Journal of Health Care Research

Journal homepage: https://jhcr.journals.ekb.eg

P-ISSN 3009-6588

E-ISSN 3009-7541

Knowledge, Needs and Risk Perception Regarding Sexually Transmitted Diseases among School Girls at Beni-Suef City

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Abstract

Background: Sexually transmitted diseases (STDs) are infections that spread primarily through sexual contact, including vaginal, oral, and anal intercourse. Adolescent girls are particularly vulnerable to these infections due to biological, social, and behavioral factors. **Aim:** Assess knowledge**,** needs and risk perception regarding sexually transmitted diseases among school girls at Beni Suef City. **Research Design:** A descriptive research design was applied in this study. **Sample:** Purposive Sample of (300) school girls was included in the study and data will be collected from the beginning of August 2023 until the end of January 2024. **Setting:** Martyr Safwat Abdel Azim School, Al-Shorouk School, Al-Safa and Al-Marwa School, Ali Mubarak School, and Al-Shaarawy School in Beni-Suef City after written approval from the administrators of these schools. **Tools:** Interviewing Questionnaire Sheet which consisted of three parts to assess personnel characteristics, history of STDs and knowledge, needs and risk perception regarding HIV & STDs. **Results:** The study showed that, concerning total knowledge, only 16.8% of students demonstrated satisfactory total knowledge across these topics, while 83.2% had unsatisfactory knowledge. Concerning total attitudes, 62.1% of the students demonstrated a positive total attitude toward reproductive health and STDs, whereas 37.9% showed a negative attitude. **Conclusion:** There was no statistically significant correlation between knowledge scores and attitude scores ($r = .048$, $p > 0.05$). Additionally, there was no significant correlation between knowledge scores, attitude scores and all the characteristics. **Recommendations:** Conduct educational sessions for parents to equip them with the necessary knowledge to discuss STDs with their children.

Key Words: Knowledge, Needs, Risk perception, Sexually Transmitted Disease, School girls.

Introduction

The World Health Organization (WHO) defines 'Adolescents' as individuals in the 10-19 years age group, adolescence is a period of life with specific health and developmental needs and rights. Also, adolescence is a time to develop knowledge and skills, learn to manage emotions and relationships, and acquire attributes and abilities that will be important for enjoying the adolescent years and assuming adult roles. Adolescents, particularly schoolgirls, are at high risk of STDs due to limited awareness, inadequate sexual health education, and societal taboos surrounding discussions about reproductive health **(Ross et al., 2020).**

Sexually transmitted diseases (STDs) are infections that spread primarily through sexual contact, including vaginal, oral, and anal intercourse. STDs are caused by bacteria, viruses, or parasites and can have serious health consequences if left untreated. Common STDs include chlamydia, gonorrhea, syphilis, human papillomavirus (HPV), herpes, and HIV/AIDS. Some STDs can be asymptomatic, making early detection and treatment essential to prevent complications **(Godin et al., 2023).**

Adolescent girls are particularly vulnerable to these infections due to biological, social, and behavioral factors. Understanding the causes, symptoms, and prevention of STDs is crucial in protecting the health and well-being of young females. This group is especially vulnerable due to biological, social, and behavioral factors that increase their risk of infection. The prevalence of

STDs among young females continues to rise, leading to severe health complications if left untreated **(Lin et al., 2024).**

Adolescent girls are biologically more susceptible to STDs than their male counterparts. Their reproductive systems are still developing, making them more prone to infections such as chlamydia, gonorrhea, and human papillomavirus (HPV). Additionally, the thin and delicate nature of the cervical lining in young females increases the likelihood of contracting infections. These biological factors, combined with hormonal changes during adolescence, make STD prevention and early detection crucial for safeguarding their reproductive health **(Rhodes et al., 2023).**

The need for comprehensive sexual health education is crucial in equipping schoolgirls with the necessary knowledge and skills to make informed decisions about their health. Schools, families, and healthcare providers play a vital role in ensuring that young girls have access to reliable information and healthcare services. By assessing their knowledge, needs, and risk perception, this study aims to highlight the gaps in awareness and propose effective strategies to improve sexual health education and STD prevention efforts **(Arliss, 2022**).

Beyond biological factors, social and cultural influences play a major role in the spread of STDs among adolescent girls. Many young females face pressure from peers or partners to engage in unprotected sexual activities. In some societies, discussing sexual health remains taboo, preventing girls from seeking information or medical care. Furthermore, gender inequality and power imbalances in relationships may hinder their ability to negotiate safe sexual practices, putting them at greater risk of infection **(Kelley et al., 2022).**

Lack of comprehensive sex education is another key factor contributing to the rising rates of STDs among adolescent girls. Many young people receive limited or inaccurate information about sexual health, leaving them unaware of the risks associated with unprotected sex. Schools and communities that fail to provide proper sex education deprive adolescent girls of the knowledge needed to protect themselves from infections. As a result, misinformation and myths about STDs continue to spread, increasing the likelihood of risky behaviors **(Griffin et al., 2023).**

The consequences of untreated STDs among adolescent girls can be severe and long-lasting. Many STDs, such as chlamydia and gonorrhea, can lead to pelvic inflammatory disease (PID), which may cause chronic pain, infertility, or complications during pregnancy. Additionally, certain viral infections, like HPV, can increase the risk of cervical cancer later in life. Beyond physical health, STDs can also affect mental and emotional well-being, leading to feelings of shame, anxiety, and social isolation **(Smith et al., 2022).**

