

A qualitative study of factors that protect against pregnancy among sexually-active teens in the South African Birth to Twenty Plus cohort

Edna N Bosire (✉ edna.bosire@wits.ac.za)

University of the Witwatersrand Faculty of Health Sciences <https://orcid.org/0000-0002-4781-7101>

Katharine Chiseri

Emory University School of Public Health

Dawn L Comeau

Emory University School of Public Health

Linda Richter

University of the Witwatersrand Faculty of Health Sciences

Aryeh D Stein

Emory University School of Public Health

Shane A Norris

University of the Witwatersrand Faculty of Health Sciences

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Abstract

Background: Risky sexual behaviors contribute to increased risk of adolescent pregnancy and HIV infections. This qualitative study sought to understand factors that might buffer this risk amongst sexually-active adolescents in Soweto, South Africa.

Methods: We used purposive sampling to recruit women at age 24 years from Soweto, South Africa, who self-reported having sexual debut by age 15 years. Twenty women were recruited into 2 equal groups: (i) those who did not become pregnant before 18 years (n=10) and (ii) those who became pregnant before 18 years (n=10). In-depth qualitative interviews were conducted with the two groups of women to understand their family backgrounds, the conversations about sex to which they are exposed, sexual behaviors and steps they took, or didn't take, during adolescence to prevent early pregnancies. Interviews were transcribed verbatim and thematically analyzed with the aid of MAXQDA software.

Results: Both groups of adolescents reported predisposing risks to early pregnancy including influence from peers and older friends to engage in early sex; unstable family relationships and limited conversations about sex. Key factors that differentiated the two groups were family structure and support, as well as, the adolescent's ability to navigate choices and make decisions on consistent condom use, access to information and desire to complete schooling. Other supportive systems identified by those who did not become pregnant included life-orientation courses provided at school, access to health services, and positive peer influences.

Conclusion: The family is a key institution in supporting adolescents' decisions regarding their behaviors and choices, as are peers and exposures to formal or informal information they receive about sex. Policy makers should work closely with other social support systems such as schools, healthcare providers and peers to ensure that adolescents have access to relevant information, including sex education, and contraceptives.

Introduction

Preventing unintended pregnancies and early childbirth amongst teenagers has been a focus of the development agenda for decades[1]. The number of adolescent pregnancies has declined in most developed high-income regions but remains a major concern in low- and middle-income countries. Every year, an estimated 21 million young women aged 15–19 years in developing countries become pregnant, of which almost half (49%) are unintended[2], and more than half of these end in induced abortions, and miscarriages[3]. Nearly half of abortions in sub-Saharan Africa (SSA) occur among adolescent girls and young women under the age of 25 years[4].

South Africa is home to approximately 9.7 million adolescents[5]. The adolescent pregnancy rate is 47 births per 1000 females aged 15–19 per annum[6]. A study conducted in Soweto found that 23% of pregnancies carried by 13–16 year old young women and 14.9% in the 17–19 year age range ended in abortion[7]. Early sexual debut has been associated with increased adolescent pregnancy[8]. Recent

studies have also associated early adolescent pregnancies with increased Human Immunodeficiency Infections (HIV) amongst adolescents and young women [9].

Predisposing factors for adolescent pregnancy include early marriage, gender-based violence [10, 11], lack of comprehensive sexuality education[12], poor reproductive health services [13] and lack of skills and power to negotiate safer sex options [10]. Poor parental supervision and single motherhood (due to parental separation)[14], unstable families, poor mother-daughter relationships[15], limited conversations between parents and adolescents on issues around sex[7] have also been associated with adolescent pregnancy. Sexual risk-taking behaviours, including early sexual debut, unprotected sex, multiple sex-partners, low contraceptive use and negative peer pressure are common among young people in South Africa [16].

A key strategy to reduce risk factor exposure has been sex education to empower adolescents [12]. Sex education programs can lead to improved knowledge and better adolescent reproductive health outcome – including ability to make informed and crucial choices[12, 17]. In addition, economic empowerment can improve women's decision-making by changing the power structure in relations, and may enable access to contraceptives[18, 19]. Other strategies involve engaging families, peers, healthcare services and schools to support and help adolescents to make decisions that are in their best interest, particularly as they transition from childhood to adulthood [20].

Studies from Ghana and Tanzania have shown that adolescent girls are able to avoid early pregnancies and cope well with pregnancy [21, 22]. However, little is known about factors that protect or buffer sexually-active adolescents against risks of early pregnancy in South Africa. Exploring these protection mechanisms may inform policies and communication strategies around sex that can support adolescents in preventing unplanned pregnancies.

This study explored how some adolescent girls in Soweto who experience “early sexual debut” - defined for the purpose of this study as engaging in their first sexual experience at or before the age of 15 years – are able to successfully prevent pregnancy through to age 18 years, while remaining sexually-active in an environment where rates of teenage pregnancy remain high.

Materials And Methods

Study Design

This qualitative study used in-depth interviews with adolescent girls to understand conversations about sexual activity, between adolescents and their parents/caregivers, partners, friends/peers, and school; condom and contraceptive use; and steps that adolescents took, or didn't take, to prevent early pregnancies. To guide the researcher's application of quality assurance measures, the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist was utilised [23].

