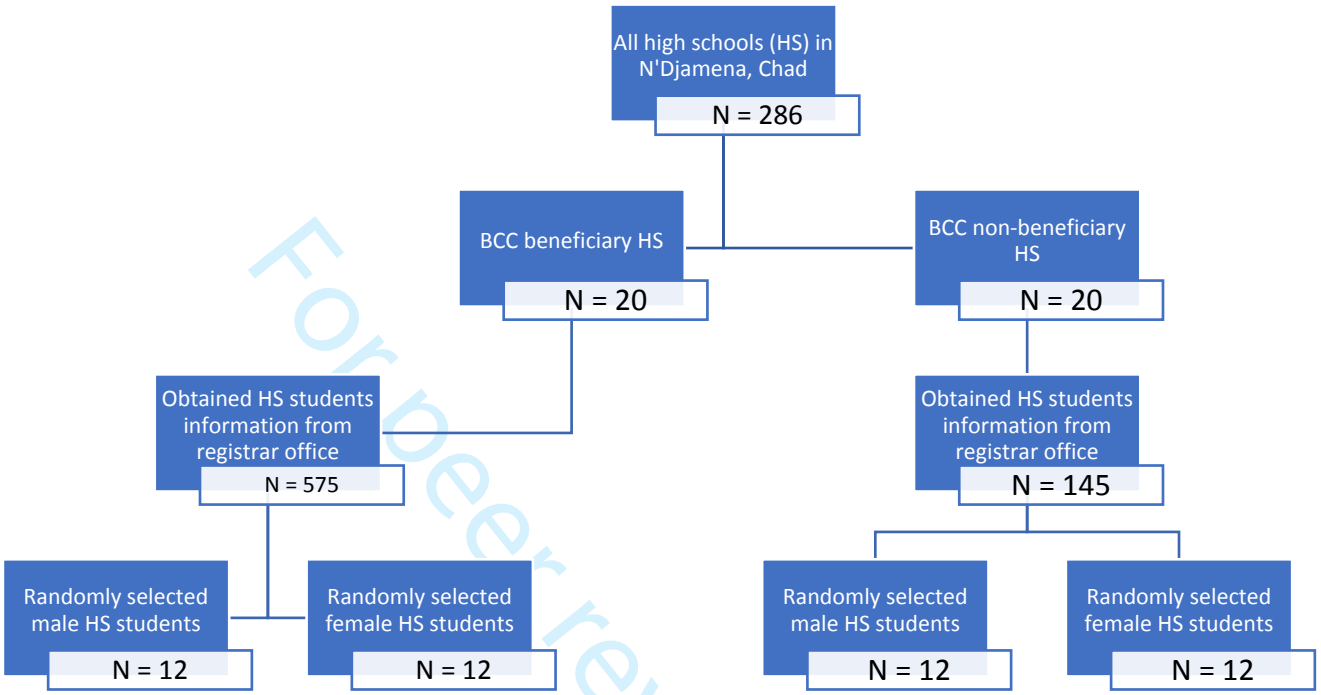

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Table 1. Coding tree.

Categories	Broader codes	Codes
Societal expectations and norms	Socio-cultural factors	Family dynamics; Sexual taboo; Religion; Abstinence
	Public shame	Feeling disrespected by health worker; Tight-knit communities; Social pressure; Social stigma
	Fear	Fear of going to the hospital; Fear of being recognized by family members; Fear of self-disclosure
Power dynamics	Authority	Role expectations; Professional knowledge; Asymmetry of information; Age difference
	Patient experience	Respectful care; Feeling judge by healthcare providers; An unsafe environment; An unbalanced doctor-patient relationship
Social networks	Friends	Knowledge-sharing platform; Trust; Preference within gender; Matter of confidentiality
	Partners	Feeling comfortable; Openness; Experiential learning
	Social media	Passive learning; Social influence; Information about preventive practices
Peer education programmes	Schools as a good platform	Sex education; A safe environment; Feeling comfortable; Mass awareness campaigns
	Modes of learning	Active learning; role play; group learning; Positive attitudes
Bypassing the system	Access to health services	Preference for social clubs; Healthcare providers; Youth-friendly centers
	Prevention	Street vendors; Preserved anonymity; Condoms

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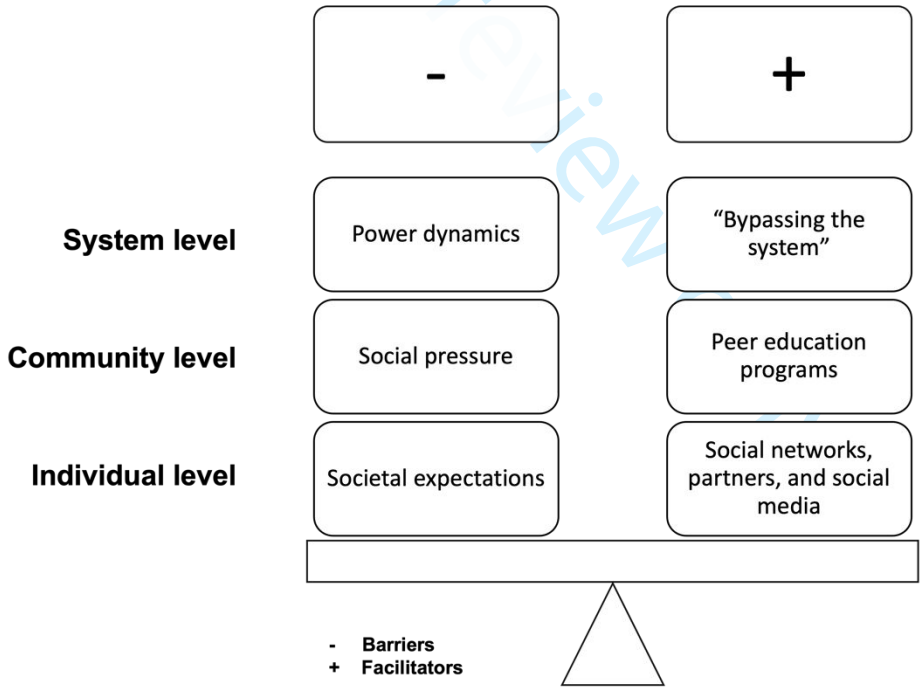
Table 2. Sociodemographic characteristics of participants (N = 48).

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	
9th grade	6 (12.5%)
10th grade	17 (35.5%)
11th grade	18 (37.5%)
12th grade	7 (14.5%)

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.