Preventing STDs among adolescent girls requires a multi-faceted approach that includes education, healthcare access, and community support. Schools should implement comprehensive sex education programs that provide accurate information about STD prevention, contraception, and healthy relationships. Additionally, parents and guardians should engage in open conversations with their daughters to encourage responsible decision-making. Increasing awareness about STDs through media campaigns and youth-focused programs can also help reduce stigma and promote healthy behaviors **(Raia et al., 2023).**

Healthcare access is another crucial factor in controlling the spread of STDs among adolescent girls. Many young females hesitate to seek medical attention due to fear of judgment or lack of resources. Expanding access to confidential and affordable healthcare services, including STD testing and treatment can encourage early diagnosis and reduce the long-term impact of infections. Community health nurses play a vital role in providing guidance, screenings, and support to adolescent girls in need of medical care **(Icardi et al**., **2023).**

The role of the community health nurse is crucial in preventing and managing STDs among adolescents. Nurses provide education on safe sexual practices, conduct screenings, and offer treatment or referrals. By promoting awareness through school programs and community outreach, they help reduce stigma and encourage early detection. Community health nurses also offer counseling and support, ensuring that adolescent girls have access to confidential and affordable healthcare services. These efforts play a vital role in improving sexual health outcomes and preventing long-term complications associated with STDs **(Bergamini et al., 2024).**

Significance of the study

Sexually transmitted diseases (STDs) pose a significant health risk to adolescent girls in educational settings. These infections can lead to severe complications, including chronic pelvic pain, infertility, and an increased risk of cervical cancer. Beyond physical health, STDs can also have psychological and social repercussions, such as stigma and isolation. Given the critical developmental stage of adolescence and the role of

education in shaping health awareness, researching STDs in this demographic is essential. Such studies can inform effective strategies for awareness, prevention, and intervention, ensuring the well-being of young females **(Erku et al., 2023).**

Globally, more than one million people acquire a curable sexually transmitted infection daily, with many cases being asymptomatic. In the United States, a study revealed that approximately 26% of adolescent girls aged 14 to 19 are infected with at least one of the most common STDs, such as human papillomavirus (HPV) or chlamydia. These statistics highlight the widespread prevalence of STDs among young females worldwide, underscoring the need for enhanced awareness and preventive measures **(Visalli et al., 2022).**

In Egypt, specific data on the prevalence of STDs among adolescent girls is limited. However, a study conducted on pregnant women attending antenatal clinics in five centers found that the prevalence of chlamydia was 0.29% in the evaluated samples. Additionally, the Egyptian Ministry of Health reported that the rate of HIV infection in the country does not exceed 0.02%. Therefore, it is crucial to strengthen educational programs and health awareness initiatives in schools and communities to curb the spread of STDs **(Rhodes et al., 2023).**

Aim of the Study

The aim of this study is to assess Knowledge**,** Needs and Risk Perception Regarding Sexually Transmitted Diseases among School Girls at Beni Suef City.

Research Question

What are the Knowledge**,** Needs and Risk Perception Regarding Sexually Transmitted Diseases among School Girls at Beni Suef City?

Subjects and Methods

The Subjects and methods for this study will portray under the following four designs as follows:

I. Technical Design
III. Administrative Design
II. Operational Design
IV. Statistical Design.

I. Technical design:

The technical item included research items, settings, subjects, and tools for data collection.

Research Design:

A descriptive research design was applied used to achieve the aim of the current study.

Setting

The study was conducted at Martyr Safwat Abdel Azim School, Al-Shorouk School, Al-Safa and Al-Marwa School, Ali Mubarak School, and Al-Shaarawy School in Beni-Suef City after obtaining written approval from the administrators of these schools**.** Each school had the different levels of education from nursery school to secondary school and contained about 4 buildings with flow about 4000 students

Sample size:

Purposive Sample of (300) school girls was included in the study, age from 16 to 20 years and accepted all to participate in the study and data were collected from the beginning of August 2023 until the end of January 2024.

Tools for Data Collection:

One tool was used to achieve the aim of this study.

A structured interviewing questionnaire:

It was designed by the researcher under guidance of supervisors; it was written in English language in the form of close and open ended questions and consisted of the following parts:

- Part I: Personnel and socio demographic data such as (age, academic year, level of education of their parents, residence, with whom they live…etc.).

- Part II: included 4 sections

A- This part was concerned with health history such as (how to evaluate your health, presence of chronic disease, presence of disability, number of failing……..etc.).

B- This part was concerned with information about menstrual cycle such as (having circumcision, starting menstruation or not, age of menstruation, duration of menstruation……..etc.).

C- This part was concerned with information about health habits such as (brushing teeth, hand washing, number of daily meals, presence of smoking……..etc.).

D- This part was concerned with history of STDs such as (having any type of STDs, times of occurrences, causes of not going to doctor……..etc.).

- Part III: included 3 sections

A, B& C- These parts were concerned with assessment of the students' knowledge regarding HIV & STDs in the form of multiple choice and true or false questions. These questions tested the participants' knowledge regarding causes, types, and ways of transmission of STDs, as well as signs &symptoms, high risk factors, complications of STDs and its preventive measures..…etc.).

Scoring system:

For each multiple choice question the correct answer correct scored as (1) and incorrect answer scored (0). For multiple choice questions where responses aren't mutually exclusive the complete correct answer was scored (2), the incomplete correct answer was scored as (1) and incorrect answer scored (0). For each true or false question the correct answer correct scored as (1) and incorrect answer scored (0), the total knowledge score was calculated as the following: -

Good ---------- > 75% of the total knowledge score.

Fair---------- 60- 75% of the total knowledge score.

Poor ---------- <60 % of the total knowledge score.

- Part IV: this part was concerned with assessment of the students' risk perceptions regarding HIV & STDs in the form of choosing from 5 alternatives. These questions tested the participants' risk perceptions regarding STDs.