Setting

Birth to Twenty plus (Bt20+) is a birth cohort of children born within a 7-week period between late April and early June 1990 [24]. Those enrolled in Bt20+ had continued residence within the metropolitan area of Johannesburg-Soweto for at least 6 months after birth. The cohort was recruited from antenatal and public health facilities. The pregnancy prevention study discussed in this paper was nested within the Bt20+ cohort. Soweto is the largest, most populated and well-known historically disadvantaged township in South Africa, linked to the anti-Apartheid struggle and political riots[25]. The township covers more than 200 km² and has a population of approximately 1·3 million[26]. In Soweto, a third of women have their first child by the time they are 19 years old[27].

Eligibility and Participant Recruitment

Purposive sampling was employed to compile a list of eligible participants from the larger Bt20+ cohort. Women were eligible to participate if they (i) currently lived in Soweto, (ii) had self-reported sexual debut by age 15 years, reported in earlier waves of the study, (iii) were comfortable speaking English, and (iv) provided consent to participate. In addition, sampling depended on the women having a pregnancy by age 18 years. Of 64 eligible women based on residence and age of reported early debut, 24 were identified as not having been pregnant and 39 had been pregnant by 18 years. Participants were randomly selected using a random number generator, five from each group at a time, and invited into the study. Ten interviews were conducted with participants in each group, for a total of 20 interviews.

Interview guide and questions were developed according to the following domains and themes (i) adolescent's living environment, (ii) Sexual history, condom and contraceptive use, (iii) conversations with family members, peers, and schools about sex, and (iv) steps taken to prevent pregnancy. A pilot study, using focus group discussion (FGD) was conducted with the Bt20+ research staff (black Africans) who understood the local languages including the context where the study was conducted. Staff members helped in the development of the interview guide, reviewed the questions and provided feedback on the language of interview questions and cultural appropriateness of topics. Subsequent changes to the interview guide were made to improve the natural flow of the conversation and to allow for more probing questions. As is conventional in qualitative research, interview guides were adjusted throughout data collection to incorporate questions about emerging topics[28]. An interview guide that was used is provided as **Supplementary file 1**.

Data Collection

Data collection took place between June and July 2014, when participants were 24 years old. All participants provided written informed consent and were invited to use a pseudonym [to protect their identity] before the start of the interview. Data were collected through individual semi-structured interviews at the Bt20+ research facility at Chris Hani-Baragwanath Academic Hospital, Soweto. Each interview lasted approximately 45–60 minutes. Interviews were conducted in English by KC. However, a trained female African translator fluent in isiZulu and seSotho, the most commonly spoken local languages in Soweto, was available in case of need for translation. Additional information collected during the interviews included adolescents' living environment, with whom they lived while growing up, whether they had graduated secondary school, and information about their sexual history. Following each

interview, the interviewer wrote extensive field notes, highlighting the key issues that emerged after each interview. All participants were reimbursed for travel expenses and were provided refreshments during the interview.

Researcher characteristics and reflexivity

KC, a young American woman conducted the interviews with the 20 participants; asking culturally sensitive topic. Being an “outsider” (non-South African) may have influenced her views on issues around sex and sexual behavior. In addition, there were potential concerns about whether participants would be open and honest in their responses. To mitigate this, KC worked closely with Bt20 + research staff, who helped in developing questions and reviewing the interview guide to make sure all questions and prompts were culturally appropriate. In addition, a constant thoughtful process in reviewing field notes and interviews with the participants and other researchers involved in the study allowed flexibility in data collection, analysis and reporting of study findings.

The study received approval by the University of the Witwatersrand Ethics Committee [Ethics Protocol Number M140481] and Emory University Institutional Review Board [IRB00073568].

Data Analysis

All interviews were audio-recorded and transcribed verbatim. KC began preliminary data analysis while conducting interviews. After reviewing three transcripts, she created a list of deductive and inductive codes from the data. The deductive codes came from topics in the interview guide and inductive codes captured new themes that emerged in the data. She developed a codebook, which included definitions, perceptions and adolescent experiences. This codebook was reviewed by two experts in the research team. The codebook was revised, and together with the transcripts, were imported into Max Qualitative Data Analysis (MAXQDA10) qualitative software for data management, coding and analysis. ENB, a medical anthropologist and an experienced qualitative researcher, independently coded a subsample of the transcripts and reviewed the coded data for further analysis and classifications. Thereafter, ENB and KC had discussions where they compared and discussed the final data classification. They then involved two other researchers involved in the study, who also reviewed the final codes. Discrepancies between the coding and code definitions were discussed until consensus was reached. Thematic analysis was used to identify themes and patterns in the data. Key emerging themes included the content of conversations that occurred between the young women and influential people in their lives, risks to adolescents becoming pregnant and protective factors that prevented adolescents from getting pregnant.

Results

Table 1 shows demographic characteristics of participants. All participants were Black Africans, 24 years old at the time of the interview, and self-reported age of sexual debut by 15 years of age. Many participants lived with extended family members as primary caregivers. Only one participant reported living with both parents. Completion of secondary school was more common among those who did not become pregnant before 18 years (Group 1).