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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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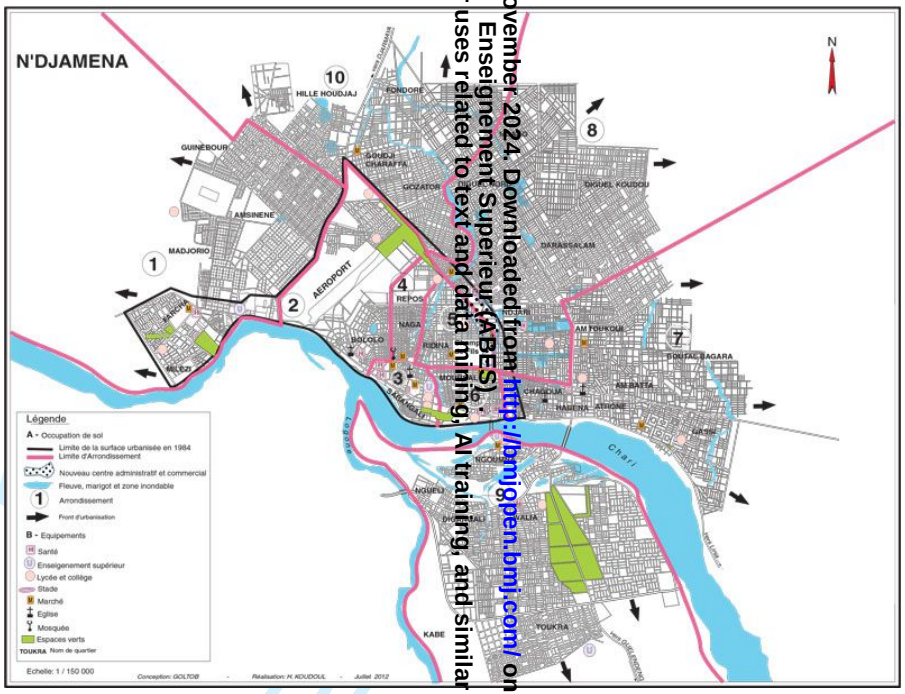
Appendix 1 – The map of Chad and N'Djamena city



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Appendix 2 – Focus group discussion topic guide

Brief Background:

From 2017 to 2021, IBC has implemented the life skills program in classrooms in N'Djamena to increase knowledge and skills needed for healthy relationships, effective communication and responsible decision-making when it comes to HIV related risk, this intervention consisted in teaching life skills lessons through peer education in a holistic approach. This study aims to ascertain coverage, perceptions and beliefs of the youth on HIV and AIDS, as well as understand the influences that may impact intentions to practice safer sex.

The study participants are the youth (aged 15-24) in both participating and non-participating high schools located in N'Djamena. These participants were selected randomly from the purposive list of participating and non-participating high schools in N'Djamena.

Topic Guide

Hello, my name is…I am working with IBC on research that aims to learn more about HIV knowledge and self-efficacy among the youth in high schools in N'Djamena. I will be conducting a focus group discussion, which will last 90-120 minutes. Please refer to the consent form for more details.

Consent Process

1. Please introduce yourselves
    a. Please share with us information about your high school and class?

2. What is the culture around dating?
    a. Probe: At what age do young people start dating?
    b. Probe: How do young people select their partners?
    c. Probe: What does dating involve?

3. How do young people talk about sex with their friends?
    a. Probe: Do young women/men of your age talk about sex with friends?
    b. Probe: How do women/men of your age talk about it?

4. Whom or what do young people rely on for information?
    School sex education (where provided)
    a. Probe: How do you feel about the sex education that is provided in school?
    b. Probe: To what extent has your knowledge changed as a result of the IBC project?
    c. Probe: How could it be improved upon?
    School sex education (where not provided)

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d. Probe: How do you feel about school teaching young people like yourselves about relationships, sex and contraception?
e. Probe: Do you think young people would find the introduction of classes on sexual issues useful?

5. What do you know about HIV/AIDS?
    a. Probe: What is HIV/AIDS?
    b. Probe: How is HIV/AIDS transmitted?
    c. Probe: What are the symptoms of this disease?

6. How do young people of your age usually find out about relationships, sex and contraception?
    a. Probe: Who shaped your beliefs on HIV/AIDS?
    b. Probe: Whom or what do young people rely on for information?

7. What are risky behaviors related to HIV/AIDS? If person does not know what risk behavior is, explain that is mainly about sexual activities without a condom).
    a. Probe: To what extent do you think that people of your age take risks of any sort during sex?
    b. Probe: Are young people more worried or concerned about pregnancy or HIV/AIDS or other STIs?

8. How can you do to prevent HIV/AIDS?

Risk prevention

a. Probe: What are the ways in which you can prevent HIV/AIDS transmission?
b. Probe: Who should be responsible for protecting against any risk during sex?
c. Probe: What does safe sex mean to young people?
d. Probe: How do young people feel talking about contraception with partners?

Condoms

e. Probe: What do young people think about condoms?
f. Probe: Where do young men and women generally obtain their condoms from?
g. Probe: What do you think would make people of your age adopt “safe sex” practices?

PrEP

h. Probe: What do you know about PrEP?
Probe: In what ways have young people been getting hold of PrEP?
i. Probe: Are there other ways that people are obtaining PrEP?
j. Probe: How did you find information about PrEP?

Abstinence

a. Probe: Do young people of your age are actively abstaining from having sex?
    a. Probe: Is abstinence actively promoted?

    IF NOT, ask questions around reasons for having sex:

        i. Probe: Why do you think women/men of your age have sex?
            1. Probe: What do you think they get out of it?

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2. Probe: What do you think it means to them?

9. How do young men/women usually find out about services (health centres, young clubs, organizations)?
    a. Probe: Can you list for me all the places and people young people are able to talk to find out about sex, contraception, STIs?
    b. Probe: Do young men and women of your age visit the local services for contraception and sexual health advice?
        i. IF YES,
            1. Probe: Why do young men/women usually attend services?
            2. Probe: Is there anything that would stop young people from going?

10. What do you think are the most important features of a sexual health service for young people?
    a. Probe: Are there differences in the needs of young men and women?
    b. Probe: Where do you think people's sexual health services should be held (location)?
    c. Probe: Who should provide the information and advice?
    d. Probe: How do you think the services in your locality could be improved upon?
    e. Probe: What do you think are the best ways of advertising and promoting services?
    f. Probe: Can you think of 3 words which are the most important to use when advertising and promoting sexual health services for young people?

Do you have anything else you'd like to share with us! Thank you for your time!

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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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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 4 focus groups, each consisting of 12 participants, stratified by gender and BBC program participation (2 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 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

- The study employed locally trained interviewers, which helped in enrich cultural insights and enhanced participant trust during data collection.
- A rigorous sampling method was used to ensure a diverse representation of views.
- The study design included both schools that participated and did not participate in the Blue Cross Chad (BCC) peer-to-peer education program which provided a comparative perspective that enriched the study findings.
- The study could have benefitted from the inclusion of high-risk groups to enhance the generalizability of the study findings.

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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 on 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]. BCC 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 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. The insights gained from this research are intended to help shape the development of future community- and youth-led interventions for effective 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 (Supplementary file 1) and was purposefully selected as the study setting for this qualitative study as BCC has implemented its

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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 purposeful 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 (9^{th} to 12^{th} 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 school 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, parents who had agreed on the phone 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 the reporting of the qualitative methodology and study results (Supplementary file 2) [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. However, these 6 staff members were not involved in the BCC LBSE project in any way. 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

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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 (Supplementary file 3). 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). FGDs 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 of 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 [12]. 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 Guba's evaluative criteria, which include credibility, transferability, dependability, and confirmability [13]. 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.

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Table 1. Sociodemographic characteristics of participants (*N = 48*).