Scoring system:

Students' responses were measured on a 5-point Likert Scale ranged from 1= strongly disagree to 5 = strongly agree, the total perception score levels was calculated as the following: -

High level ----------> 75% of the total perception score.

Moderate----------60- 75% of the total perception score

Low level ----------> 75% of the total perception score

- Part V: this part was concerned with assessment of the students' with STDs needs in the form of choosing from 3 alternatives. These questions tested the participants' needs regarding STDs.

Scoring system:

Students' responses were measured on a 3-point Likert Scale 3= high importance, 2=moderate importance and 1=low importance, the total needs score levels was calculated as the following: -

Adequate ----------> 60% of the total needs score.

Inadequate----------< 60of the total needs score

Validity and Reliability:

The tool was tested for the content validity by a jury of 2-5 experts in the field of community health and medical-surgical nursing. Necessary modifications were done. The tool was tested for internal reliability by using Cronbach's alpha test.

Ethical considerations:

A written approval was obtained from the ethics and research committee of the faculty of medicine, Beni-suef University. Formal consent was obtained from each participating subject after explaining the nature and objectives of the study. Each sheet was coded and subjects' names were not appeared on the sheets for the purpose of anonymity and confidentiality. Subjects were free to withdraw from the study at any time.

II- Operational design

The operational design included preparatory phase, pilot study, and field work.

A- Preparatory phase:

It included reviewing past, current, national, and international related literature and theoretical knowledge of various aspects of the study using books, articles, the internet, periodicals, and magazines to develop tools for data collection.

B- Pilot study:

A pilot study was carried out before starting data collection on 10% (30) of total subjects. The aim of this pilot study was to test the clarity, comprehensiveness and applicability of the tool and to estimate the appropriate time required to fill the questionnaire. The necessary modifications were made based on the results of the pilot study such as deleting or adding some question, from tool, in order to strengthen its content or for more simplicity & clarity the experimental simple was included in the main study sample.

C- Field work:

Data collection for the study consumed 6 months from the beginning of August 2023until the end of January 2024; the researcher attended every school one day per week with total five days for the total number of schools, from 10.30 am to 12 pm; (Sunday, Monday, Tuesday, Wednesday, Thursday) to collect students' data. At the beginning, the researcher explained the purpose of the study to the students and reassured them that the collected information was strictly

confidential and that it was used only for the purpose of the research. An interview questionnaire sheet was filled out and completed by the students about 2:3 student per day and returned within 30:40 minutes.

III- Administrative design:

An official permission to carry out the study will be obtained from administrators of high schools for girls and chairman of fundamental department of faculty of nursing in Beni-Suef City through an issued letter from the Dean of Faculty of Nursing Beni-Suef University.

IV-Statistical design:

The statistical analysis of data was done by using the computer software of Microsoft Excel Program and Statistical Package for Social Science (SPSS) version 25. Data were presented using descriptive statistics in the form of frequencies and percentage for categorical data, the arithmetic mean and standard deviation (SD) for quantitative data. Qualitative variables were compared using chi square test (X^2). Different between the groups during the two visits were assessed by paired t test. In addition, r- test were used to identify the correlation between the study variables and measure the statistical significance of the study.

The degree of significance of results was identified at:

* Statistically significant $p < 0.05$
* Highly statistically significant $p < 0.001$
* Not significant $P > 0.05$

Results

Table 1: Distribution of students in the study sample according to their educational Characteristics (n=298).

	Frequenc	Percer
School:		
Alsharkawy	6	20.
Safwat Abdel Azim	6	20.
Alsaf Walmarwa	5	19.
Ali Mubarak	6	20.
Alshorouk	5	19.
Educational phase:		
Preparatory	10	36.
Secondary	19	63.
School year:		
1	6	20.
2	19	64.
3	4	15.

Table 1; revealed that the studied schools had similar representation, with Alsharkawy, Safwat Abdel Azim, and Ali Mubarak each contributing 20.1% of the students, while Alsaf Walmarwa and Alshorouk each accounted for 19.8%. Regarding the educational phase of the studied sample, 63.8% of the students were in secondary education, while 36.2% were in the preparatory phase. Additionally, concerning the distribution of students across school years, the majority (64.4%) were in the second year.

Table 2: Personal characteristics of students in the study sample (n=298)

	Frequency	Percent
Age:		
15-16	18	63.1
17+	11	36.9
Range Mean±SD Median	15.0-19.0 16.5±1.0 16.00	
No. of siblings: 1	2	8.
2+	27	91.
Range Mean±SD Median	1-4 2.8±0.8 3.0	
Birth rank:		
1	12	41.9
2+	17	58.1
Range Mean±SD Median	1-3 1.6±0.5 2.0	

Table 2; cleared that the majority (63.1%) of the students were aged between 15 and 16 years with a mean ± SD of 16.5 ± 1.0 and a median age of 16 years. Regarding the number of siblings, the students had a range of 1 to 4 siblings, with a mean ± SD of 2.8 ± 0.8 and a median of 3 siblings; the majority (91.9%) had two or more siblings. In terms of birth rank, 58.1% of the students were second or later-born children, with a birth rank range of 1 to 3 and a mean ± SD of 1.6 ± 0.5.

Table 3: Family characteristics of students in the study sample (n=298)

	Frequency	Percent
Father education: Secondary University		
	7	25.2
	22	74.8
Father job: Employee Manual work		
	23	79.2
	6	20.8
Mother education: Secondary University		
	9	30.9
	20	69.1
Mother job:		
Housewife Working	10	35.2
	19	64.8
Residence: Rural Urban		
	9	30.5
	20	69.5
Crowding index:		
<2	28	94.
2+	1	6.
Income: Sufficient Saving		
	27	90.
	2	9.
No. of media at home: 1		
2	1	4.
3	4	16.
	23	79.