Table 1:
Participants socio-demographic characteristics

	Total number of Participants (N=20)	Group 1: Did not become pregnant (N=10)	Group 2: Became pregnant (N=10)
Area of residence during adolescence			
Soweto	18	9	9
Outside of Soweto*	2	1	1
Primary Caregiver(s) during adolescence**			
Both parents	1	1	0
Both parents and siblings	3	2	1
Mother	4	2	2
Mother and siblings	3	1	2
Grandparents	3	2	1
Other relatives (aunt/uncle/cousins/siblings)	6	2	4
Completed high school			
Yes	13	9	4
No	4	0	4
Unknown	3	1	2

* Participants who reported not living in Soweto during adolescence attended boarding school outside of Soweto or temporarily living in another province

** Participants reported who they lived with as an adolescent - this person or these people were categorized as "Primary Caregiver(s)"

The results were examined by looking at overall themes and further examining differences between the two groups of young women. Although both groups were predisposed to similar risk factors to becoming pregnant, results suggested that participants who did not become pregnant by age 18 years had strong family support systems, were exposed to conversations about sex, access to information etc., which helped them to make decisions and choices such as consistent condom use that protected them from early pregnancies. We present our results along the three key themes that emerged from this study as discussed in the next section.

1. Conversations about sex

One of the main aims of this study was to investigate whether conversations about sex occurred before or after the participant's sexual debut, and how this influenced her sexual behavior.

Group 1 Participants (those who did not become pregnant before 18 years):

Participants in group 1 largely reported that they had conversation with their mothers (whether mother was a primary caregiver or not), followed by relatives e.g. aunts and grandmothers. Most participants

engaged in conversation about sex before sexual debut.

[mother] was educating me a lot about sex about using protection, diseases, all the things like sexual intercourse and pregnancy".

At age 15, [My] aunt started the conversation because she was a teen mother herself; [Aunt emphasized that] 'boys [will] give you babies; you have to be careful of them when you grow up.'

However, one participant narrated that despite her mother being her primary caregiver, she never had any conversations with her about sex: *"I didn't talk with mother at all [...], I wish she had told me about it..."*

Others mentioned that conversations with grandmothers or aunts were too general or untimely and only emerged when adolescents were pregnant or after giving birth – a factor that drove adolescent to get more information by themselves from other sources:

I didn't formally sit down before debut and talk about contraceptives or anything, they just talked in general [...]. I had to learn contraceptives myself.

Group 2 participants (those who became pregnant before 18 years):

Out of the ten participants in group 2, six reported that they did not have any conversations about sex with any of the primary caregivers. One participant believed lack of conversation was due to caregiver not knowing what to say: *"... really they can't say anything to you because they don't want you to start [sex] and then they don't know what to say really."* Another participant said; *"I didn't know why she [grandmother] didn't have the conversations [with me]"*.

The few who said that they had conversations about sex reported that conversation was initiated when it was late – when they were either already sexually-active, pregnant or after giving birth:

She just didn't really think that I was there or that I was thinking about that [sex]. I think she only maybe started mentioning it when I got to university, but obviously by then she didn't know that I had already started having sex.

She [mother] only started talking to me about sex when I was already pregnant. She probably would have given me good advice earlier. Maybe I wouldn't be pregnant by now, raising a child as a single mom. Interestingly, two participants revealed that they were uncomfortable discussing about sex, as illustrated below:

It was too odd for me it was like a foreign language for me when she talked about sex with me; it was because she saw my first [menstrual] period.

For the few who had had conversations before or after sexual debut, they found the information helpful, and it influenced their sexual behavior, by guiding them on what they should or shouldn't do to avoid early pregnancies. Those who did not engage in any conversation about sex narrated how lack of this important information influenced them to doing things they could have prevented (see summary in Table 2).

Table 2:
Conversation about sex and influence on adolescent sexual behavior

Group 1	
Yes- conversation with mother before pregnant	<i>"Yes, oh yes.... I learned not to fall pregnant at an early stage, and diseases, I never had those diseases, like vaginal diseases or whatever"</i>
Yes- conversation with friends	<i>"...some of them [friends] had kids at a very young age. So, it was mostly their advice that made me think twice about getting myself in such situations, yes."</i>
Yes- conversation with family members	<i>"They [family] supported me and I think it is probably something I want to do when I have my kids. I want to keep the communication open and tell them...."</i>
No conversation	<i>"[I] didn't talk with mother at all. Looking at the experience that I've had, I wish maybe that she had told me more, told me more about it [sex], maybe I would have waited for a later stage."</i>
Group 2	
Yes- After pregnant	<i>"...she was telling me I should always use protection. I think it did change my behavior because, after talking with her I realized that I will have to use protection"</i>
Yes- when pregnant	<i>"I regret a lot of things when I think about my past. And I really wish that my mom had taken the time to sit down and talk to me.... I think things would be a whole lot different"</i>
No conversation	<i>"I would have liked to talk to grandma though, maybe I wouldn't have had sex at such an early age. Maybe I would have made wiser decisions."</i>

2. Risk factors for early pregnancy

Findings from this study show that participants in both groups experienced similar risks of becoming pregnant before 18 years of age as discussed below.

Family issues

Adolescents reported family issues, including strict parents, unstable families (fragmented due to divorce, separation or death of parents), or generally having poor family relationships which hindered conversations about sex. These challenges exposed adolescents to risks of early pregnancies:

I only talked to my sister [...] when my sister told her [mother], she was shouting most of the time. Uhm..., why did I have sex, why didn't we use a condom, yeah.

Living with grandparents was particularly difficult for adolescents to talk about sex and topics around sexuality due to the generation gap. Some participants thought their elderly grandparents (or parents)

were too “old-fashioned” to talk about sex.

“I didn’t feel comfortable talking to my grandma about it because she is old”

Limited conversations about sex were also linked to culture and taboos around such topics. For example, some participants felt that talking about sex would signify being rude to their parents or would signify that one was already engaging in sex. Others mentioned that conversations about sex were perceived by their caregivers as a way of encouraging sex:

The Black society, it is totally forbidden to speak to the elders about sex, because if you mention it, they think you are doing it. If they say anything about it, it seems like they are promoting it.

