

Sexual Behaviour Among Adolescents with Type 1 Diabetes Mellitus in Ghana

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Abstract

Background: Early sexual debut and risky sexual behaviour among adolescents are growing public health concern. **Objectives:** The study assessed sexual behaviour among adolescents with type 1 diabetes mellitus in Ghana. **Methods:** This was a cross-sectional study among participants between 10 and 19 years of age diagnosed with Type 1 Diabetes Mellitus at a tertiary hospital in Ghana. Structured questionnaire was used to gather information on participants' socio-demographic and sexual characteristics. **Results:** A total of 174 participants were recruited into the study with 69.5% being females. The mean age of participants was 16.2 years \pm 2.44. The median age of sexual debut was 15.1 years \pm 2.83. Up to 42.5% of participants had had sexual experience, with 36.5% of them having multiple sexual partners. Fifty-two-point seven percent (52.7%) of sexually active participants did not use any contraception. Up to 29.7% of sexually active participants got pregnant, with 42.9% ending in abortions. **Conclusion:** Risky sexual behaviour, with resultant unwanted and unplanned pregnancies and induced abortions, was prevalent among adolescents with Type 1 Diabetes Mellitus in Ghana. This highlights the need to implement comprehensive sex education, promote birth control measures and safe sex practices for this population.

Keywords: adolescents, risky behaviour, sexual intercourse, type 1 diabetes mellitus.

Introduction

Adolescents experience rapid physical, cognitive and psychosocial growth [1]. This developmental stage significantly impacts their emotions, thoughts, decision-making, and interactions with the world, and it is marked by a period of experimentation [2,3]. Pubertal development takes place during adolescence and it is associated with hormonal and physical changes that induce psychological and physical attraction and feelings for the opposite sex [4].

The adolescent faces the task of self-discovery, often resulting in the adoption of sexual exploration and experimentation that may constitute risky behaviours [5], ending in unplanned and unwanted pregnancies. Adolescents also make effort at defining their values and well-being and seek their independence from parental and societal control. However, this is the period in life when they can make fatal long-lasting life mistakes and, therefore, need parental and societal guidance [6].

Sexual behaviour among children and adolescents is a critical aspect of human development that is influenced by biological, psychological, social, and cultural factors [1,4]. Globally,

the proportion of sexually active children and adolescents have increased [3] and children and adolescents with type 1 diabetes mellitus (T1DM) are no exception. Early sexual relationship is associated with problems such as teenage pregnancy, abortions and sexually transmitted diseases [7,8]. Annually, approximately sixteen million adolescents experience unplanned pregnancies following their first sexual encounter [8]. Furthermore, about one million adolescent girls from low-income countries (LICs) give birth yearly [3,8]. According to the 2014 Ghana Demographic Health Survey (GDHS) in 2013 a total of 119,423 adolescent girls between the ages of 10 to 19 years became pregnant [9].

The Ghanaian culture is deeply rooted in traditional and religious values that shape attitudes toward sexuality [5,10]. Sex education is often considered a taboo subject, especially for children and adolescents. Parents and guardians avoid discussing sexual matters openly, leaving children and adolescents to seek information from peers or social media platforms, which may not always be reliable and beneficial [10].

T1DM is a chronic disease that affects the everyday life of the affected adolescent and requires active multidisciplinary management. They have to inject insulin many times daily to stay

healthy and alive [11,12]. Good glycaemic control is mandatory to improve quality of life and prevent complications. It was previously thought that chronic illnesses, such as T1DM with its demanding daily self-care regimen, would discourage risky sexual behaviour in adolescents. However, research now suggests that young people with chronic conditions are as likely, or even more likely, than their healthy counterparts to engage in risky sexual behaviour [13]. Early initiation of sexual activity can result in consequences such as sexually transmitted infections, teenage pregnancy, abortion, post-abortion infections, early childbirth and single parenting [14]. It can also affect glycaemic control and result in complications and even early death [15,16]. This study looked at sexual behaviour among adolescents attending Paediatric and Adolescent Diabetes Clinic (PADC) at Komfo Anokye Teaching Hospital (KATH), Kumasi, Ghana.

Methods

Study Site

The study was conducted at the PADC at KATH, a tertiary hospital in the Kumasi Metropolis in the Ashanti Region of Ghana. KATH is a 1,200-bed-capacity and a referral hospital that serves the northern sector and the middle belt of Ghana. About three hundred and eighty (380) children, adolescents and young adults up to 25 years with diabetes are being followed up at the clinic routinely.

Inclusion criteria

Adolescents with type 1 diabetes between the ages of 10 and 19 years old

Exclusion criteria

All those with T1DM who were 9.9 years old and younger and 20 years old and above

Study Design

This was a hospital-based prospective cross-sectional study that spanned a period of 4 month involving participants diagnosed with T1DM aged between 10 and 19 years attending PADC from July, 2025 to October, 2025. Recruitment into the study was done after participants and their parents had given informed consent. A structured questionnaire was used to capture demographic characteristics such as age, sex, tribe, educational status, religion, parental marital status and parental support as well as sexual behaviours such as having sexual partners, age at sexual debut, contraceptive use, pregnancy and outcome of the pregnancy. The content of the questionnaire was explained to participants in the language or dialect they understand.