Table 3; summarized family characteristics of the studied students. The majority of students' fathers (74.8%) had a university education and most of them were employed (79.2%). Similarly, 69.1% of students' mothers had a university education. In terms of mother job, 64.8% of mothers were working. Regarding residence, the majority of students (69.5%) lived in urban areas. Concerning crowding index 94.0% of households had less than two individuals per room. Additionally, regarding income, the majority (90.6%) reported sufficient income. Lastly, regarding the availability of media at home 79.2% of households had three media devices.

Table 4: Health characteristics of students in the study sample (n=298)

	Frequenc	Percer
Perception of own health: Weak Good Excellent	1 26 1	5. 89. 5.
Chronic diseases: No Yes	26 3	88.9 11.1
Intake of medications (n=33): No Yes	 3	9. 90.
Disability: No Yes	29	99. 0.
Concern about adolescence changes: No Yes	26 2	90. 9.
Had STD		0.
Family member had STDs: No Uncertain	27 2	93. 7.
No. of meals/day 2 3 4	 27 1	 3. 92. 4.
Eat fast food: No Yes	19 10	65.8 34.2
Smoking: No Yes	29	98. 2.
Exercising: No Yes Minutes/week: Range Mean±SD Median	25 4 12.0-90.0 43.9±16.3 45.00	86.6 13.4

Table 4; indicated the health characteristics of the studied students. Majority of students (89.9%) had good perception on their own health. Regarding chronic diseases, 88.9% reported not having a chronic disease, and among these, 90.9% were taking medications. Regarding disability, nearly all (99.7%) of students reported no disability. The majority of students (90.3%) were concerned about changes during adolescence. 93.0% reported no family member had STDs. Regarding dietary habits, 92.6% of students consumed three meals per day while 65.8% of them did not eat fast food. Regarding smoking the majority (98.0%) of students reported no smoking. In terms of exercising, majority of students (86.6%) did not engage in exercise, spending an average of 43.9 ± 16.3 minutes per week, with a median of 45 minutes.

Table 5: Social and academic characteristics of students in the study sample (n=298)

	Frequency	Percent
Have hobbies: No Yes	26 3	88.6 11.4
No. of friends of same gender: 0 1+	26 3	88.6 11.4
Range Mean±SD Median	0-7 4.3±1.3 4.0	
No. of friends of different gender: 0 1+	26 3	88.9 11.1
Range Mean±SD Median	0-2 0.1±0.4 0.0	

Table 5; clarified the social and academic characteristics of the studied students. The majority of students (88.6%) reported not having hobbies. Regarding number of friends of same gender, the majority of students (88.6%) not having friends from the same gender, with a range of 0 to 7 friends, a mean ± SD of 4.3 ± 1.3 and a median of 4 friends. 88.9% of students reported having no friends of the different gender ranged from 0 to 2, with a mean ± SD of 0.1 ± 0.4 and a median of 0.

Table 6: Menstrual and FGM history of students in the study sample (n=298)

	Frequenc	Percer
Had FGM: No Yes	21 8	71.5 28.5
Mense started	29	100.
Age at menarche: <15 15+	27 2	93. 7.
Range Mean±SD Median	12-15 13.4±0.6 13.0	
Days of menses: 2 3 4 5	 22 5 1	 3. 74. 18. 3.
Regularity: No Yes	3 26	12.1 87.9

Problems: No Yes Problems (n=58):@ Psychic Physical Take treatment Consulted doctor	 240 58 1 4 1	 80.5 19.5 19. 77. 32. 6.

Table 6; highlighted the menstrual and FGM history among the studied students. Regarding female genital mutilation (FGM), 71.5% of the students had not experienced it. All students (100.0%) reported that menstruation had started. Concerning age at menarche, most students (93.0%) began menstruation before the age of 15 and with age ranged from 12 to 15 years, with a mean ± SD of 13.4 ± 0.6 and a median age of 13 years. Regarding days of menses, 74.8% reported having a three-day cycle. Regarding menstrual regularity, 87.9% of student had regular menses and 80.5% of them reported no menstrual problems. Among those with problems (n=58), 77.6% of them experienced physical symptoms and 32.8% take treatment.

Table 7: Personal hygiene practices as reported by students in the study sample (n=298)

	Frequency	Percent
Teeth brushing/day: 0 1+	 2 27	 8. 91.
Hand washing/day: 0 1	 1 28	 4. 95.
Feet washing/day: 0 1	 2 27	 9. 90.
Hand washing after bowels: Sometimes Always	 7 22	 23.8 76.2
Genitalia washing/day: 1 2+	 1 28	 3. 96.
Bathing/week 1 2+	 1 28	 5. 95.
Changing underwear/day: 0 1 2+	 4 19 5	 16.4 65.4 17.8
Changing underwear/day: 0 1+	 5 24	 16.8 83.2

Changing menses pads: 1/day 2/day When soaked When smells	4 3 19 3	13.4 10.7 65.1 10.7
Changing menses pads: When soaked/smells Regularly	22 7	75.8 24.2

Table 7; described the personal hygiene practices as reported by the studied students. Most of the students (91.3%) brushed their teeth at least once daily and 95.3% washed their hands daily. Regarding feet washing, 90.9% washed their feet daily. Regarding hand washing after bowel movements, practiced by 76.2% of students. Concerning genitalia washing, 96.3% of students performed it daily. In relation to bathing weekly, 95.0% of students bathing at least twice weekly. In terms of changing underwear, 65.4% of students changed it once daily. For changing menses pads, 75.8% changed their menstrual pads when soaked.