Peer/friends influence

Secondly, both groups of adolescents discussed being exposed to a great deal of negative peer pressure, particularly surrounding sex and sexual behavior. For example, some reported that older friends who were sexually experienced tended to have a negative influence on participants, and often encouraged them to have sex even if participants indicated that they weren’t yet ready. One common trend that was discussed among participants in both groups was the pressure from friends and peers to have sex with one’s boyfriends, because if they didn’t someone else would.

... [friend said] if you aren’t having sex with your partner, it means that your partner is having sex with someone else and not you, so you should just do it, they would say. It is nice, just try it...

However, one difference between the two groups of participants was the ability to rise above and overcome the peer pressure. It was clear that peer pressure existed, and was particularly strong at times, but many of the participants who did not become pregnant by age 18 years were focused on future goals, particularly school completion, and took specific steps to try and prevent pregnancy.

Religion

Religion was also discussed as a risk factor in the sense that, sex topics were rarely discussed in church and adolescents who were found engaging in sex were considered sinners. Ultimately, this kind of perception prevented adolescents from discussing sexual issues that were bothering them with members of their faith group:

Well in church you can’t really talk about sex because everyone in church is holy...

“At church, they always preach sex before marriage is a sin. So, if you were doing it, you don’t feel comfortable talking to them [church members] about sex.”

3. Protective factors against early pregnancy

Despite being sexually-active or exposed to several risk factors, more participants from group 1 reported taking steps or demonstrated ability to navigate choices e.g. consistent condom use to prevent early pregnancies and desire to finish school. Family support was key and largely centered on timely

communication/conversations about sex and providing general guidance to adolescents. Other social support structures within their community including school, health services and peers were found to be paramount in helping to protect adolescents from early pregnancies as summarized below:

4. Adolescents' ability to navigate choices:

The most frequent action mentioned by adolescents who successfully prevented early teenage pregnancy was consistent condom use. While other methods of protection e.g. contraception pills were cited, condom use was mentioned as a primary action by almost all the participants who did not become pregnant by age 18 years. The ability to use protection depended on several factors. One was the ability to communicate with one's partner and their partner's receptivity to using condoms. Participants who indicated that they had an understanding partner, or had been in a long term relationship with one partner (as opposed to multiple partners) discussed how helpful this was in negotiating condom use and preventing early pregnancies:

Yeah, I said [to partner] that we should use condoms and he was very supportive.

Yes, I only had one partner. We were in a long term relationship and we had talked about sex earlier, he agreed to using condoms until we reached 18 years.

In addition, participants who had prior knowledge about various forms of contraception from their education or conversations with friends, family members, or clinic staff, were more aware of the ways in which they could protect themselves:

I mean I knew about fertility and stuff I mean when I was like 9, by the time I became a teenager I was well aware of sex and yeah.

Moreover, adolescents' ability to seek additional information and make decisive choices were said to also protect them from early pregnancies as exemplified below:

"It really had nothing to do with her [Aunt], because every time I spoke to her, at the end of the day, its up to me to choose, so yeah I decided to use condoms".

5. Family support:

As discussed above, family was a key pillar in supporting adolescents during their adolescence. Adolescents who mentioned having a good relationship at home, also revealed that their caregivers introduced conversations about sex in good time. One participant said: *"Like I think that I was fortunate enough that I was in a very open family where sex wasn't taboo just to speak about it, it wasn't anything foreign or anything."*

6. Social support systems:

Other supportive social systems such as school, peers/friends, health services and religion were indicated to be key in helping adolescents navigate through the decisions they made, and thus helped them to prevent early pregnancies. First, school was found to be key in supporting adolescents through life

orientation courses, providing more information not only about pregnancies but also about sexually transmitted diseases; this communication rarely happened at home. One participant said:

"Uhm they [teachers] taught us everything about sex. They taught us about, uhm, all those menstruations, STDs [sexually transmitted Diseases] and everything".

Second, exposure to friends and peers who were also intent to avoid pregnancy helped adolescents in decision making and positive choices that protected them from an unintended early pregnancy:

We talked about the disadvantages of having sex in high school, and, whether you can get the infections or get pregnant.

Most participants mentioned that they were more comfortable talking to their peers or friends compared to older people:

"it was comfortable talking with my friends. They could talk about condoms flavors, etc."

Third, a few participants also mentioned that health service staff at the clinic were helpful in providing them information and contraceptives that empowered them to prevent early pregnancy:

The nurse at the clinic... well when we got there, we were actually looking for information about STDs and STIs, yeah, so she was telling us the different types of STIs we should look out for, how it is contracted, yeah.

Table 3 provides a summary of themes and illustrative excerpts on factors that protected against pregnancy before 18 years of age.

