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ENHANCING SEXUAL AND REPRODUCTIVE HEALTH LITERACY AMONG LOCAL AND REFUGEE YOUTH IN MOLDOVA: A COMMUNITY-ENGAGED DIGITAL HEALTH INITIATIVE

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Introduction. *Despite progress in sexual and reproductive health (SRH) in Moldova, adolescents still face barriers accessing accurate health information and services. To address these issues, a digital resource called the YK App was developed to enhance health literacy and healthcare access for Moldovan and refugee youth.* ***Material and methods.*** *Three regional focus group discussions were conducted with 50 youths aged 15-24, including Ukrainian refugees. These discussions, held in multiple languages, explored participants' SRH knowledge, information sources, barriers, and enablers. Qualitative data and socio-demographic profiles were analyzed thematically and descriptively.* ***Results.*** *Participants rely strongly on social media for SRH information, but identified significant gaps in their awareness, particularly on contraception, sexually transmitted infections, puberty and menstruation. While healthcare professionals are seen as credible sources, shame and fear of rejection often prevent direct involvement with healthcare services. Anonymity, confidentiality, and use of digital platforms were identified as key facilitators for accessing SRH information.* ***Conclusions.*** *The findings emphasize the potential of a digital, youth-focused SRH resource that adolescents can use independently. Key elements should include clear, easy-to-understand formats such as audio and video content, and collaboration with health professionals and official health organizations to ensure credibility.*

Cuvinte-cheie: *adolescenți, sănătate sexuală și repro-ductivă, aplicație digi-tală, acces la asistență medicală, studiu cali-tativ și cantitativ.*

ÎMBUNĂTĂȚIREA NIVELULUI DE CUNOȘTINȚE ÎN DOMENIUL SĂNĂTĂȚII SEXUALE ȘI REPRODUCTIVE AL TINERILOR AUTOHTONI ȘI AL CELOR REFUGIAȚI ÎN REPUBLICA MOLDOVA: O INIȚIATIVĂ DIGITALĂ COMUNITARĂ

Introducere. *Deși au fost realizate progrese în domeniul sănătății sexuale și reproductive (SSR) în Republica Moldova, adolescenții continuă să se confrunte cu dificultăți în accesarea informațiilor corecte și a serviciilor de sănătate. Pentru a răspunde acestor provocări, a fost dezvoltată YK App, o resursă digitală menită să sporească nivelul de alfabetizare în domeniul sănătății și accesul la asistență medicală pentru tinerii moldoveni și cei refugiați.* ***Material și metode.*** *S-au selectat 3 grupuri-țintă regionale, constituite din 50 de tineri cu vârste între 15-24 ani, inclusiv refugiați ucraineni. Discuțiile, desfășurate în mai multe limbi, au explorat cunoștințele participanților despre SSR, sursele de informații, barierele și factorii facilitatori. Datele calitative și profilurile socio-demografice au fost analizate tematic și descriptiv.* ***Rezultate.*** *Tinerii se informează preponderent pe rețelele sociale despre SSR, însă cunoștințele lor vizând , în special, problemele legate de contracepție, infecții cu transmitere sexuală, pubertate și menstruație prezintă lacune substanțiale. Deși specialiștii din domeniul sănătății sunt recunoscuți ca fiind niște surse credibile, rușinea și teama de respingere îi descurajează pe tineri în a se implica direct în soluționarea problemelor cu care se confruntă. Anonimatul, confidențialitatea și platformele digitale au fost identificate ca principale bariere în accesul la informații.* ***Concluzii.*** *Datele obținute relevă potențialul impactului pe care îl pot exercita resursele digitale SSR asupra tinerilor. Conținuturile formulate clar, ușor de înțeles (audio și video), colaborarea cu profesioniști din domeniul sănătății și cu organizațiile oficiale vor servi drept elemente-chei în asigurarea credibilității.*

INTRODUCTION

Sexual and reproductive health is a lifelong concern for both women and men, from infancy to old age, with significant implications for health in later stages of life (1). Recent figures from the UN Population Fund indicate that 1,8 billion adolescents, aged 10-19 years comprise over 16% of the global population (2). However, many young people face limitations due to social norms, cultural attitudes, institutional and structural barriers, and violations of their fundamental rights based on age. This issue is underscored in a report by the High Commissioner for Human Rights on youth and human rights (2).

The Republic of Moldova faces significant demographic and social challenges, particularly concerning its youth population. According to the National Bureau of Statistics (3), 17% of Moldovans are between 10 and 24 years old, and 11% are adolescents aged 10 to 19. Also, there is a high adolescent birth rate of 22.4 per 1,000 women aged 15 to 19, with more than 12% of these young women being married before turning 18 years old.