Sample Size

Within the study period, two hundred and fifty-four (254) patients were seen at the clinic. Seventy (70) of the patients were young adults aged between 20 and 25 years old and so they were excluded and ten patients refused to give consent. Overall, a total of one hundred and seventy-four (174) were thus recruited into the study.

Ethical consideration

The Institutional Review Board (IRB) of KATH reviewed and approved the study protocol. The study was done in accordance with ethical standards. All participants signed informed consent forms before data were collected. Participants younger than 18 years signed assent forms and their parents signed informed consent forms. Participation in the study was completely voluntary. Participants could withdraw from the study without any consequences. Participants were identified by unique study identification numbers and so they could not be traced or identified.

Data Collection

A structured questionnaire was used to collect socio-demographic information (age, sex, ethnicity, educational level, religion, parental marital status, and parental support) and sexual and reproductive health data (sexual activity, age at sexual debut, number of sexual partners, contraceptive use, pregnancy history, and pregnancy outcomes).

In accordance with international ethical guidelines by World Health Organisation and Council for International Organizations of Medical Sciences (CIOM), all sexual and reproductive health questions were administered privately to adolescents without parents' presence to ensure confidentiality and promote accurate disclosure [17,18]. Parents and/or guardians provided only background information on socio-demographic characteristics where applicable. Interviews were conducted in comfortable private rooms by trained research assistants using age-appropriate, trauma-informed approaches. Participants were informed that they could decline any question they were not comfortable with or withdraw at any time without affecting their routine care.

Given the sensitive nature of the study and the possibility of distress or disclosure of abuse, interviewers were trained to recognise and respond appropriately to such situations and to use already arranged referral pathways for psychosocial support and child protection services in accordance with institutional and national guidelines.

Data analysis

Completed questionnaires were doubly entered into a predesigned electronic database using Excel spreadsheet. Socio-demographic and clinical data such as age, sex, tribe, educational level, religion and parental marital status were documented. Sexual features including sexual partners, age of sexual debut, use of contraception, pregnancy and pregnancy outcome were recorded onto excel spreadsheet and transported to Stata SE 17.0 (StataCorp, Texas 77845, USA) for analysis. Variables were represented as means, standard deviations, ranges and percentages with simple diagrams and tabulations.

Results

One hundred and seventy-four (174) participants were recruited into the study. Participants' demographic characteristics including sex, age, tribe, educational status, religion and parental marital status are indicated in Table 1. Out of the 174 participants, 69.5% were females. Most of the participants (55.7%) were older adolescents between 17 and 19 years old. Seventy-two-point four percent (72.4%) of the participants were of the Akan tribe which is the predominant tribe in Ghana. All participants were attending school at various level of education, with 42.5% (majority) being in Senior High School. Up to 86.2% of the participants were Christians because the study area is a predominantly a Christian community. More than a third (36.4%) of the parents of participants were married, 28.5 were divorced, 15.1% were separated and 20.0% were widowed. Up to 56.4% of participants do not get financial support from their parents.

Table 1: Demographic characteristics

Variable	Frequency (N)	Frequency (%)
Sex		
Male	53	30.5
Female	121	69.5

Age of Participants		
10-12	17	9.7
13-16	67	38.5
17-19	90	55.7
Tribe		
Akan	128	72.4
Dagomba	8	4.6
Dargati/Waala	8	4.6
Frafra/Kusasi	10	5.8
Others	22	12.
Educational Level		
Basic	66	37.9
Senior High School	74	42.5
Training College	20	11.5
University	14	8.1
Religion		
Christianity	150	86.2
Islam	21	12.1
Trad African Rel	3	1.7
Parental marital status (n=165)		
Married	60	36.4
Divorced	47	28.5
Widowed	33	20.0
Separated	25	15.1
Parental support (n=163)		
Yes	71	43.6
No	92	56.4

Table 2: Sexual and social characteristics

Variable	Frequency (N)	Percentage (%)
Sexual partners		
Yes	64	36.8
No	110	63.2
Sexual Experience		
Yes	74	42.5
No	100	57.5
Multiple Sexual partners (n=74)		
Yes	27	36.5
No	47	63.5
Age at sexual debut(n=74)		
9-12	18	24.3
13-16	29	39.2
17-19	27	36.5
Contraception use (n=74)		
Yes	35	47.3
No	39	52.7
Ever becoming pregnant (n=74)		
Yes	22	29.7
No	52	70.3

Pregnancy outcome (n=22)		
Delivered	10	45.5
Induced abortion	12	54.5

Table 2 demonstrates sexual and social characteristics of participants. A significant proportion of the participants (36.8%) had stable sexual partners and up to 42.5% had had sexual intercourse before. For sexually experienced participants, 36.5% had multiple sexual partners and 47.3% had used contraceptives. Twenty-nine-point seven percent (29.7%) of those who have had sex before reported ever becoming pregnant and 54.5% of the pregnancies ended in abortions.