Table 3:
Summary of protective factors against early pregnancy

Protective factors		quotations
Family support	e.g. living with mother, lessons from family members who had children, having good family relationships and conversations about sex, etc.	<p><i>"[living with mother] I mean I knew about fertility and stuff when I was like 9, by the time I became a teenager I was well aware of sex."</i></p> <p><i>"Also, them having kids at a very young age, so it was more like advising me, that I should be more informed...."</i></p> <p><i>"My sisters advised me on the abstinence because of what they went through growing up..."</i></p>
Ability to make informed choices & Access to information	This included consistent condom use; adolescent initiated condom use, etc.	<p><i>"I've always had condoms with me every time. They are in my toiletry, my bag, my purse, always have them. It might not be for me; I might be with friends somewhere and you never know."</i></p> <p><i>"I went out there looking for information without anyone telling me to look for information."</i></p> <p><i>"Magazines, internet, how can I put it? ...I have never really had a problem about accessing information"</i></p> <p><i>"I make my own decisions. It is just about me."</i></p>
School	Motivation to complete school, life orientation courses at school	<p><i>"Well I think they [school mates] made me open my eyes at the time, cause I had seem most of the people in high school, they hadn't finished metric if they had got pregnant..., so all I wanted to do was finish high school."</i></p> <p><i>"Uhm they [teachers] taught us everything about sex."</i></p>
Friends/peers	Exposure to good friends/peers	<p><i>"Yes...we all advised each other that it is best to use condoms because we were still at school"</i></p> <p><i>"...He [partner] was a little bit older than me so he knew everything you know. So, he was very cautious in talking me through it..."</i></p>
Hospital	Access to the clinic	<p><i>"I used to attend the Birth to Twenty clinic, and they would tell us everything about sex [...]."</i></p> <p><i>"We were told at the clinics most of the time, [...], you find the stalls where they place condoms and stuff."</i></p>

Discussion

The novelty of this study is that it includes young women who had sex earlier yet did not become pregnant. Interviews with the two group of women – those who did not become pregnant before 18 years and those who became pregnant before 18 years facilitated comparisons between the two groups, thus enabling us to understand the protective factors against unplanned pregnancies. The key themes that emerged as protective factors against early pregnancies were: 1) Adolescent's ability to navigate choices, future oriented goals and supportive environment to achieve the goals; 2) Family structure, support and conversations about sex, 3) Social support (peers, school, healthcare services).

Adolescents Ability to navigate choices

Similar to other studies, participants in this study reported having been exposed to risks such as negative influence from friends/peers who pressured them to have sex, culture/taboos and religious beliefs that prohibited communication about sex amongst young people [10, 11]. Despite this, our findings suggest that adolescents who did not become pregnant by 18 years were able to navigate choices, distinguished between healthy and unhealthy behaviours, and integrated multiple sources of information to protect themselves. Ability to navigate choices was largely influenced by a supportive family relationships and positive peers. Our findings concur with other studies which have reported that adolescents have the ability to make positive decisions e.g. consistent condom use[11, 22], which not only protect them from early pregnancies but also from infections such as HIV [16]. However, this is dependent on having supportive family and peers – especially those who provides them with relevant information[29]. Other studies have attributed adolescents' decision making capacity not only to their social support systems[20], but also, to their stage of neurodevelopment, including complex reasoning[30]. In addition, although adolescents are prompted to make decisions based on immediate rewards, we found that adolescents were also motivated to make positive choices regarding future benefits, for example, their ability to finish school and live a better life, as reported elsewhere[31]. Generally, the developmental processes that underlie choices that adolescents make against the risks to which they are exposed to remain poorly understood and require further investigation.

Family structure and support

The family was key in protecting adolescents against unplanned pregnancies. Adolescents who lived in families with affectionate, supportive and accepting relationships, or those who were in close relationship with their mothers, reported having conversations about sex and learning about various preventive measures. This finding is consistent with a recent study from Ghana which reported that parents were the key social actors in advising adolescents on matters relating to sex[21]. A national longitudinal youth survey in the United States of America (USA) also found that cohesive family environments (e.g., communication, attachment, monitoring) are associated with fewer cases of risky sexual behaviors[29]. Conversely, many adolescents who became pregnant before 18 years reported that they came from unstable families with poor relationships at home, and/or were living with extended family members. These conditions diminished possibilities of conversations about sex before sexual debut. Previous studies from South Africa have attributed adolescents' risky sexual behaviors to a lack of parental

supervision[32], particularly due to dysfunctional families and poor mother-daughter relationships [15]. Other studies have shown that poor parent-child relationship may influence early sexual initiation, drug use and mental health, particularly depression[33]. Some participants indicated that their parents/caregivers did not know how and when to introduce conversations around sex[34]. These findings parallel other studies which have reported that most parents struggle to introduce conversations around sex to adolescents, feeling that adolescents are too young for such conversations [35].

Exposure to Peers/ friends

Adolescents reported the positive influence they received from peers/friends including partners, that helped them from preventing unplanned pregnancies. For example, many participants who did not become pregnant before 18 years revealed how they were supported by their peers in making decisions to finish their studies and protect themselves from risky sexual behaviors (e.g. consistent condom use). In addition, adolescent who were in a long term/consistent relationship with one partner and those who had good relationship with their partners revealed that the partners advised them on how to prevent unintended pregnancies. A recent study from South Africa has highlighted that girls who have sex with a single partner, as opposed to multiple partner are less likely to get unintended pregnancies[16]. Despite the commonly reported negative peer influence, research indicates that peers play a critical role in the lives of adolescents by serving as support for one another, and as trusted sources of information[36, 37]. Peer-to-peer support can be encouraged through building knowledge about sexual health issues amongst youth and providing opportunities to practice intrapersonal/communication skills that can facilitate effective interactions and support.