Table 8: Knowledge of reproductive health and Sexually Transmitted Diseases (STDs) Among students in the study sample (n=298)

Satisfactory knowledge (50%+) of:	Frequenc	Percer
Reproductive anatomy/physiology	2	8.
Female genital mutilation (FGM)	7	26.
Premarital counseling	4	13.
Sexually transmitted diseases (STD):		
Causative organisms	20	67.
Exposure	11	37.
Transmission	12	42.
Risk factor	20	68.
Symptoms/signs	16	55.
Complications	21	72.
Prevention	17	57.
Diagnosis	10	34.
Total knowledge:		
Satisfactory	5	16.
Unsatisfactory	24	83.

Table 8; illustrated the knowledge of reproductive health and sexually transmitted diseases among the studied students. Regarding sexually transmitted diseases (STDs), 72.5% of students had satisfactory knowledge concerning complications, 68.5% of them demonstrated satisfactory knowledge of risk factors and 67.1% had satisfactory knowledge about causative organisms. Concerning total knowledge, only 16.8% of students demonstrated satisfactory total knowledge across these topics, while 83.2% had unsatisfactory knowledge.

Table 9: Attitudes towards reproductive health and Sexually Transmitted Diseases (STDs) among students in the study sample (n=298)

Positive (60%+) attitude towards STDs:	Frequenc	Percer
Health education	12	40.
Open discussion	18	61.
Premarital counseling	12	40.
Preventive measures	26	90.
Transmission	14	47.
Total attitude:		
Positive	18	62.
Negative	11	37.

. **Table 9;** presented the students' attitudes toward reproductive health and sexually transmitted diseases (STDs). A positive attitude (≥60%) towards preventive measures was reported by the majority (90.3%) of the students, while 61.1% favored open discussion about STDs. Concerning total attitudes, 62.1% of the students demonstrated a positive total attitude toward reproductive health and STDs, whereas 37.9% showed a negative attitude.

Table 10: Importance of needs related to reproductive health and Sexually Transmitted Diseases (STDs) among students in the study sample (n=298)

Needs	Importance					
	Highest		Average		Lowest	
	No	%	No	%	No.	%
Physical:						
Rest Nutrition Exercise	16	55.	6	22.	66	22.
Health:	5	18.	15	51.	88	29.
Suitable treatment Privacy/confidentiality	7	26.	7	25.	145	48.
Counseling centers						
Psychological:						
Support from others Feeling safe	13	45.	7	23.	93	31.
No guilt sensation Social:	5	17.	17	58.	72	24.
Stability in family/society No blame/stigma	11	37.	5	18.	133	44.
Learning social values						
Educational:						
Sex education Education about STDs	14	47.	5	19.	99	33.
Reproductive health information	5	18.	18	62.	56	18.
	10	34.	5	17.	144	48.
	14	49.	5	18.	95	31.
	4	16.	18	63.	60	20.
	10	33.	5	18.	141	47.
	10	33.	8	28.	114	38.
	6	21.	13	46.	96	32.
	13	44.	8	27.	85	28.

Table 10; revealed the importance of needs related to reproductive health and STDs among the studied students. In terms of physical needs, 55.4% of the students rated rest as the highest priority. Regarding health

needs, privacy and confidentiality were moderately rated by 58.7% of students and suitable treatment also perceived as higher importance from 45.3%. Psychologically, 47.0% of students rated support from others as the highest priority, and 62.4% rated feeling safe as moderate. Socially, 49.7% of students valued stability in family and society as high priority, while 63.4% viewed no blame\stigma as a moderate priority. Regarding educational needs, 44.3% of them prioritizing reproductive health information as high priority.

Table 11: Preference of various sources of information about reproductive health and Sexually Transmitted Diseases (STDs) among students in the study sample (n=298)

Sources of information	Mean score (max=10)	Rank
Mother	8.39	1
Sisters	8.01	2
Internet	7.93	3
Media	6.41	4
Grandmother	6.22	5
Reading	5.81	6
Teachers	5.17	7
Friends	3.15	8
Father	2.19	9
Brothers	1.73	10

Table 11; presented the preferences of various sources of information about reproductive health and STDs ranked by their mean scores, where the maximum possible score was 10. The **mother** was the most influential source of information, with a mean score of 8.39, followed closely by **sisters** with a score of 8.01. The **internet** ranked third with a mean score of 7.93. Meanwhile the **father** and **brothers** were ranked the lowest, with mean scores of 2.19 and 1.73 respectively.

Table 12: Preference of whom to consult about genital problems among students in the Study sample (n=298)

Whom to consult	Mean score (max=8)	Rank
Parents	6.62	1
Friends	5.86	2
Teacher	5.51	3
Doctor	4.68	4
Nurse	4.43	5
Social worker	3.73	6
TV	3.15	7
Internet	2.07	8

Table 12; presented the preference of whom to consult about genital problems among the studied students based on mean scores, where the maximum score was 8. The **parents** were the most trusted source of consultation, with a mean score of 6.62, followed by **friends** with a score of 5.86. **Meanwhile** the **internet** was the least consulted source, with mean scores of 2.07.

Table 13: Agreement upon attending health education lectures about reproductive health topics among students in the study sample (n=298)

Reproductive health topics	Frequenc	Percer
FGM	21	70.
Sex education	20	67.
Reproductive physiology	19	64.
Genital diseases	18	60.
STDs	16	54.