Categories	Broader codes	Codes
Societal expectations and norms	Socio-cultural factors	Family dynamics; Sexual taboo; Religion; Abstinence
	Public shame	Feeling disrespected by health worker; Tight-knit communities; Social pressure; Social stigma
	Fear	Fear of going to the hospital; Fear of being recognized by family members; Fear of self-disclosure
Power dynamics	Authority	Role expectations; Professional knowledge; Asymmetry of information; Age difference
	Patient experience	Respectful care; Feeling judge by healthcare providers; An unsafe environment; An unbalanced doctor-patient relationship
Social networks	Friends	Knowledge-sharing platform; Trust; Preference within gender; Matter of confidentiality
	Partners	Feeling comfortable; Openness; Experiential learning
	Social media	Passive learning; Social influence; Information about preventive practices
Peer education programmes	Schools as a good platform	Sex education; A safe environment; Feeling comfortable; Mass awareness campaigns
	Modes of learning	Active learning; role play; group learning; Positive attitudes
Bypassing the system	Access to health services	Preference for social clubs; Healthcare providers; Youth-friendly centers
	Prevention	Street vendors; Preserved anonymity; Condoms

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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 and signed by the interviewers prior to the start of the FGDs. Participants were also given opportunities during the consent process to ask any questions.

Patient and public involvement

Participants were not involved in the design, or conduct, or reporting, or dissemination plans of the study.

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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 genders (Table 2). Most participants were in the 10th and 11th grades representing 73% of the sample. The sociodemographic characteristics of 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	
9th grade	6 (12.5%)
10th grade	17 (35.5%)
11th grade	18 (37.5%)
12th 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 level in more detail below.

Barriers to information-seeking and health services

At the individual level: Societal expectations and norms

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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-years) 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 one 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 did 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, as 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

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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 within 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 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 an 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 enablers. Among the program beneficiaries, males mentioned that such programmes are beneficial because they provide 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

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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 networks, was mediated by gender, trust, and partner relationships. Additionally, youth reported apprehension to seek care due to the quality of care received at the facility and the power dynamics exerted by healthcare providers. Our results are consistent with prior research that showed social networks and peer education were efficient mediums for HIV messaging [14,15]. More specifically, its contribution to the existing literature lies 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 [15-17]. Furthermore, young people have suggested that these programs should be incorporated into their schools in Chad. Barriers identified in the study such as societal expectations and power dynamics were similar in other SSA countries [14, 18-22]. 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 peers in adolescent sexual behavior in Sub-Saharan Africa (SSA) [23]. However, peers were found to play a crucial role in influencing adolescent sexual behaviors within romantic relationships, as supported by numerous qualitative studies [23-27]. 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 [28]. 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 [28]. This composition effect was found to outweigh the influence of descriptive norms among closest friends [28]. In another study in KwaZulu-Natal, Adeagbo et al. (2022) demonstrated the effectiveness of friends in promoting HIV prevention [29]. 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 [29]. 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 mediums. 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 [30,31]. This study found that the intervention increased condom use and the proportion of safe sex acts at the two-month follow-up [30,31]. Across the world, several government programs have also used social media to promote safe sex behaviors and HIV prevention [30,31]. For instance, the US CDC has

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developed a social media toolkit to promote online sexual health campaigns using Facebook, Twitter, and YouTube [32]. 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 [33]. Additionally, in the studies where social media interventions were participatory, HIV testing uptake was higher in the intervention arm than in the comparison arm [33]. Despite the low internet penetration (17%) as well as the number of social media standing at 3% of the total population in 2021, Facebook (88%) and Twitter (10%) were the most used social media in Chad [34,35]. 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 considering the cultural context. For example, this could be done by training peers who 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 [36].

For many students, schools represented a safe and enabling environment, which can be used as a platform to deliver high-impact HIV education interventions. Kelly challenges the education sector (2000) by arguing that schools provide different levels where HIV/AIDS-related interventions are needed [37]. 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 [38]. 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 [39]. 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 [40]. 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 [41]. They further argued that these initiatives need to be integrated into primary healthcare and community-based services to ensure broad accessibility and impact [41].

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Despite having access to information, many young women did 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, FAWEZA has created safe (social) spaces to allow young girls to play games, engage in sports, and receive technical skills training [42]. 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 [43].

In their recommendations, the youth advocated for the practice of abstinence to be further promoted in mass awareness campaigns. However, even as the socio-cultural and religious contexts must be considered, reliance on abstinence has been largely discredited as an effective HIV prevention approach, particularly to the extent many young people have already engaged in sex by the time they are reached by messaging – which, as a result, may counterproductively promote shame rather than motivate communication [44,45]. Furthermore, these abstinence-based programs disproportionately affect women and girls [46]. 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 [47]. 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 [48].

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 [49].

CONCLUSION

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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.

Contributorship statement

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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Data availability statement

No data are available.

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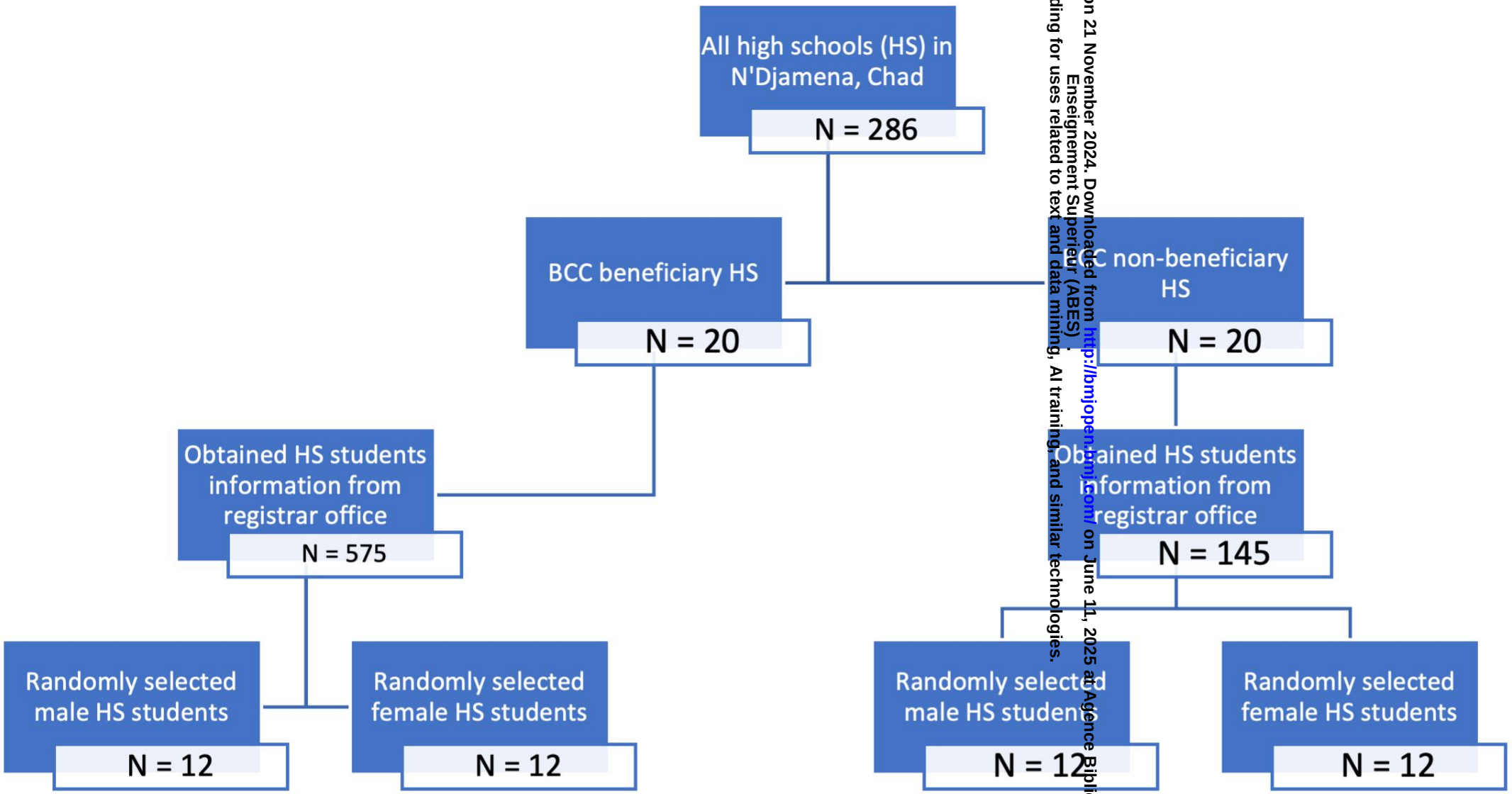