Recognizing these issues, the Moldovan government has prioritized youth-friendly health services. This focus is particularly crucial given the health crises in neighboring regions and the recent influx of Ukrainian refugees. As of April 14, 2024, nearly 120,000 refugees from Ukraine have been recorded in Moldova by the UNHCR, with the majority being female (60%) and children (52%) (4). This places additional pressure on Moldova's healthcare and social services, highlighting the urgent need for effective youth-focused interventions and support systems.

In the Republic of Moldova, sexual and reproductive health rights were recognized as a priority in 1994 after the International Conference on Population and Development in Cairo. The National Reproductive Health Strategy (2005-2015) mandated a life skills-based education course including SRH topics in schools, but only some SRH topics are covered so far in schools in the optional health education courses (5). An assessment of sexuality education conducted in 2021 found that there was full compliance of the integration of a comprehensive sexuality education into the national curriculum among only 28% of schools. Although this was more than a doubling from 12% in 2017, it still represents a considerable gap in meeting the informational needs on sexuality education for young people (6, 7). The authors' recommendations include the need align comprehensive sexuality education program in schools programs to international standards; strengthen referral and cooperation with youth-friendly services and invest in literacy regarding the benefits of sexuality education.

In response to meeting the SRH needs of adolescents and young people including refugees, the non-governmental organization, INTERSOS, in partnership with Neovita and *Nicolae Testemitanu* State University of Medicine and Pharmacy, Department of Preventive Medicine and other institutions, is implementing the "Community Participatory Digital Health Initiative". The initiative aims to identify ways to make SRH healthcare, services and information more accessible to adolescents and young adults, and to reduce barriers such as cost, geography, language, and anonymity. At the outset, a stakeholder meeting was held in Chisinau in May 2023, to consult with health implementers, donors, UN agencies, youths, non-governmental organizations and health providers to discuss the potential of an online application (the YK App) to achieve this aim. The potential for an App was agreed on, and the need to involve adolescents and young adults in the design and content of the App was agreed.

The *aim of the study* was to explore the adolescents' SRH needs in terms of knowledge and healthcare and develop a YK App among local and refugee youth.

MATERIAL AND METHODS

Study population

In total 50 young people, including refugees aged 15-24 were recruited. The recruitment process involved volunteers from the Neovita Youth Klinic Network and *Nicolae Testemitanu* State University of Medicine and Pharmacy.

Study tools

This was a qualitative study, but quantitative data were collected fully anonymously to describe the socio-demographic profile of respondents. Focus Group Discussions (FGD) were led by using the research study guide developed collaboratively by researchers from *Nicolae Testemitanu* State University of Medicine and Pharmacy of the

Republic of Moldova, INTERSOS, Neovita, and international SRH specialists. The guide covered questions related to young peoples' opinions about access to sexual and reproductive health information and services; previous experiences with and perspectives on using digital health technologies to increase health literacy and health care access; and recommendations for the creation of a successful mobile health App for young people. For the quantitative part - all participants completed a short socio-demographic information to allow us to describe some characteristics of the participants. Recognizing the potential biases of having both older and younger adolescents and youths from different background in the same group discussions, each FGD started with an ice-breaker activity. At the end of the FDG all the participants completed a short anonymous questionnaire to assess potential factors that may have either inhibited some participants from contributing to the discussion or may have caused them to provide acquiescent responses due to social acceptance or similar biases.

Data collection

Two experienced researchers with SRH expertise led 3 FGDs in each region (North, Center and South). Each FGD was composed of 8-16 participants and lasted between 90 to 120 minutes. FGDs were conducted in Romanian, Russian, or both languages. Each participant received a unique code which was used in discussions to anonymize the transcript. The FGDs were coded, audio-recorded with the agreement of the participants, manually transcribed, translated from Romanian and Russian to English for analyses.

Data analysis

Quantitative analysis was conducted using Excel 2020. Qualitative analyses were performed thematically, a coding scheme was built up inductively from the dataset and was applied to interview transcripts. New codes were added if a novel theme emerged that was not captured by the current coding scheme. The coding process was dynamic and collaborative; workshops were conducted with the researchers who collected the data in order to validate the themes.

Ethics approval

All participants were informed that their involvement would remain confidential and anonymous, as well as entirely voluntary. Signed informed consent was obtained from all participants over the age of 18. For participants under 18 years old, the signed informed consent was obtained from the guardians and verbal assent was obtained from the participants, and confirmed prior to each FGD. Ethics approval was also obtained.

RESULTS

Socio-demographic characteristics

Participants of both genders were included in equal proportions (tab. 1). Half of the participants were aged 15-16 years old (50%), and 28% were aged 17-18 years old, and 22% were aged 19-24 years old (fig. 1).