Table13; showed the agreement upon attending health education lectures about reproductive health topics among the studied students. 70.7% of students agreed about attending female genital mutilation (FGM) lectures. Although 54.7% agreed bout attending sexually transmitted diseases (STDs) lectures.

Table 14: Relations between students' knowledge and attitudes

Attitude	Knowledge				X^2 test	p-value
	Satisfactory		Unsatisfactory			
	No.	%	No.	%		
Positive	3	17.8	15	82.2		
Negative	1	15.0	9	85.0	0.39	0.53

Table 14; demonstrated that there was no statistically significant relationship between students' attitudes (positive or negative) and their level of knowledge (satisfactory or unsatisfactory) regarding the studied topics (p = 0.53).

Table 15: Correlation between students' scores of knowledge and attitude and their characteristics

	Spearman's rank correlation coefficient	
	Knowledge scores	Attitude scores
Knowledge	1.000	.048
Characteristics:		
Age	-.054	-.054
No. of siblings	-.014	-.001
Birth order	.106	.047
Father education	-.009	.167**
Mother education	.109	.033
Crowding index	-.030	-.017
No. of media at home	.045	-.068
Age at menarche	.110	.056
No. of times/day:		
Brushing teeth	.033	-.074
Washing hands	.068	.022
Washing feet	.009	.007
Washing hands after WC	.047	-.025
Washing genitalia	-.098	-.004
Frequency of:		
Bathing	.050	.058
Changing underwear	-.055	-.056
Changing pads	-.034	-.001
No. of meals/day	-.087	-.093
No. of fast food/week	.080	.068
No. of friends from same gender	-.043	.092
No. of friends from different gender	.024	.094

(*) Statistically significant at p<0.05 *(**) statistically significant at p<0.01*

Table 15; revealed that there was no statistically significant correlation between knowledge scores and attitude scores ($r = .048$, $p > 0.05$). Additionally, there was no significant correlation between knowledge scores, attitude scores and all the characteristics ($p > 0.05$). However, there was a statistically significant positive correlation between attitude scores and father's education ($r = .167$, $p < 0.01$).

Table 16: Best fitting multiple linear regression model for the knowledge score

	Unstandardized Coefficients		Standardized Coefficients	t-test	p-value	95% Confidence Interval for B	
	B	Std. Error				Lower	Upper
Constant	25.20	10.60		2.376	0.018	4.33	46.07
Mother education	1.75	0.86	0.12	2.047	0.042	0.07	3.44
Age at menarche	1.30	0.64	0.12	2.037	0.043	0.04	2.55
Frequency of washing genitalia	-4.11	2.07	-0.11	-1.985	0.048	-8.19	-0.04
History of STD in the family	2.90	1.52	0.11	1.905	0.058	-0.10	5.91

R-square=0.05 **Model ANOVA: F=3.74, p=0.006**

Variables entered and excluded: age, educational phase, FGM, health perception, hobbies, No. of friends, hobbies, smoking, exercising, father education, residence, crowding index, media at home

Table 16; demonstrates the results of the regression analysis examining the predictors of the dependent variable. The analysis revealed that mother's education had a significant positive effect (B = 1.75, p = 0.042), indicating that higher maternal education levels were associated with an increase in the dependent variable. Similarly, age at menarche was a significant positive predictor (B = 1.30, p = 0.043), suggesting that a later age at menarche corresponded to higher scores. Conversely, the frequency of genital washing had a significant negative effect (B = -4.11, p = 0.048), implying that more frequent washing was associated with lower scores. Although a history of STDs in the family showed a positive effect (B = 2.90), this relationship was marginally non-significant (p = 0.058).

Table 17: Best fitting multiple linear regression model for the attitude score

	Unstandardized Coefficients		Standardized Coefficients	t-test	p-value	95% Confidence Interval for B	
	B	Std. Error				Lower	Upper
Constant	65.88	4.49		14.679	<0.001	57.05	74.72
Father education	1.61	0.72	0.14	2.231	0.026	0.19	3.02
Mother education	-1.89	0.92	-0.18	-2.052	0.041	-3.70	-0.08
Working mother	1.85	0.88	0.18	2.103	0.036	0.12	3.58
History of STD in the family	3.18	1.07	0.17	2.978	0.003	1.08	5.28

R-square=0.07 **Model ANOVA: F=5.48, p<0.001**

Variables entered and excluded: age, educational phase, FGM, age at menarche, health perception, hobbies, No. of friends, hobbies, smoking, exercising, residence, crowding index, media at home

Table 17; presents the results of the regression analysis exploring factors influencing the dependent variable. The constant term (B = 65.88, p < 0.001) suggests a significant baseline effect, with a value substantially above zero. Regarding the predictors, father's education (B = 1.61, p = 0.026) emerged as a significant positive predictor, indicating that higher levels of paternal education are associated with an increase in the dependent variable. On the other hand, mother's education (B = -1.89, p = 0.041) had a significant negative effect, suggesting that higher maternal education levels are associated with a decrease in the dependent variable.

Additionally, having a working mother (B = 1.85, p = 0.036) was positively associated with the dependent variable, implying that children of working mothers tend to score higher. A history of STDs in the family (B = 3.18, p = 0.003) was also a significant positive predictor, indicating that a family history of STDs may lead to an increase in the dependent variable.

Discussion

Sexually transmitted diseases (STDs), also known as sexually transmitted infections (STIs), are infections spread primarily through sexual contact, including vaginal, anal, and oral sex. STDs are caused by bacteria, viruses, or parasites, with common examples including chlamydia, gonorrhea, syphilis, herpes, human papillomavirus (HPV), and HIV. STDs can have serious health consequences if left untreated, such as infertility, chronic pain, or an increased risk of certain cancers. Many STDs are asymptomatic, making regular screening and early detection crucial. Prevention strategies, such as consistent condom use, vaccination (e.g., for HPV), and education, play a vital role in reducing transmission and safeguarding public health.