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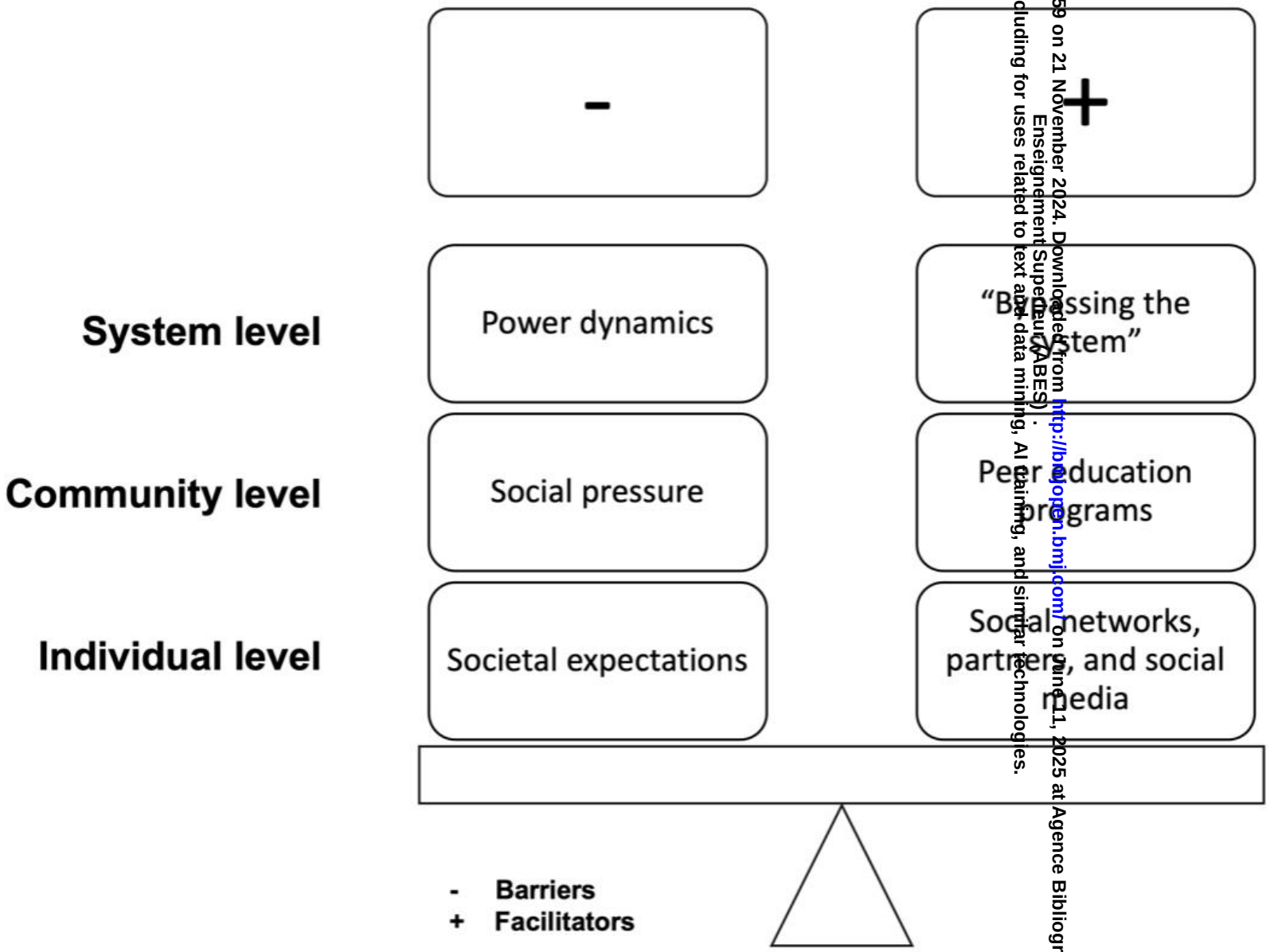

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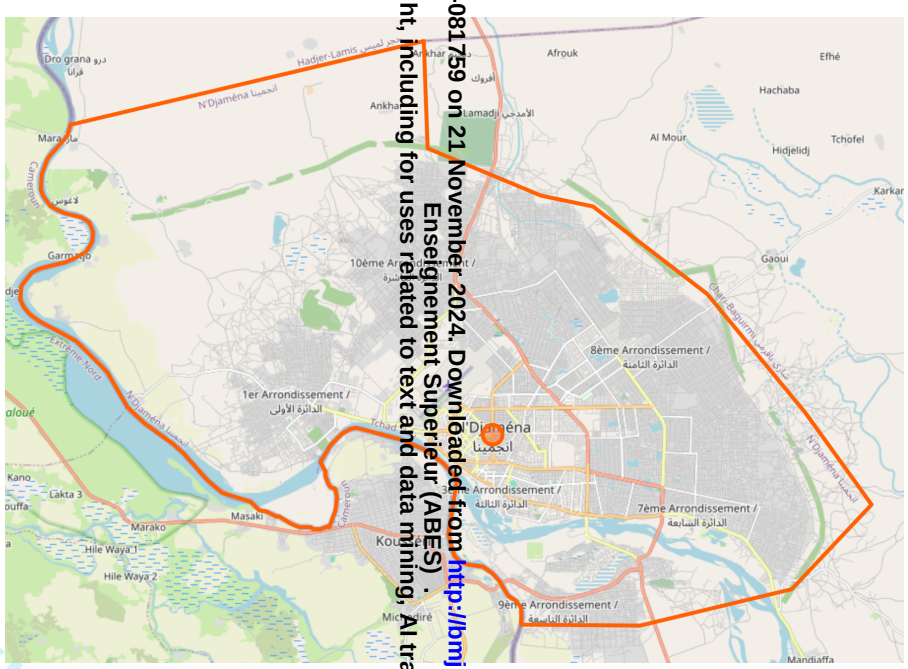