Table 1. Participants distribution by regions and gender.

Country regions	Female		Male		Total	
	N	%	N	%	N	%
FGD 1 (South)	<5	*10*	<5	*6*	8	*16*
FGD 2 (Centre)	8	*16*	8	*16*	16	*32*
FGD 3 (North)	12	*24*	14	*28*	26	*52*
Total	25	*50*	25	*50*	50	*100*

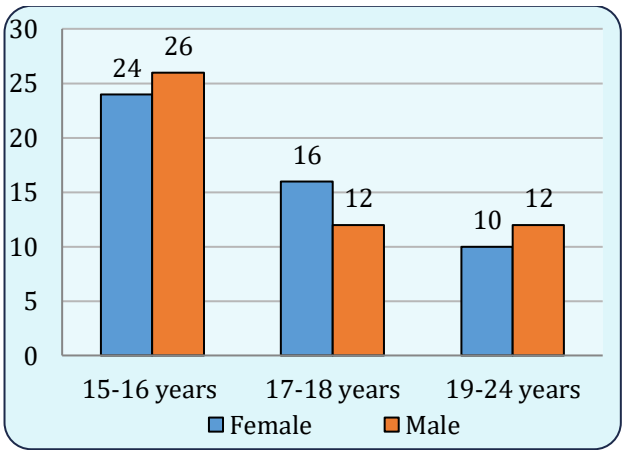

Figure 1. Age group distribution of participants, %.

Two thirds (72%) of the participants were Moldovan citizens, and 22% were refugees or asylum seekers. For fist language, one third of the participants (36%) spoke Romanian, 44% – Russian, and 16% – Ukrainian. Nearly all participants spoke Russian (82%) and one third also spoke English. The analysis of participants' educational levels reveals that a significant portion (56%) completed secondary education, followed by 22% with primary education and 16% with higher education. Among the refugee participants (n=11), one-third reported living in Moldova for two years, while another third had been there for more than one year (tab. 2).

Table 2. Socio-demographic characteristics of the respondents.

Statute	N	%	Education	N	%
Other	<5	4	No formal education	<5	6
Citizen of Moldova	36	72	Primary education	11	22
Refugee	10	20	Secondary education	28	56
Resident	<5	2	Higher education	8	16
Asylum seeker	<5	2			
Mother tongue			**Length of residence in Moldova (referring to refuges)**		
Russian	22	44	1 years.	<5	36
Romanian	18	36	1,5 years	<5	18
Ukrainian	8	16	2 years	<5	36
Other (list)	<5	4	11 years	<5	9
Most common languages spoken			**Employment status**		
English	17	34	Employed	8	24
Russian	41	82	Unemployed	25	76
Romanian	21	42			

Popular Apps and websites used by young people

When asked about the most popular Apps or websites which young people use, nearly all participants mentioned social media, including Instagram, TikTok, Facebook, YouTube, WhatsApp, and Telegram. Social media was seen not only as a platform for entertainment and communication, but also as educational, particularly in the areas of sexual and reproductive health: (*"In Instagram, you can also communicate with acquaintances, friends, as well as find entertaining videos and interesting facts" (Male, aged 19-24); "Personally, I use websites containing information about SRH, YouTube, and other related sites with articles covering various aspects of SRH. On YouTube, I follow different channels run by doctors, gynecologists, urologists, etc., providing information and answers." (Male, aged 19-24).*

The features that made certain Apps most appealing were explored throughout discussions. A common theme was the ability to find information easily and concisely on social media. Several participants enjoyed short videos as a medium to obtain information: *"I could say about TikTok that it is one of the most accessible platforms. The fact that there are short videos makes the information concrete, strictly on the subject, and if you have a specific question, you can receive an answer in a very short time." (Female, aged 19-24)*. Some participants discussed the ease of accessibility and navigation as other important features. Several participants cited using Google or other search engines, particularly for homework or when searching for health-related information. One participant suggested that as people age, they might be more inclined to use search engines or health-specific sites: *"We could categories information by age; I think for the younger ones, it would be TikTok and Instagram, and as we age, Facebook becomes more prevalent. Additionally, individuals over 18 tend to search on Google or various sites managed by doctors or hospitals, for example, in Romania, the website of Regina Maria Hospital provides information on various health aspects." (Female, aged 19-24).*

In terms of health-specific Apps, several female participants use Apps to track their menses, including 'Flo' App or other Apps of daily step counts or sleep monitoring.