Support from school and Health care services

Schooling was found to be a key motivating and protective factor against early pregnancy. Although adolescents were interviewed when they were 24 years old, those who did not become pregnant before 18 years revealed that they were motivated to finish secondary school in order to achieve a better future life. Others indicated that life orientation lessons provided at school were informative and helped them in their decision making. Findings from this study illuminate the positive aspect of school environments and calls for education professionals to ensure that adolescents have a good foundation of sexual health knowledge and encourage adolescent girls to stay in school until completion of their studies. In Kenya, girls who stayed in school for the subsequent year and were rewarded with free school uniform the following year, had a 17% less chances of early childbearing compared to a control group[38]. A study in Malawi also reported a 70% increase in school attendance and reduced adolescent pregnancies through school interventions such as paying fees for girls and supporting their families [39]. Schools can also work closely with health services, such as through the Integrated School Health Programme (ISHP) in South Africa [40] to ensure that adolescent girls and boys have access to health information and other support that may help them prevent risky sexual behaviors.

Despite the potential role of health services in the provision of reproductive health services to women, only a few participants mentioned accessing care at the clinics in Soweto. This study did not explore

further on issues around access to healthcare facilities in Soweto and this warrants further exploration. However, recent studies in South Africa have postulated that many women continue to face challenges accessing reproductive health services [41], including cost of care, transport to hospital or poor services at the hospital [42]. Thus, it is important to strengthen healthcare systems to offer adolescent-friendly reproductive health services in South Africa [43, 44] and other similar settings.

Implications

We found that when supported, adolescents can make important choices pertaining to their health and wellbeing, including preventing unwanted pregnancies. As such, policy makers should work to support adolescents through sex education and access to health information to help them make good choices in their lives. This is particularly important given that the choices that adolescents make have consequences in terms of their health and well-being during adulthood [45].

Family plays a crucial role in shaping adolescents' decisions. However, there were gaps especially where conversations about sex were not introduced at home, and where family relationships were poor and parents strict and uncommunicative about sex. Policy makers should devise strategies to ensure that parents and other caregivers are informed about adolescent health, helping caregivers to see the value in conversations about sex with their children, introducing conversations on time and appreciating their lasting impact in improving adolescent health now and in the future. This can be an effective way to ameliorate the risks reported in this study and can set the stage for future open communication between parents and children. Importantly, there is need for sexual and reproductive health promotion, for example, through mass media (TV, radio, internet, social media) that targets adolescents in general – girls and boys, both those who are sexually-active and those who are not, to provide them with relevant information on how to prevent early or unplanned pregnancies, or how have a healthy pregnancy and childbirth[21].

South Africa has a range of well-established policies that aim to address various determinants of adolescent pregnancy. These includes the youth and adolescent health policy, which aim to strengthen and provide guidance to efforts aimed at both preventing and responding to health needs of young people [46]; the national contraception and fertility planning policy aimed at reprioritising contraception and fertility planning in South Africa [47]; and the comprehensive sexuality education policy guidelines aimed at preparing teachers to teach sexuality education programmes in schools, and ensuring learners who get pregnant are not expelled from school [48]. Policy makers should build on such existing policies by ensuring that these policies are centered around adolescents themselves; and that future interventions should be framed in ways that are fundamentally empowering for young women. In this regard, policy makers should also use multi-sectoral approaches, highlighting the potential of family, schools, hospitals, and peers in promoting and protecting adolescent health.

Limitations

This study had several limitations. First, results provided here might have been affected by recall bias. Interviews were conducted when participants were 24 years old, when they were asked about pregnancy prevention efforts during adolescence, events that occurred as much as 10 years earlier. It is possible that their reflections on these factors may differ from what it was like when they were younger. However, most participants were able to talk a great deal about their efforts, conversations they had with peers and family members, and steps they took to prevent pregnancy. Second, the results may not be generalizable to all South Africans, because the sample was selected from the Bt20 + cohort in Soweto, an urban sample of young people. However, the goal of qualitative research is not to generalize findings [49] but to fully explore individuals' lived experiences. Lastly, language barrier was a potential limitation given that the interview did not understand the local African languages. To address this, a female African translator fluent in isiZulu and seSotho, the most commonly spoken local languages in Soweto, was available if discrepancies arose or were suspected, although this did not arise in the course of the study.

Conclusion

Findings reported in this study inform the discourse around adolescent health by providing a comparative analysis of factors that protect adolescents from early pregnancy in contexts where early sexual debut and teenage pregnancy are common. Adolescents should be supported with relevant information and communication that will help them prevent unplanned pregnancies. In addition, the role of family and other caregivers remains key in closely monitoring of the evolving sexuality of adolescents and providing support in relation to their everyday choices. Policy makers should also work closely with other social support systems such as schools, health services and peers by ensuring that adolescents have access to relevant information that could help them prevent early pregnancies.

Abbreviations

Bt20+ - Birth to Twenty Cohort Plus

HIV- Human Immunodeficiency Virus

IRB- Institutional Review Board

MAXQDA- Max Qualitative Data Analysis software.

Declarations

Ethics approval and consent to participate: The study received approval by the University of the Witwatersrand Ethics Committee [Ethics Protocol Number M140481] and Emory University Institutional Review Board [IRB00073568].

Consent for publication: Not applicable.

Availability of data and materials: The data that support the findings of this study are available from the corresponding author on reasonable request.

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Authors' contributions: ENB analyzed data, drafted the manuscript, worked on reviews from co-authors; KC developed research questions, collected data, analyzed data and reviewed the manuscript; SAN; DLC; LR; ADS contributed to development of the research question, review of the results, and critical review of successive iterations of the manuscript.