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COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	1, 4, 5, 14
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	1, 14
Occupation	3	What was their occupation at the time of the study?	14
Gender	4	Was the researcher male or female?	1, 14
Experience and training	5	What experience or training did the researcher have?	1, 2, 4, 5, 15
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	4, 5
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	4, 5
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	4, 5, 7, 13
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	1, 3, 4
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	4, 5
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	4
Sample size	12	How many participants were in the study?	4, 7
Non-participation	13	How many people refused to participate or dropped out? Reasons?	4, 5
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	5
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	4, 5
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	8
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	5
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	3, 4, 5
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	4, 5
Field notes	20	Were field notes made during and/or after the inter view or focus group?	4, 5
Duration	21	What was the duration of the inter views or focus group?	5
Data saturation	22	Was data saturation discussed?	4
Transcripts returned	23	Were transcripts returned to participants for comment and/or	3, 4, 5

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Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	4, 5
Description of the coding tree	25	Did authors provide a description of the coding tree?	5, 6
Derivation of themes	26	Were themes identified in advance or derived from the data?	5, 6
Software	27	What software, if applicable, was used to manage the data?	5
Participant checking	28	Did participants provide feedback on the findings?	14
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	8-10
Data and findings consistent	30	Was there consistency between the data presented and the findings?	8-10
Clarity of major themes	31	Were major themes clearly presented in the findings?	8-10
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	8-10

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.

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Brief Background:

From 2017 to 2021, IBC has implemented the life skills program in classrooms in N'Djamena to increase knowledge and skills needed for healthy relationships, effective communication and responsible decision-making when it comes to HIV related risk, this intervention consisted in teaching life skills lessons through peer education in a holistic approach. This study aims to ascertain coverage, perceptions and beliefs of the youth on HIV and AIDS, as well as understand the influences that may impact intentions to practice safer sex.

The study participants are the youth (aged 15-24) in both participating and non-participating high schools located in N'Djamena. These participants were selected randomly from the purposive list of participating and non-participating high schools in N'Djamena.

Topic Guide

Hello, my name is…I am working with IBC on research that aims to learn more about HIV knowledge and self-efficacy among the youth in high schools in N'Djamena. I will be conducting a focus group discussion, which will last 90-120 minutes. Please refer to the consent form for more details.

Consent Process

1. Please introduce yourselves
    a. Please share with us information about your high school and class?

2. What is the culture around dating?
    a. Probe: At what age do young people start dating?
    b. Probe: How do young people select their partners?
    c. Probe: What does dating involve?

3. How do young people talk about sex with their friends?
    a. Probe: Do young women/men of your age talk about sex with friends?
    b. Probe: How do women/men of your age talk about it?

4. Whom or what do young people rely on for information?
    School sex education (where provided)
    a. Probe: How do you feel about the sex education that is provided in school?
    b. Probe: To what extent has your knowledge changed as a result of the IBC project?
    c. Probe: How could it be improved upon?
    School sex education (where not provided)
    d. Probe: How do you feel about school teaching young people like yourselves about relationships, sex and contraception?

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e. Probe: Do you think young people would find the introduction of classes on sexual issues useful?

5. What do you know about HIV/AIDS?
   a. Probe: What is HIV/AIDS?
   b. Probe: How is HIV/AIDS transmitted?
   c. Probe: What are the symptoms of this disease?

6. How do young people of your age usually find out about relationships, sex and contraception?
   a. Probe: Who shaped your beliefs on HIV/AIDS?
   b. Probe: Whom or what do young people rely on for information?

7. What are risky behaviors related to HIV/AIDS? If person does not know what risk behavior is, explain that is mainly about sexual activities without a condom).
   a. Probe: To what extent do you think that people of your age take risks of any sort during sex?
   b. Probe: Are young people more worried or concerned about pregnancy or HIV/AIDS or other STIs?

8. How can you do to prevent HIV/AIDS?

Risk prevention

   a. Probe: What are the ways in which you can prevent HIV/AIDS transmission?
   b. Probe: Who should be responsible for protecting against any risk during sex?
   c. Probe: What does safe sex mean to young people?
   d. Probe: How do young people feel talking about contraception with partners?

Condoms

   e. Probe: What do young people think about condoms?
   f. Probe: Where do young men and women generally obtain their condoms from?
   g. Probe: What do you think would make people of your age adopt “safe sex” practices?

PrEP

   h. Probe: What do you know about PrEP?
      Probe: In what ways have young people been getting hold of PrEP?
   i. Probe: Are there other ways that people are obtaining PrEP?
   j. Probe: How did you find information about PrEP?

Abstinence

   a. Probe: Do young people of your age are actively abstaining from having sex?
      a. Probe: Is abstinence actively promoted?

      IF NOT, ask questions around reasons for having sex:

         i. Probe: Why do you think women/men of your age have sex?
            1. Probe: What do you think they get out of it?
            2. Probe: What do you think it means to them?

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9. How do young men/women usually find out about services (health centres, young clubs, organizations)?
    a. Probe: Can you list for me all the places and people young people are able to talk to find out about sex, contraception, STIs?
    b. Probe: Do young men and women of your age visit the local services for contraception and sexual health advice?
        i. IF YES,
            1. Probe: Why do young men/women usually attend services?
            2. Probe: Is there anything that would stop young people from going?

10. What do you think are the most important features of a sexual health service for young people?
    a. Probe: Are there differences in the needs of young men and women?
    b. Probe: Where do you think people's sexual health services should be held (location)?
    c. Probe: Who should provide the information and advice?
    d. Probe: How do you think the services in your locality could be improved upon?
    e. Probe: What do you think are the best ways of advertising and promoting services?
    f. Probe: Can you think of 3 words which are the most important to use when advertising and promoting sexual health services for young people?

Do you have anything else you'd like to share with us! Thank you for your time!

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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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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 descriptive study.
Study setting: The study was conducted in N'Djamena, Chad with 20 high schools purposefully selected based on participation in a Blue Cross Chad (BCC) peer-to-peer education programme.
Participants: A total of four focus groups, each consisting of 12 participants, stratified by gender and BCC program participation (two 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 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

- The study employed locally trained interviewers, which helped in enrich cultural insights and enhanced participant trust during data collection.
- A rigorous sampling method was used to ensure a diverse representation of views.
- The study design included both schools that participated and did not participate in the Blue Cross Chad (BCC) peer-to-peer education program which provided a comparative perspective that enriched the study findings.
- The study could have benefitted from the inclusion of high-risk groups to enhance the generalizability of the study findings.

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INTRODUCTION

There are an estimated 2.78 million children and adolescents living with human immunodeficiency virus (HIV) worldwide and approximately 88% reside in sub-Saharan Africa [1]. Chad is one of Central Africa's most affected countries by the HIV 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 on 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 , 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]. The 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]. The BCC 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 sexual behaviors among youth [4,5].

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. The insights gained from this research are intended to help shape the development of future community- and youth-led interventions for effective 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 [10]. It is composed of 10 districts (Supplementary file 1) and convenience sampling was applied as the study setting for this qualitative study as BCC has

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implemented its programme in 20 high schools in the city [8]. Data from the United Nations Children's Fund (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 children living with HIV (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 of HIV . A purposeful 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 (9^{th} to 12^{th} 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 school 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 focus group discussions (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.