Topics young people want to know more about

Different SRH topics that young people felt were most important and wanted to learn more about were explored. Sex, sexually transmitted infections, and contraception were commonly discussed topics. As noted by one participant, these topics are considered taboo and ones which many young people did not know much about *("This topic is considered taboo among young people of our age. Adolescents often seek information about contraception, […] the band STI, and their first sexual experience." (Female, aged 15-18); "They may seek information about contraceptive methods and how to use them, such as emergency contraception like the morning-after pill, which many may not be familiar with." (Female, aged 15-18).*

Discussions particularly emphasized a significant knowledge gap regarding different forms of contraception and their correct application, including the use of emergency contraception. One participant discussed wanting to know more about *"what to do to terminate a pregnancy in the early hours" (Female, aged 15-18),* and another discussed wanting to *"explore the potential use of emergency contraception after each sexual encounter" (Female, aged 19-24).* This suggests a need for more education and information on contraception, as well as pregnancy termination.

Several participants expressed wanting to know more about sexually transmitted infections, such as HIV and syphilis, and how to protect against these. Of note, not a single participant discussed condoms, thus highlighting a gap in knowledge around safer sex practices ('dual contraception') to avoid both unwanted pregnancies and STI transmission.

Both male and female participants discussed puberty as an important topic. They were interested in understanding the ways in which the body changes during puberty and adolescence. One participant noted that it was important for young people to have a good understanding of puberty *"so that later on, many questions and problems don't arise" (Male, aged 15-18).*

Some male participants highlighted the need for specific information on male puberty, including around *"nocturnal eliminations and morning erections"*. One male noted that boys received less teaching on this topic as compared to girls, but, like girls, required information on this topic (*"Considering that this topic hasn't been adequately addressed in our education system, especially with boys, there seems to be a small disparity where boys are less informed compared to girls. This highlights the need for more comprehensive education for both genders." (Male, aged 19-24)).*

Several females discussed menstruation, with one participant saying it was *"one of the most sought-after subjects"* (Female, aged 15-18). Many females felt this was an important topic, but one that was embarrassing to discuss with parents *("I think there were questions when I was younger about menstruation when I didn't have it yet, and it was interesting to me how and what it would be like when it appeared. What to do with it because I was embarrassed to ask my mom." (Female, aged 15-18)).* Another female participant discussed the importance of "*personal hygiene of one's intimate area"*; again, it was noted that this was not a topic which could be easily discussed with parents.

A few participants from both genders said that SRH was not a topic in which everyone was interested. One noted that SRH remained an important topic for young people, even for those who were uninterested: *("Unfortunately, not many want to know about this; many understand it quite subjectively, and not everyone wants to be aware. However, it is a very important topic for defense against infections." (Male, aged 15-18)).*

Sources of SRH information

The sources and methods through which young people obtain information about sexual and reproductive health (SRH) were discussed.

Most participants discussed health professionals, including doctors, nurses, and gynecologists, as a key source of SRH information. In general, the information received from health professionals was seen as a trustworthy, due to their specialist training and education. One participant discussed that although the internet could provide "vast amounts" of information, a doctor or health specialist was need for reliable information. Similarly, information coming from local health clinics, the Ministry of Health, or international health bodies, such as the World Health Organization, was also seen as credible *("If the information is published on the website of a gynecologist or another medical professional, I consider it reliable. However, if the information is written on sites like 'Mail.ru' by some man who talks nonsense, I do not consider it correct because he is not a licensed doctor." (Female, aged 15-18)).* Of note, one participant shared an example of an experience of health professionals being sources of misinformation: *"... there are also doctors spreading misinformation on websites, such as claims that vaccines chip you or make you infertile. We strive to bring correct information, even though they position themselves as influential and experienced individuals." (Female, aged 19-24).*

Many participants highlighted social media as a popular source for SRH information. Most acknowledged that not all information on social media was accurate, however many felt that they could still use social media to find reliable information. Some pointed to certain "influencers" who were felt to have credible reputations *("Social networks that we often use are in the middle;*

we often find accurate information, but there are also cases of false data." (Female, aged 19-24); "... for example, on platforms like Telegram or Instagram, there is a diversity of opinions. Different individuals can express their views, but there are those with a certain reputation, and we often listen to them." (Male, aged 19-24)).