Discussion

Adolescence is a period of rapid physical, cognitive and psychological growth which occurs between 10 to 19 years [1]. It is a period of vulnerability as the adolescent tends to experiment with the various attributes of life which leads a lot of them to experience early sexual intercourse [9,19]. By 19 years of age, about 70% of adolescents have had sexual intercourse [2]. In this study, 42.5% of participants reported having had sexual intercourse, with the mean age of sexual debut being 16.2 ± 2.44 years. The earliest age of sexual debut in this study was 10 years old. This is consistent with other studies done in Ghana and Uganda where children and adolescents between 10 and 14 years have had sexual intercourse [5,19]. Early sexual debut can have multiple physical, psychological and social complications. Adolescents with sexual debut earlier than 13 years have an increased likelihood for risky sexual behaviours and sexually transmitted diseases [20,21].

This study found a higher prevalence of reported sexual experience among females (66.2%) compared to males (33.8%). A similar trend was found in Uganda [19]. Among those with a previous sexual experience, 36.5% had multiple sexual partners. A study in Ghana by Agyekum et al., [7] in 2022 reported that 55.4% of adolescents had multiple sexual partners. Another study in Ghana by Klu et al., [22] in 2024 likewise reported that 51.6% of adolescents had multiple sexual partners. Adolescents with T1DM face the challenge of taking multiple daily injections, restricted diet and regular exercise to maintain good glycaemic control [23] as well as going through their daily routine activities such as schooling or learning vocation. This can be a daunting task and may generate emotional stress, especially when glycaemic control remains poor despite numerous efforts. Adolescents with T1DM may be pre-occupied with daily self-care activities and may have less opportunities to establish relationships leading to sexual encounters. Conversely, adolescents with T1DM can use risky sexual behavior as outlets to solve accumulated emotional stress. Risk-taking behaviour such as early sexual experience can be an unhelpful strategy to cope with emotional difficulties and can severely impact an adolescent mental, emotional and physical well-being.

Up to 52.7% of the children and adolescents in this study who have had sex did not use any form of contraception. Unprotected sex among adolescents could result in unplanned and unwanted pregnancies and sexually transmitted diseases, including human immunodeficiency virus (HIV) infection. Twenty-nine-point seven percent (29.7%) of sexually active participants became pregnant. These pregnancies were unplanned and unwanted since these adolescents were attending school and none of them was married or working and earning regular income as indicated in Table 2. Among those who became pregnant, 54.5% of the pregnancies ended in abortions. Pregnancy in women with diabetes is associated

with complications such as pre-eclampsia, preterm delivery, macrosomia, obstructed labour, congenital malformations, intra-uterine growth restriction, low birth weight and stillbirth [24]. According to Allen et al., [25] in an e-cohort study among adolescents with T1DM in Wales, unplanned pregnancies among adolescent girls led to low ante natal attendance, affected glycemic control and led to more caesarean section deliveries. In another study conducted in Northern California by Rosengard et al., [26] more than 75% of teenagers who got pregnant did not plan their pregnancies and 35% of the pregnancies ended in abortions.

Adolescence is a period of experimentation because of the biological and physiological changes of puberty leading to physical, social and psychological changes. This makes adolescents more vulnerable to sexual exploitation [1,2,4]. Financial, psychological and morale support from parents are crucial in raising up adolescents. In this study, only 36.4% of the parents of participants were married, whilst 63.6% of the parents were divorced, separated or widowed. Children and adolescents who live in organized families with both parents in stable marriages tend to abstain from sex, [27] mostly because of better family ties and proper moral and cultural training by parents. Up to 56.4% of the participants receive no significant financial support from their parents. Such adolescents tend to struggle to fend for themselves and this makes them vulnerable to sexual exploitations [7,27]. Child labour, in various forms, is common in Ghana because of unstable marriages and poor parental financial support [28,29]. In Africa, children and adolescents who receive adequate financial and moral support from their families tend to do well in school and mostly refrain from drug abuse and sexual experimentation [30,31].

Majority of the participants were either Christians (86.2%) or Muslims (12.1%) and these two religions prohibit premarital sex. Besides, passionate discussion about sexual matters at home between parents and children is rarely done in Ghana [10] and sex education is hardly taught in schools. Therefore, children and adolescents are left to their own exploits when it comes to sexual matters in Ghana.

Conclusion

Sexual activity is common among adolescents with T1DM attending PADC at KATH, Kumasi in Ghana. Introduction of sex education and birth control measures should be considered in the PADC, KATH for the children and adolescents with diabetes who attend the clinic so that those who are sexually active can practice safe sex.

Declaration

Ethical Approval

The study was conducted after obtaining approval from the Institutional Review Board of Komfo Anokye Teaching Hospital and informed consent and/assent was obtained from all participants.

Conflict of Interest

The authors declare no conflict of interest.

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