Focus group discussions were stratified by gender and whether or not the high school participated in the BCC program to allow participants to feel comfortable sharing their beliefs. The first two groups (one male, one female) included in-classroom participating high school students, whereas the last two groups (one male, one female) included in-classroom non-participating high school students. After being identified by the BCC staff members, school administrators called parents of those under 18 years old and explained the purpose of the research. Following the call, parents who had agreed on the phone 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 the reporting of the qualitative methodology and study results (Supplementary file 2) [9].

Data collection

For the qualitative study, six BCC staff members were used as interviewers, divided into two teams of three 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. 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

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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 interview guide (Supplementary file 3). 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). These FGDs took between 90 and 120 minutes, and transcription of each FGD took approximately three to four hours. Each transcript was discussed with the entire team to ensure that all cultural nuances were captured.

Participants were asked to describe their perceptions and beliefs on sexuality as it relates to HIV transmission and prevention. Discussions started with an explanation of the interview purpose, reassurance of confidentiality, and seeking of respondents' written or oral informed consent. 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. 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 organize and code the data [12]. 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).

The research team used Lincoln and Guba's evaluative criteria, which include credibility, transferability, dependability, and confirmability [13]. 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

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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.

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Table 1. Sociodemographic characteristics of participants (*N = 48*).

Categories	Broader codes	Codes
Societal expectations and norms	Socio-cultural factors	Family dynamics; Sexual taboo; Religion; Abstinence
	Public shame	Feeling disrespected by health worker; Tight-knit communities; Social pressure; Social stigma
	Fear	Fear of going to the hospital; Fear of being recognized by family members; Fear of self-disclosure
Power dynamics	Authority	Role expectations; Professional knowledge; Asymmetry of information; Age difference
	Patient experience	Respectful care; Feeling judge by healthcare providers; An unsafe environment; An unbalanced doctor-patient relationship
Social networks	Friends	Knowledge-sharing platform; Trust; Preference within gender; Matter of confidentiality
	Partners	Feeling comfortable; Openness; Experiential learning
	Social media	Passive learning; Social influence; Information about preventive practices
Peer education programmes	Schools as a good platform	Sex education; A safe environment; Feeling comfortable; Mass awareness campaigns
	Modes of learning	Active learning; role play; group learning; Positive attitudes
Bypassing the system	Access to health services	Preference for social clubs; Healthcare providers; Youth-friendly centers
	Prevention	Street vendors; Preserved anonymity; Condoms

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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 non-governmental organization (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 and signed by the interviewers prior to the start of the FGDs. Participants were also given opportunities during the consent process to ask any questions.

Patient and public involvement

Participants were not involved in the design, or conduct, or reporting, or dissemination plans of the study.

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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 genders (Table 2). Most participants were in the 10th and 11th grades representing 73% of the sample. The sociodemographic characteristics of 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	
9th grade	6 (12.5%)
10th grade	17 (35.5%)
11th grade	18 (37.5%)
12th 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 of HIV 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 level in more detail below.

Barriers to information-seeking and health services

At the individual level: Societal expectations and norms

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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-years). 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 one 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 did 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, as 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). Non-program

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beneficiaries 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 the same 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 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 an 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 enablers. Among the program beneficiaries, males mentioned that such programmes are beneficial because they provide 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.

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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 networks, was mediated by gender, trust, and partner relationships. Additionally, youth reported apprehension to seek care due to the quality of care received at the facility and the power dynamics exerted by healthcare providers. Our results are consistent with prior research that showed social networks and peer education were efficient mediums for HIV messaging [14,15]. More specifically, its contribution to the existing literature lies 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 [15-17]. Furthermore, young people have suggested that these programs should be incorporated into their school curriculum in Chad. Barriers identified in the study such as societal expectations and power dynamics were similar in other SSA countries [14, 18-22]. 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 peers in adolescent sexual behavior in Sub-Saharan Africa (SSA) [23]. However, peers were found to play a crucial role in influencing adolescent sexual behaviors within romantic relationships, as supported by numerous qualitative studies [23-27]. 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 [28]. 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 [28]. This composition effect was found to outweigh the influence of descriptive norms among closest friends [28]. In another study in KwaZulu-Natal, Adeagbo et al. (2022) demonstrated the effectiveness of friends in promoting HIV prevention [29]. 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 [29]. 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 mediums. 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 [30,31]. This study found that the intervention increased condom use and the proportion of safe sex acts at the two-month follow-up [30,31]. Across the world, several government programs have also used social media

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to promote safe sex behaviors and HIV prevention [30,31]. For instance, the US Centers for Disease Control and Prevention (CDC) has developed a social media toolkit to promote online sexual health campaigns using Facebook, Twitter, and YouTube [32]. 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 [33]. Additionally, in the studies where social media interventions were participatory, HIV testing uptake was higher in the intervention arm than in the comparison arm [33]. Despite the low internet penetration (17%) as well as the number of social media standing at 3% of the total population in 2021, Facebook (88%) and Twitter (10%) were the most used social media in Chad [34,35]. 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 considering the cultural context. For example, this could be done by training peers who 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 [36].

For many students, schools represented a safe and enabling environment, which can be used as a platform to deliver high-impact HIV education interventions. Kelly challenges the education sector (2000) by arguing that schools provide different levels where HIV/AIDS-related interventions are needed [37]. 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 United Nations (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 [38]. 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 [39]. 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 [40]. 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

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adolescents [41]. They further argued that these initiatives need to be integrated into primary healthcare and community-based services to ensure broad accessibility and impact [41].

Despite having access to information, many young women did 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, FAWEZA has created safe (social) spaces to allow young girls to play games, engage in sports, and receive technical skills training [42]. 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 [43].

In their recommendations, the youth advocated for the practice of abstinence to be further promoted in mass awareness campaigns. However, even as the socio-cultural and religious contexts must be considered, reliance on abstinence has been largely discredited as an effective HIV prevention approach, particularly to the extent many young people have already engaged in sex by the time they are reached by messaging – which, as a result, may counterproductively promote shame rather than motivate communication [44,45]. Furthermore, these abstinence-based programs disproportionately affect women and girls [46]. 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 [47]. 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 [48].

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 (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 [49].

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CONCLUSION

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.

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Contributorship statement

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. Esias Bedingar, SM is the guarantor.

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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

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community who were not interviewed, individuals who are service providers or experts on the issue within the community, as well as stakeholders.

Data availability statement

No data are available.

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Figure 1. Flowchart of participants.
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.