Participants also discussed that social media allowed them to subscribe to SRH information from credible sources, such as health professionals *("I use Instagram because I can subscribe to pages managed by gynecologists or other individuals discussing sexual education, hygiene, menstruation, pregnancy, etc. The information is presented concisely, clearly, and comprehensively." (Female, aged 19-24)).* Search engines, particularly Google, were also noted to be a common source of SRH information. One participant described Google as a platform with *"a wealth of information which is easily accessible" (Male, aged 19-24).*

Some felt that social media was not a credible source and that *"the internet does not always tell the truth"*. Several young men expressed concern with the anonymity of those positing on the internet. *One participant felt that publications were more credible than information online, as it could be verified ("On the internet, anyone can be whoever they want, often not revealing their true identity. This creates a false sense of security." (Male, aged 15-18)).*

A common theme across all FGD was that corroborating information from multiple sources made it more credible. Many participants felt that social media enabled them access to multiple sources of information, allowing them to draw their own conclusions *("We choose where to gather information. For instance, I am subscribed to reliable sources where I have seen that accurate information is posted, including interviews with doctors. However, I am aware that alongside these, there are many unreliable sources." (Female, aged 19-24); "For example, I listen to information from various places, and in the end, I draw my conclusions, but the most credible sources for me are Instagram and bloggers." (Female, aged 15-18)).* In the male only group, porn was mentioned as a source of SRH information, but this was not elaborated on.

Participants reported having received some education on SRH in school settings, typically integrated within biology classes, with an emphasis on puberty. However, they expressed discomfort in discussing sexual and reproductive health (SRH) with teachers, viewing the topic as particularly taboo when addressed with older adults. Some participants also commented that often the teachers who provided the SRH curriculum were older in age, with limited ability to provide up-to-date and accurate information (*"I think students find it uncomfortable to talk to teachers [...] Often, they are put in situations to discuss these topics with the class, and most of them are from the post-Soviet era and may not be as open to discussing these matters. It's difficult for them as they are not experts in the field and can only provide general information that students already know. They may struggle to provide more recent information." (Female, aged 19-24)).* Some participants discussed that when they received SRH teaching from younger teachers, they found it more relatable and had more positive experiences.

Older siblings or peers with similar experiences were often cited as a reliable source of information, as they had "gone through similar situations". A few participants also mentioned their parents, or specifically their mother, as a source of information. However, most participants said that they were embarrassed to discuss SRH topics with parents *("... teenagers usually don't learn from their parents. It's not easy for parents to talk to their children about this. The information mainly comes from other sources, like friends or the internet ..." (Male, aged 15-18).* Although participants felt comfortable talking to their peers or older siblings, researchers leading the FGDs noted that the information from these sources was not always accurate.

Barriers to accessing SRH services or reliable information

Participants were asked about things that make it difficult for young people to access SRH services or information.

Many participants expressed feeling fear and shame in discussing SRH, which is considered a taboo topic. In particular, participants worried about being dismissed by health professionals, teachers, or older adults, which was a barrier to seeking care or information ("*It's something intimate, and when you want to address it with a doctor or gynecologist and ask something, you feel ashamed to tell them everything. You wonder, what will the doctor think about you? You're not sure if they'll understand the emotions you're experien-*

cing now." (Female, aged 15-18)). For this reason, many participants said they preferred to seek information from their peers or people closer to their age, where they felt free to discuss more openly.

Many participants described not knowing where to seek reliable SRH information. They noted frequent misinformation online; as a result, they said they struggled to *"differentiate and determine what is correct and true"*. Several participants discussed the importance of finding accurate information that could help clarify common misconceptions, such as: *"the misconception that using a tampon means you're not a virgin or that you can't get pregnant during menstruation" (Female, aged 19-24); "A problem I have encountered is that when adolescents search for information about masturbation on the internet, there is a multitude of misinformation, such as claims that it causes blindness or hair loss. Due to this, I believe that young people need to know where to turn for accurate information and have reliable sources available." (Male, aged 19-24).*

Participants explained that sometimes when the information was from what was considered a reliable source, the way it was presented was often difficult to understand, for example in an academic paper or medical website. This was in contrast to social media, where information was presented concisely and clearly *("A significant issue is that reliable sites with accurate medical data or those based on scientific articles are often complex and take time to understand. In contrast, social media platforms provide information briefly, making it easier to comprehend, though not necessarily evidence-based ..." (Female, aged 19-24)).*

Some participants noted that less information was available for males. They discussed that teaching in schools often focused more on girls, and that there was more information online for women than men. Participants also discussed that males were less likely to discuss SRH topics amongst themselves as compared to females, which further exacerbated the gendered information gap *("Considering that this topic hasn't been adequately addressed in our education system, especially with boys, there seems to be a small disparity where boys are less informed compared to girls ..." (Male, aged 19-24)).*

Some female participants reflected that men lack knowledge about female SRH topics, such as menstruation. Equally, there is a gap in female knowledge around topics such as male condoms. In general, FGDs highlight that SRH topics remain gendered, and are not often discussed between males and females *("On the internet, there is more information available for women who are concerned about their health. There are forums where they discuss these topics, but men do not talk about it much, only with each other. There is such a difference in women; they paraphrase the word 'menstruation' into 'guests from Krasnodar', 'red days', and they feel intimidated if they experience leaks [during menstruation]. Additionally, men feel intimidated to buy pads and contraceptives because they believe others will judge them." (Female, aged 15-18)).*

However, one male participant expressed a desire for specific websites for men in order to improve their understanding of female SRH topics, so that *"men can understand and not shame women" (Female, aged 15-18).*

Enablers to SRH information and services

Participants were asked about things that make it easier or could improve access to access SRH services and information for young people.