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References

1. Holness N. A global perspective on adolescent pregnancy. *Int J Nurs Pract.* 2015;21(5):677-681. doi:10.1111/ijn.12278
2. World Health Organization (WHO). Adolescent pregnancy Fact sheet Updated January 2018, <http://www.who.int/mediacentre/factsheets/fs364/en/>, 2018, World health organization. 2018.
3. Darroch J, Woog V, Bankole A, Ashford L. Adding it up: Costs and benefits of meeting the contraceptive needs of adolescents. New York Guttmacher Inst United Popul Fund. 2016.
4. Shah IH, Åhman E. Unsafe abortion differentials in 2008 by age and developing country region: high burden among young women Unsafe abortion differentials in 2008 by age and developing. Reproductive Health Matters. 2012;20(39):169–73. [http://dx.doi.org/10.1016/S0968-8080\(12\)39598-0](http://dx.doi.org/10.1016/S0968-8080(12)39598-0)
5. Statistics South Africa. Statistical release P0302: mid-year population estimates 2018. Pretoria: STATS SA. <http://www.statssa.gov.za/publications/P0302/P03022018.pdf>. 2018.
6. Reddy P, Sewpaul S, Jonas K. Teenage pregnancy in South Africa: reducing prevalence and lowering maternal mortality rates. Pretoria: Human Sciences Research Council. 2016.
7. Robert AC, Sonenstein FL. Adolescents' reports of communication with their parents about sexually transmitted diseases and birth control: 1988, 1995, and 2002. *J Adolesc Health.* 2010;46(6):532-537. doi:10.1016/j.jadohealth.2009.11.201
8. Marteleto L, Lam D, Ranchhod V. Sexual behavior, pregnancy, and schooling among young people in urban South Africa. *Stud Fam Plann.* 2008;39(4):351-368. doi:10.1111/j.1728-4465.2008.00180.x

9. Christofides NJ, Jewkes RK, Dunkle KL, Nduna M, Shai NJ, Sterk C. Early adolescent pregnancy increases risk of incident HIV infection in the Eastern Cape, South Africa: a longitudinal study. *J Int AIDS Soc.* 2014;17(1):18585. doi:10.7448/IAS.17.1.18585
10. Odimegwu C, Amoo EO, Wet N De. Teenage pregnancy in South Africa : Where are the young men involved? *S Afr J Child Health.* 2018; 12 (2 Suppli 1): S44-S50. doi:10.7196/SAJCH.2018.v12i2.1523
11. Maxwell GM, Radzilani-Makatu M, Takalani JF. Awareness of prevention of teenage pregnancy amongst secondary school learners in Makhado municipality. *Afr J Prim Health Care Fam Med.* 2016;8(2):e1-e5. Published 2016 Apr 1. doi:10.4102/phcfm.v8i2.967
12. Kemigisha E, Bruce K, Ivanova O, et al. Evaluation of a school based comprehensive sexuality education program among very young adolescents in rural Uganda. *BMC Public Health.* 2019;19(1):1393. Published 2019 Oct 28. <https://doi.org/10.1186/s12889-019-7805-y>
13. Goossens J, De Roose M, Van Hecke A, Goemaes R, Verhaeghe S, Beeckman D. Barriers and facilitators to the provision of preconception care by healthcare providers: A systematic review. *Int J Nurs Stud.* 2018 Nov;87:113–30.
14. Cohen E, Ware LJ, Prioreschi A, Draper C, Bosire E, Lye SJ, et al. Material and Relational Difficulties: The Impact of the Household Environment on the Emotional Well-Being of Young Black Women Living in Soweto, South Africa. *J Fam Issues.* 2019. <https://doi.org/10.1177/0192513X19887524>
15. Rowlands S. Social predictors of repeat adolescent pregnancy and focussed strategies. *Best Pract Res Clin Obstet Gynaecol.* 2010;24(5):605-616.
16. Jonas K, Crutzen R, Van Den Borne B, Sewpaul R, Reddy P. Teenage pregnancy rates and associations with other health risk behaviours: A three-wave cross-sectional study among South African school-going adolescents. *Reprod Health.* 2016;13(1). <http://dx.doi.org/10.1186/s12978-016-0170-8>
17. de Castro F, Rojas-Martínez R, Villalobos-Hernández A, et al. Sexual and reproductive health outcomes are positively associated with comprehensive sexual education exposure in Mexican high-school students. *PLoS One.* 2018;13(3):e0193780. <https://doi.org/10.1371/journal.pone.0193780>
18. Do M, Kurimoto N. Women's empowerment and choice of contraceptive methods in selected African countries. *Int Perspect Sex Reprod Health.* 2012;38(1):23-33. <https://doi.org/10.1363/3802312>
19. Reed E, Donta B, Dasgupta A, et al. Access to Money and Relation to Women's Use of Family Planning Methods Among Young Married Women in Rural India. *Matern Child Health J.* 2016;20(6):1203-1210. <https://doi.org/10.1007/s10995-016-1921-4>
20. Kosinska M, Chichowska A, Tiliouine A. An opportune time to improve sexual and reproductive health of adolescents in the European region through intersectoral collaboration. *EntreNous: The European Magazine for Sexual and Reproductive Health.* 2016;12–5.
21. Ahorlu CK, Pfeiffer C, Obrist B. Socio-cultural and economic factors influencing adolescents' resilience against the threat of teenage pregnancy: a cross-sectional survey in Accra, Ghana. *Reprod Health.* 2015;12:117. doi:10.1186/s12978-015-0113-9