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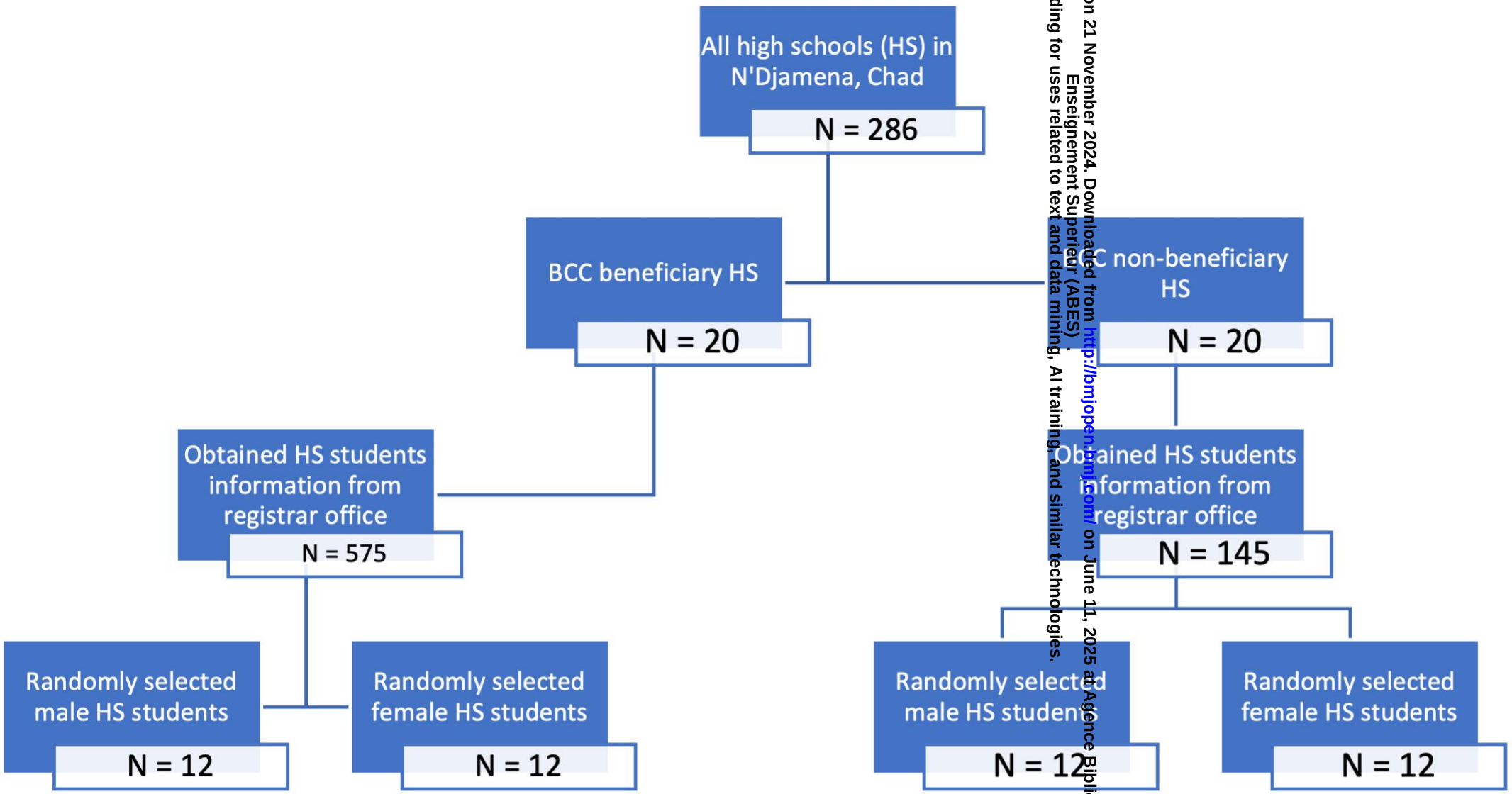

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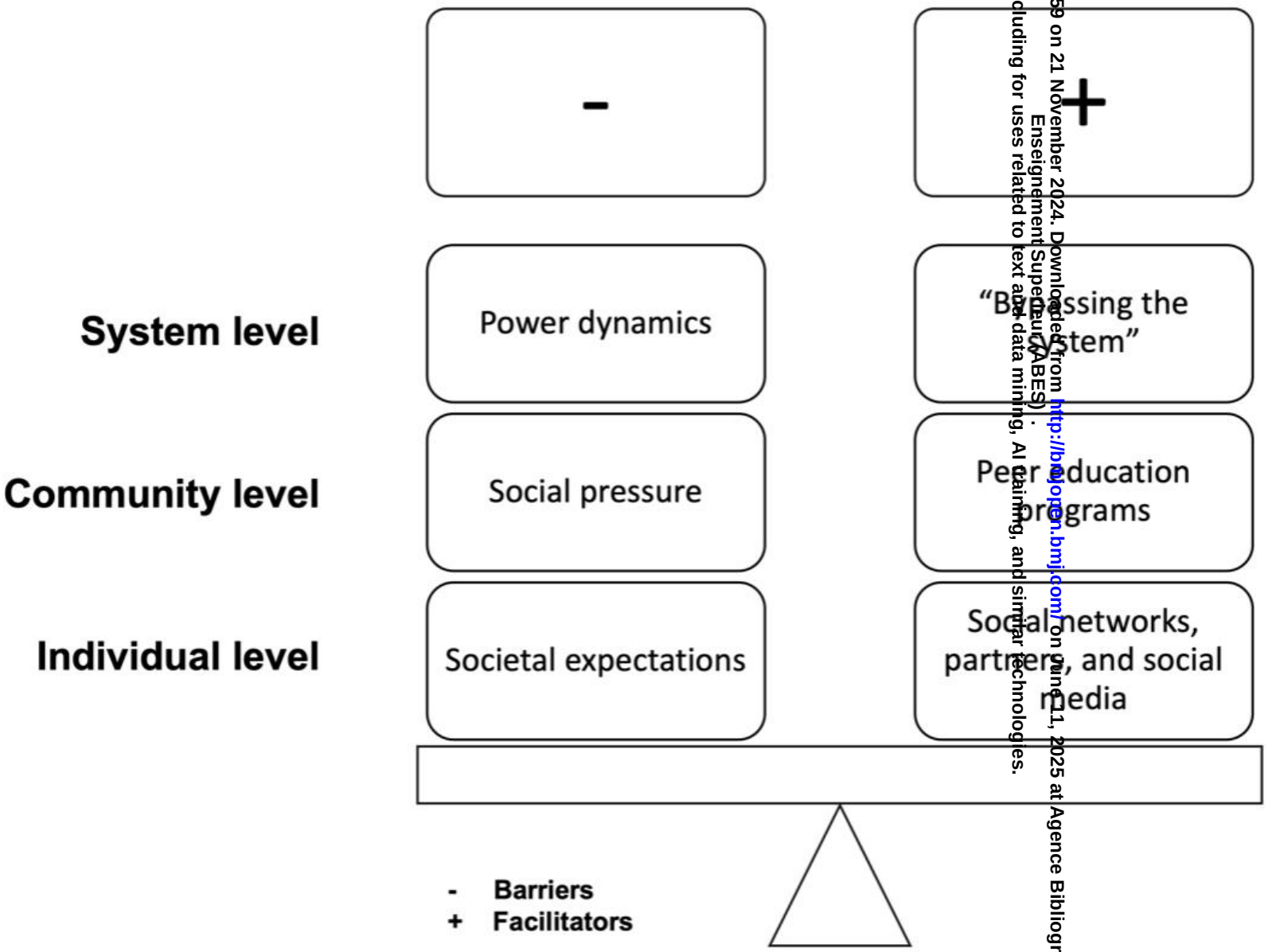