Several participants discussed that confidentiality was important and could make it easier for young people to access information and services. Several participants felt that there should be online platforms where young people could anonymously chat with a specialist *("Not everyone feels comfortable discussing their problems face-to-face. Maybe they don't want their face to be seen." (Male, aged 19-24)).*

Some participants also discussed that they saw the use of websites and Apps as an opportunity to improve access to SRH information and services. These were seen as anonymous, accessible, and convenient ways to access information. Nearly all participants reported having daily access to the internet on their phones or computers, which they used to search for information.

Some participants wanted more sexual education lessons in schools. A common theme was that participants felt more comfortable receiving SRH information from people closers to their age. Additionally, many participants explained that they would prefer to have health professional or health specialists discuss sensitive SRH topics in schools. They also expressed that they felt more comfort-

table discussing these topics with the younger teachers *("Teachers are already adults, and while they share practical experiences, it's challenging for us to talk to them about this topic as we don't feel comfortable discussing such matters with older individuals." (Male, aged 15-16)).*

Awareness and experiences of SRH services

Awareness of SRH services was touched on only briefly during the FGDs and will be explored in more depth in the KAP surveys. Participants noted a few youth-friendly SRH clinics, including Neovita, which provided access to specialists, free HIV testing, and free condoms.

In the other FGDs, few participants discussed having sought SRH care themselves, other than for mandatory medical examinations in school. These examinations are typically a source of anxiety, particularly for females, as there is a fear that peers will compare their puberty development amongst each other, and that peers will know who is sexually active. One participant described a "higher level of tension" between the teachers and students during the mandatory medical examination at school.

Only one participant elaborated on an experience accessing SRH outside of mandatory exams. She reported having had a negative experience with a gynecologist at a youth-friendly clinic; as a result, she stopped visiting the clinic: *"For example, when I was in middle school, I reached out to the Youth-Friendly Centre, which had access to a gynecologist. However, the communication style there was vulgar, and after the first session, I left. This occurred in my local area." (Female, aged 19-24).*

Given that very few participants had accessed SRH services, this example of a negative experience at a youth clinic is particularly concerning.

Interest in a health App and concerns

Overall, participants felt there was a need for a SRH App. When asked which features would be most useful, a common theme was the option to anonymously ask questions or discuss with a specialist. As discussed above, specialists were seen as credible sources of information, and participants felt that anonymity could help improve access. A few participants also suggested having hotlines. Some participants requested that it would be useful to have contact information for local clinics *("... we desire an interactive application with the ability to ask questions and receive personalized answers, getting to know about existing centers." (Male, aged 19-24)).*

Many discussed the importance of using easily understandable terms and presenting statistical data clearly. Some highlighted the importance of ease of navigation on the platform *("I view the creation of an application very positively, with clear and accessible statistical data, easy to understand." (Female, aged 19-24)).*

Several participants suggested having audio and video content, including doctors or specialists discussing SRH topics. One participant requested links to *'reliable TikTok channels'*. Many others suggested having 'personal stories' and mini-interviews'.

Participants agreed that the App should have information for both males and females, and suggested having separate sections for the different genders. Participants felt that the App should be available in different languages, including English, and should be freely available.

Most did not express safety concerns about a potential App, although this may be due to fatigue and time constraints towards the end of the interviews. Participants noted that data privacy was important. A few of the male participants discussed that data leaks or hackers could be a concern, but seemed to think this was low risk: *"Information leaks. It wouldn't be good if the person who shared their life story had their account hacked, and someone else found out." (Male, aged 19-24); "Generally, I don't think there are serious concerns. It's good to be anonymous, but I don't think anyone will have serious worries that something might happen for which to be concerned, so I don't think there are concerns." (Male, aged 15-18).*

Participants suggested that the best way to raise awareness about a new SRH App would be through advertising on social media advertising, on television, in schools, and through youth training sessions.

A few participants noted that the App should be free, to promote access for all groups. Nearly all FGD participants had access to personal phone or computer, with daily internet access, and felt this was the case for most young people in Moldova. Some suggested that those without phones could use schools, youth centers, or public libraries to access the App anonymously.

Feedback from participants after conducting FGD

In general, most of participants reported feeling uncomfortable discussing SRH matters to some extent, this was higher among younger participants (15-17 age group with 36% compared to 26% in 18-24 years), but a notable portion in each group felt very comfortable discussing the topics freely (fig. 2). In total, 62% of participants reported feeling 'very uncomfortable' discussing any of the topics (38% female, 24% male), and a further 18% reported feeling 'somewhat uncomfortable' (6% female and 12% male).