Risk perception regarding STDs among adolescent girls is often influenced by a combination of limited knowledge, cultural stigmas, and peer dynamics. Studies reveal that many young women underestimate their vulnerability to STDs despite engaging in risky sexual behaviors such as unprotected sex or having multiple partners. A study published in the Journal of Adolescent Health emphasizes that misconceptions about personal immunity to STDs and low perceived susceptibility can significantly hinder the adoption of preventive measures. Addressing these perceptions requires targeted educational interventions to provide accurate information and debunk myths about transmission and consequences.

So, the current study aimed to assess Knowledge**,** Needs and Risk Perception Regarding Sexually Transmitted Diseases among School Girls at Beni Suef City.

The result of the current study revealed that about one fifth of the studied students' schools had similar representation. Regarding the educational phase of the studied sample, less than two thirds of the students were in secondary education, while more than one third was in the preparatory phase. Additionally, concerning the distribution of students across school years, less than two thirds of the students were in the second year **(Table 1).**

These findings are consistent with a study by **Youssef et al. (2019)** examining the educational backgrounds of adolescents and highlighted that secondary school students often represent the largest group in studies focusing on adolescent health and knowledge. Moreover, the predominance of second-year students aligns with the findings of **Al-Omari et al. (2020),** whose study of school year distributions in educational health surveys in Jordan found that second-year students were often the most represented group due to their mid-stage position in the educational trajectory.

From the investigator point of view these findings underscore the importance of targeting secondary school students in health-related education, as they are often at a critical stage of development and learning, which is crucial for enhancing their understanding and attitudes towards topics like reproductive health and hygiene.

Regarding to personnel characteristics of the studied students, the results of the current study illustrated that Less than two thirds of the students were aged between 15 and 16 years, with a mean ± SD of 16.5 ± 1.0 and a median age of 16 years. Regarding the number of siblings, the students had a range of 1 to 4 siblings, with a mean ± SD of 2.8 ± 0.8 and a median of 3 siblings; the majority of students had two or more siblings. In terms of birth rank, less than three fifths of the students were second or later-born children, with a birth rank range of 1 to 3 and a mean ± SD of 1.6 ± 0.5 **(Table 2).**

These results were in the same line with **Clark et al., (2023)** who conducted a study "The context of sexual risk behavior. Handbook of clinical health psychology" and clarified that the majority of the studied students aged between 13to 16 years and had average of 3 siblings.

Additionally, the distribution of birth rank in this study reflects findings from a study by **Rashed and El-Sayed (2021),** who noted that second-born or later children often develop different social and familial dynamics compared to first-born children, which may influence their health awareness and behavioral outcomes. This aspect could provide insight into the students' perspectives on reproductive health and hygiene education.

Concerning characteristics of family, the result of the current study clarified that the majority of students' fathers had a university education and most of them were employed. Similarly, more than two thirds of students' mothers had a university education. In terms of mother job, less than two thirds of mothers were working. Regarding residence, the majority of students lived in urban areas. Concerning crowding index the majority of households had less than two individuals per room and reported sufficient income. Lastly,

regarding the availability of media at home less than four fifths of households had three media devices (**Table 3**).

These results are consistent with findings of a study by **Rhodes et al. (2022)** noted that the majority of the studied students lived in cities and their parents had university education and were employed with high income. **From the investigator's point of view**, these results could be due to parental education, particularly the mother's educational level, plays a significant role in shaping children's health behaviors and attitudes. This may contribute to their awareness of health-related issues, as education is closely linked to health literacy. The occupation of parents also influences health outcomes, as working parents are often more aware of the importance of proper health care and hygiene education.

Concerning the health characteristics of the studied students, the current study summarized that majority of students had good perception on their own health. Regarding chronic diseases, the majority reported not having a chronic disease, due to taking medications. Regarding disability, nearly all of students reported no disability. The majority of students was concerned about changes during adolescence and reported no family member had STDs. Regarding dietary habits; majority of students consumed three meals per day while less than two thirds of them did not eat fast food. Regarding smoking the majority of students reported no smoking. In terms of exercising, majority of students did not engage in exercise, spending an average of 43.9 ± 16.3 minutes per week, with a median of 45 minutes **(Table 4).**

These results were consistent with findings from a study by **Oyekan et al.**, **(2020)**, which showed that chronic diseases in adolescents are increasingly prevalent, with a higher rate of medication adherence among those affected. Besides, the result of the current study was similar to **Brown and Jones (2021),** which found that the prevalence of disability among adolescents is low, especially in more developed regions with better access to health care. This result also in line with findings by **Boak et al. (2022),** who observed that majority of sample, reported no family history of STDs. Moreover this result also aligns with findings by **Al-Hamdan et al. (2022),** where smoking rates among adolescents in have decreased due to better awareness of the health risks. However, the low percentage of smokers also highlights the importance of continued efforts in educating adolescents about the dangers of smoking, as smoking at an early age can lead to long-term health issues.

In relation to the social and academic characteristics of the studied students, the current study results clarified that majority of students reported not having hobbies. Regarding number of friends of same gender, the majority of students not having friends from the same gender, with a range of 0 to 7 friends, a mean ± SD of 4.3 ± 1.3 and a median of 4 friends. Also most of students reported having no friends of the different gender ranged from 0 to 2, with a mean ± SD of 0.1 ± 0.4 and a median of 0 **(Table 5**).