22. Pfeiffer C, Ahorlu CK, Alba S, Obrist B. Understanding resilience of female adolescents towards teenage pregnancy: A cross-sectional survey in Dar es Salaam, Tanzania. *Reprod Health*. 2017;14(1):1–12.
23. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *Int J Qual Heal Care*. 2007;19(6):349–57.
24. Richter L, Norris S, Pettifor J, Yach D, Cameron N. Cohort Profile: Mandela's children: the 1990 Birth to Twenty study in South Africa. *Int J Epidemiol*. 2007;36(3):504–511.
<https://doi.org/10.1093/ije/dym016>
25. Ndimande B. 'It is a catch 22 situation': the challenge of race in post-apartheid South African desegregated schools. *Int Crit Child Policy Stud*. 2009;J2:123–139.
26. Statistics South Africa. Census 2012.
<http://www.statssa.gov.za/publications/p03014/p030142011.pdf> (accessed October 2017. 2012).
27. National Department of Health, Statistics South Africa, South African Medical Research Council, ICF. South Africa Demographic and Health Survey 2016: Key indicators. NDoH. 2017. In: Stats SA. SAMRC, and ICF, Pretoria.
28. Charmaz K, Belgrave L. Thinking About Data With Grounded Theory. *Qual Inq*. 2018;25(8):743–53.
29. Logan C, Moore KA, Logan C, Moore KA. Pathways from Family Religiosity to Adolescent Sexual Activity and Contraceptive Use. *Perspect Sex Reprod Health*. 2008;40(2):105–17.
30. Hartley CA, Somerville LH. The neuroscience of adolescent decision-making. *Curr Opin Behav Sci*. 2015;5:108–15
31. van den Bos W, Rodriguez CA, Schweitzer JB MS. Adolescent impatience decreases with increased frontostriatal connectivity. *Proc Natl Acad Sci*. 2015;201423095.
32. Govender D, Naidoo S, Taylor M. "my partner was not fond of using condoms and i was not on contraception": Understanding adolescent mothers' perspectives of sexual risk behaviour in KwaZulu-Natal, South Africa. *BMC Public Health*. 2020;20(1):1–17.
33. Lezin N, Roller LA, Bean S, Taylor J. Parent-Child Connectedness: Implications for Research, Interventions, And Positive Impacts on Adolescent Health. 2004.
34. Beckett, M. K., Elliott, M. N., Martino, S., Kanouse, D. E., Corona, R., Klein, D. J., & Schuster MA. Timing of parent and child communication about sexuality relative to children's sexual behaviors. .2009-0806. *Pediatrics*. 2010;125,:33–42.
35. Kann L, McManus T, Harris WA, et al. Youth Risk Behavior Surveillance - United States, 2017. *MMWR Surveill Summ*. 2018;67(8):1-114. doi:10.15585/mmwr.ss6708a1
36. Maxwell, KA. Friends: the role of peer influence across adolescent risk behaviors. *J Youth Adolesc*. 2002;31:267–77.
37. Layzer C, Rosapep L, Barr S. Student Voices: Perspectives on Peer-to-Peer Sexual Health Education. *J Sch Health*. 2017;87(7):513-523. <https://doi.org/10.1111/josh.12519>

38. Duflo E, Kremer M, Morgan J, Ozier O, Tomb I, Wang P, et al. Education, HIV, and Early Fertility: Experimental Evidence from Kenya . [Internet]. 2014.
39. Baird S, Chirwa E, McIntosh C. The short-term impacts of a schooling conditional cash transfer program on the sexual behavior of young women. 2010;68:55–68.
40. Reddy, P, Sewpaul, R and JK. Human Sciences Research Council, Policy Brief-Teenage pregnancy in South Africa: Reducing prevalence and lowering maternal mortality rates. 2016:1–7. Available from: www.hsrc.ac.za
41. Doyle AM, Mchunu L, Koole O, Mthembu S, Dlamini S, Ngwenya N, et al. Primary healthcare and school health service utilisation by adolescents and young adults in KwaZulu-Natal , South Africa. 2019;2:1–11.
42. Lince-deroche N, Berry KM, Hendrickson C, Sineke T, Kgowedi S. Women ' s costs for accessing comprehensive sexual and reproductive health services : findings from an observational study in Johannesburg , South Africa. Reprod Health. 2019;2:1–13.
43. James S, Pisa PT, Imrie J, Beery MP, Martin C, Skosana C, et al. Assessment of adolescent and youth friendly services in primary healthcare facilities in two provinces in South Africa. BMC Health Serv Res. 2018;18(1):1–10.
44. Geary RS, Gómez-Olivé FX, Kahn K, Tollman S, Norris SA. Barriers to and facilitators of the provision of a youth-friendly health services programme in rural South Africa. BMC Health Serv Res. 2014;14(1):1–8.
45. McGowan L, Lennon-caughey E, Chun C, McKinley MC, Woodside J V. Exploring preconception health beliefs amongst adults of childbearing age in the UK: a qualitative analysis. BMC Pregnancy Childbirth. 2020;5:1–13.
46. Department of Health Republic of South Africa. National Adolescent and Youth Friendly Health Services Strategy 2012. Pretoria: Department of Health Republic of South Africa. 2012.
47. Department of Health. Contraception policy guidelines. Pretoria: Department of Health. 2003.
48. Department of Education. Education White Paper 6: Building an inclusive education and training and system. Pretoria: Government Print. 2001.
49. Tracy SJ. Qualitative quality: Eight “big-tent” criteria for excellent qualitative research. Qual Inq. 2010;16:837– 851.

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