Half of all the participants found the conducted warm-up exercises prior to each FGD helpful and felt more comfortable talking openly as a result, 38% of participants indicated that they perceived the warm-up activities as somewhat helpful, and they felt somewhat more comfortable expressing themselves during the group discussion and 12% of participants reiterated that they found the warm-up activities helpful, leading to an increased comfort level when talking openly during the group discussion.

Nonetheless, when asked how honestly, they responded to the questions, 74% of participants reported 'always' contributing with truthful ideas and answers; only 8% said that 'almost all of the time' they shared ideas that agreed with what others were saying, even if they did not really agree with them. This suggests that although participants felt uncomfortable discussing sensitive SRH topics, most still provided honest answers (tab. 3).

Participants listed language, nationality, and the age of other participants as issues that affected how they contributed to the discussion. Overall, participants emphasized the importance of well-planned and inclusive warm-up activities to create a supportive environment conducive to meaningful group discussions. They felt that conversations were enjoyable, informative, and expressed a positive view towards the initiative, suggesting a desire for more frequent organization, particularly for the younger ones ones *("...It was a very interesting conversation; ...very friendly; ... such activities are very important and should be organized as frequently as possible").*

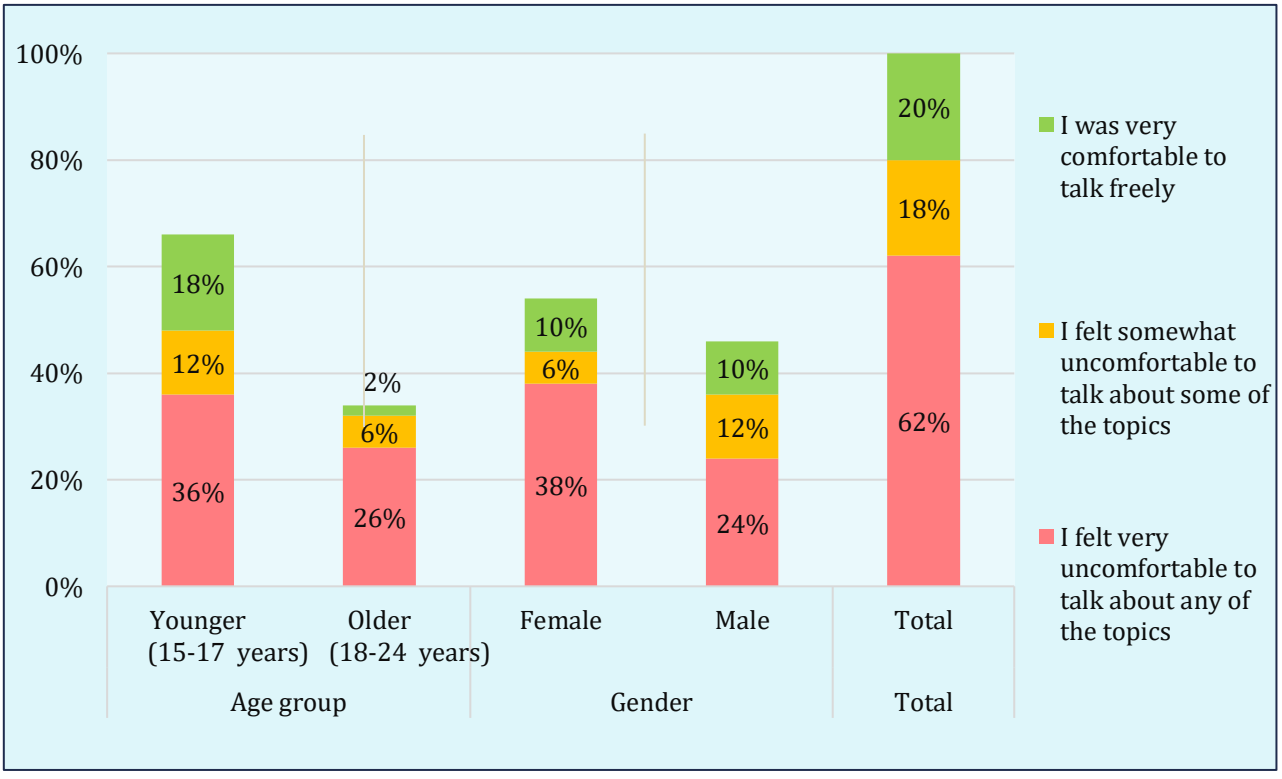

Figure 2. FGD participants' ranking on level of comfort in talking freely during the discussion distributed by age group and gender, % (N=50).