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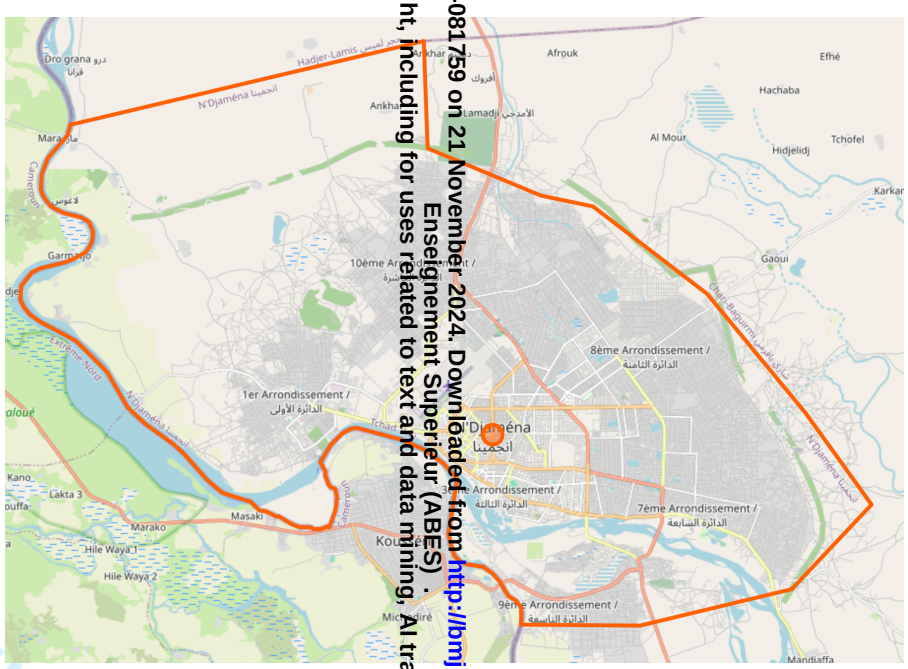

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COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	1, 4, 5, 14
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	1, 14
Occupation	3	What was their occupation at the time of the study?	14
Gender	4	Was the researcher male or female?	1, 14
Experience and training	5	What experience or training did the researcher have?	1, 2, 4, 5, 15
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	4, 5
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	4, 5
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	4, 5, 7, 13
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	1, 3, 4
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	4, 5
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	4
Sample size	12	How many participants were in the study?	4, 7
Non-participation	13	How many people refused to participate or dropped out? Reasons?	4, 5
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	5
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	4, 5
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	8
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	5
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	3, 4, 5
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	4, 5
Field notes	20	Were field notes made during and/or after the inter view or focus group?	4, 5
Duration	21	What was the duration of the inter views or focus group?	5
Data saturation	22	Was data saturation discussed?	4
Transcripts returned	23	Were transcripts returned to participants for comment and/or	3, 4, 5

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Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	4, 5
Description of the coding tree	25	Did authors provide a description of the coding tree?	5, 6
Derivation of themes	26	Were themes identified in advance or derived from the data?	5, 6
Software	27	What software, if applicable, was used to manage the data?	5
Participant checking	28	Did participants provide feedback on the findings?	14
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	8-10
Data and findings consistent	30	Was there consistency between the data presented and the findings?	8-10
Clarity of major themes	31	Were major themes clearly presented in the findings?	8-10
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	8-10

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.

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Brief Background:

From 2017 to 2021, IBC has implemented the life skills program in classrooms in N'Djamena to increase knowledge and skills needed for healthy relationships, effective communication and responsible decision-making when it comes to HIV related risk, this intervention consisted in teaching life skills lessons through peer education in a holistic approach. This study aims to ascertain coverage, perceptions and beliefs of the youth on HIV and AIDS, as well as understand the influences that may impact intentions to practice safer sex.

The study participants are the youth (aged 15-24) in both participating and non-participating high schools located in N'Djamena. These participants were selected randomly from the purposive list of participating and non-participating high schools in N'Djamena.

Topic Guide

Hello, my name is…I am working with IBC on research that aims to learn more about HIV knowledge and self-efficacy among the youth in high schools in N'Djamena. I will be conducting a focus group discussion, which will last 90-120 minutes. Please refer to the consent form for more details.

Consent Process

1. Please introduce yourselves
    a. Please share with us information about your high school and class?

2. What is the culture around dating?
    a. Probe: At what age do young people start dating?
    b. Probe: How do young people select their partners?
    c. Probe: What does dating involve?

3. How do young people talk about sex with their friends?
    a. Probe: Do young women/men of your age talk about sex with friends?
    b. Probe: How do women/men of your age talk about it?

4. Whom or what do young people rely on for information?
    School sex education (where provided)
    a. Probe: How do you feel about the sex education that is provided in school?
    b. Probe: To what extent has your knowledge changed as a result of the IBC project?
    c. Probe: How could it be improved upon?
    School sex education (where not provided)
    d. Probe: How do you feel about school teaching young people like yourselves about relationships, sex and contraception?

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e. Probe: Do you think young people would find the introduction of classes on sexual issues useful?

5. What do you know about HIV/AIDS?
   a. Probe: What is HIV/AIDS?
   b. Probe: How is HIV/AIDS transmitted?
   c. Probe: What are the symptoms of this disease?

6. How do young people of your age usually find out about relationships, sex and contraception?
   a. Probe: Who shaped your beliefs on HIV/AIDS?
   b. Probe: Whom or what do young people rely on for information?

7. What are risky behaviors related to HIV/AIDS? If person does not know what risk behavior is, explain that is mainly about sexual activities without a condom).
   a. Probe: To what extent do you think that people of your age take risks of any sort during sex?
   b. Probe: Are young people more worried or concerned about pregnancy or HIV/AIDS or other STIs?

8. How can you do to prevent HIV/AIDS?

Risk prevention

   a. Probe: What are the ways in which you can prevent HIV/AIDS transmission?
   b. Probe: Who should be responsible for protecting against any risk during sex?
   c. Probe: What does safe sex mean to young people?
   d. Probe: How do young people feel talking about contraception with partners?

Condoms

   e. Probe: What do young people think about condoms?
   f. Probe: Where do young men and women generally obtain their condoms from?
   g. Probe: What do you think would make people of your age adopt “safe sex” practices?

PrEP

   h. Probe: What do you know about PrEP?
      Probe: In what ways have young people been getting hold of PrEP?
   i. Probe: Are there other ways that people are obtaining PrEP?
   j. Probe: How did you find information about PrEP?

Abstinence

   a. Probe: Do young people of your age are actively abstaining from having sex?
      a. Probe: Is abstinence actively promoted?

      IF NOT, ask questions around reasons for having sex:

         i. Probe: Why do you think women/men of your age have sex?
            1. Probe: What do you think they get out of it?
            2. Probe: What do you think it means to them?

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9. How do young men/women usually find out about services (health centres, young clubs, organizations)?
    a. Probe: Can you list for me all the places and people young people are able to talk to find out about sex, contraception, STIs?
    b. Probe: Do young men and women of your age visit the local services for contraception and sexual health advice?
        i. IF YES,
            1. Probe: Why do young men/women usually attend services?
            2. Probe: Is there anything that would stop young people from going?

10. What do you think are the most important features of a sexual health service for young people?
    a. Probe: Are there differences in the needs of young men and women?
    b. Probe: Where do you think people's sexual health services should be held (location)?
    c. Probe: Who should provide the information and advice?
    d. Probe: How do you think the services in your locality could be improved upon?
    e. Probe: What do you think are the best ways of advertising and promoting services?
    f. Probe: Can you think of 3 words which are the most important to use when advertising and promoting sexual health services for young people?

Do you have anything else you'd like to share with us! Thank you for your time!

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