Table 3. FGD participants' ranking on how honestly they responded to the questions.

Questions	N	%
What other people think of me was not a worry - when I contributed to the discussion, it was always with my truthful ideas and answers.	37	74
I was very worried about what other people might think of me - almost all of the time, I shared ideas or answers that agreed with other people in the group even if I did not really agree with what they were saying.	4	8
I was somewhat worried about what other people would think about me - for about half the time I was able to say what I really thought, and half the time I agreed with what others were saying even if I didn't really agree with what they were saying.	9	18
Total	**50**	**100**

DISCUSSIONS

The results obtained from the focus group discussions conducted in the three regions of the country revealed that young people primarily rely on social media and various websites for accessing information on sexual and reproductive health. Their strong voice expressed the need for the development of an SRH App, with priority topics including safe sex, puberty, menstruation, and contraception, including emergency contraception. Barriers to finding accurate SRH information were also discussed, with young people expressing difficulty in identifying reliable sources and evaluating the trustworthiness of online information. Health professionals were generally considered credible sources, but shame, embarrassment, and fear of dismissal often inhibited young people from accessing SRH healthcare. Anonymous chats with SRH specialists or doctors were suggested as a potential solution to reduce these barriers.

The results also indicated that young people value the vast amount of information available on social media and often rely on 'reputable influencers' or reliable sites to draw their own conclusions. This highlights the importance of equipping young people with the skills to assess the reliability and accuracy of online information.

Other studies have found that including educational elements, interactive elements to Apps can reinforce fundamental knowledge on SRH, being effective in raising knowledge and attitudes of young generation in relation to sexual health education (8, 9, 10).

Most young people aged 15-24 have access to a personal smartphone and use it to access the internet daily. However, public spaces such as schools, libraries, and youth centers may provide access to a SRH App or website for those without personal phones (11). With an internet penetration rate of 65% and more cell phone connections than people in the country, the YK App has great potential to reach a wide range of users across the country. However, ensuring the YK App can function (at least partially) offline will increase its potential utility in Moldova, given that an estimated 35% of the population does not have internet access (11).

Interventions delivered via mobile devices have been shown to successfully improve people's health. Compared to conventional interventions, people benefit from mHealth by being enabled to quickly access information at low thresholds and independently of time and place, as well as at low cost. mHealth interventions can also meet the need for anonymity, which is especially crucial when it comes to sexuality (8). However, it will be crucial that the YK App is accompanied by investments in quality, trustworthy, and patient-centered services that engage young people beyond simply providing text-based information.

Actively involving young people in the development and promotion of the app will not only increase the app's relevance and usability, but also empower young people to take charge of their own health in a collaborative and informed way (9, 12).

Overall, digital apps in this field have the potential to empower individuals, improve health outcomes, and contribute to public health initiatives by making information and services more accessible and user-friendly.

When discussing the limitations of the study, it's

essential to acknowledge any factors that may have impacted the results or the generalizability of the findings. The following limitations should be highlighted: the sample's higher proportion of Russian and Ukrainian speakers may not fully represent Moldova's youth, potentially impacting the generalizability of the findings, particularly for underrepresented ethnic and linguistic groups. Additionally, self-reported data on sensitive SRH topics may be subject to social desirability bias, despite efforts to promote honesty through anonymity. Variability in digital literacy and internet access, particularly among refugees and rural youth, could impact the feasibility and usability of the proposed YK App. Lastly, recruitment through specific networks may have introduced selection bias, as participants may be more interested in SRH issues or more experienced with digital technologies.

CONCLUSIONS

1. The findings from the conducted research suggest that the development of a youth-focused SRH App or website could be a valuable resource for young people in Moldova, including refugees and vulnerable populations. SRH apps allow health information to be disseminated quickly, at low thresholds and in a practical and cost-effective manner. Moreover, they allow for anonymous usage independently of time and place. The App should prioritize topics such as puberty, menstruation, contraception, and STI prevention, and present information in clear, easily understandable formats, free from medical jargon. Including personal stories or interviews and providing opportunities for anonymous access to health professionals could improve engagement and credibility.
2. Schools and youth clubs could play a role in strengthening SRH education and teaching young people how to identify reliable sources of information. Future research should consider segregating young people by gender and age to ensure they are free to share their views. Individual discussions with vulnerable groups, such as refugees and Roma, may also create a more comfortable space for them to share their unique barriers to access.
3. To strengthen the conclusions, consider incorporating evidence from similar studies or initiatives that have successfully implemented youth-focused SRH Apps or websites. This could provide additional support for the recommendations and highlight potential challenges or considerations.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ETHICAL APPROVAL

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