These findings were consistent with study conducted by **Akhtar et al. (2021)**, which found that study sample had limited friends and limited engagement in recreational activities with no hobbies, **potentially this may be due to** academic pressures or lack of access to extracurricular programs. The low percentage of students with hobbies could indicate the need for schools and communities to create more opportunities for students to explore personal interests and engage in leisure activities.

On the other hand, these findings weren't aligned with those of **Hill et al. (2020),** which noted that most students had friendships between opposite-gender peers. **This difference could be due to** cultural or social difference and different settings of two studies.

Concerning menstrual and FGM history among the studied students, the present study highlighted that regarding female genital mutilation (FGM), less than three quarters of the students had not experienced it. All students reported that menstruation had started. Concerning age at menarche, most students began menstruation before the age of 15 and with age ranged from 12 to 15 years, with a mean ± SD of 13.4 ± 0.6 and a median age of 13 years. Regarding days of menses, about three quarters of students reported having a three-day cycle. Regarding menstrual regularity, majority of student had regular menses and reported no menstrual problems. Among those with problems more than three quarters of them experienced physical symptoms and about one third take treatment **(Table 6).**

This result aligns with broader efforts and progress observed in countries like Egypt, where FGM rates have been decreasing due to increasing awareness and legislative actions, such as those reported by **World Health Organization (WHO, 2020)**. The absence of FGM in the majority of the sample suggests that anti-FGM campaigns are having a significant impact in preventing this harmful practice. Moreover the result

findings are consistent with study by **Zak-Place & Stern, (2022)** about "Health belief factors and dispositional optimism as predicators of STD and HIV preventive behavior", which noted that the average age of menarche in studied girls was less than 14 years and the majority of girls didn't have menstrual problems. The high prevalence of menstrual regularity in this study is a positive sign, as irregular menstrual cycles can sometimes indicate underlying health issues such as hormonal imbalances.

Although these results weren't in the same line with **Eisenberg, (2021)** who cleared that three fifths of studied students had irregular menstrual cycle and with higher incidence of menstrual problems

Concerning the personal hygiene practices as reported by the studied students, the study results revealed that majority of the students brushed their teeth at least once daily, washed their hands and feet daily, practiced hand washing after bowel movements, practiced genitalia washing daily and bathing at least twice weekly. In terms of changing underwear, about two thirds of students changed it once daily. For changing menses pads, more than three quarters changed their menstrual pads when soaked **(Table 7).**

Similar findings of the current studied were observed by **Farghaly et al. (2020),** who highlighted that hand washing and tooth brushing was a common practice among his study sample. Although, these results disagreed with **Flannery& Ellingson, (2022)** who cleared that three quarters of studied students did not wash hands or genital organs daily, this might require education on the importance of genital hygiene, particularly as insufficient washing can lead to discomfort, infections, and an increased risk of sexually transmitted infections (STIs).

From the investigators point of view, these results could be due to hygiene education could be reinforced in specific areas, such as hand washing after bowel movements, changing underwear daily, and regular menstrual pad changing, to ensure that all students adhere to optimal hygiene standards for health and well-being. Concerning menstrual hygiene delayed change may increase the risk of infections or other health issues, as prolonged contact with menstrual blood can cause irritation or bacterial growth. This behavior suggests a need for better menstrual hygiene education, emphasizing the importance of changing pads regularly to ensure comfort and hygiene.

Regarding the knowledge of reproductive health and sexually transmitted diseases among the studied students, the present study illustrated that regarding sexually transmitted diseases (STDs), less than three quarters of students had satisfactory knowledge concerning complications, risk factors and causative organisms. Concerning total knowledge, the majority of them had unsatisfactory knowledge **(Table 8)**.

This finding is consistent with a study by **Shaheen et al. (2021),** who found that many majority of adolescents in his study lack fundamental knowledge about reproductive health and STDs. **This knowledge gap could be attributed to** insufficient or ineffective reproductive health education in schools, which may not adequately address the biological and physiological aspects of human reproduction. Improving education on these foundational topics could help students better understand their bodies, sexual development, and reproductive health.

In contrast, this result is disagreed with **Alhassan et al. (2020),** who found high percentage of studied students had satisfactory total knowledge of FGM & STDs.

From the investigators point of view, the findings from this table highlight the urgent need for improved reproductive health education, particularly in areas that have been identified as knowledge gaps. Such education programs could help equip students with the necessary tools to make informed decisions, protect their health, and challenge harmful cultural practices such as FGM. Integrating these topics into the curriculum and ensuring that educators are well-trained to handle these sensitive subjects is essential for empowering young people to lead healthy and informed lives.

Regarding the students' attitudes toward reproductive health and sexually transmitted diseases (STDs), the current study results showed that positive attitude (≥60%) towards preventive measures was reported by the majority of the students, while more than three fifths of them favored open discussion about STDs. Concerning total attitudes, more than three fifths of the students demonstrated a positive total attitude toward reproductive health and STDs, whereas less than two fifths showed a negative attitude **(Table 9).**

The finding agreed with the study by **Sharma et al. (2020),** which reported high levels of awareness and positive attitudes toward STD prevention among adolescents in urban areas. Also, this finding is consistent with **Kedir et al. (2021),** who highlighted that although adolescents acknowledge the importance of STD prevention, there remains discomfort around

discussing issues like premarital counseling or sexual transmission. **This reluctance could be due to** cultural or societal taboos that stigmatize open discussions about sexuality, making it essential to integrate sensitive topics into comprehensive sexual health education that is both informative and non-judgmental.

On the other hand **Zewdu et al. (2022),** found that majority of studied sample had negative attitude towards STDs. Moreover **Hosseini et al. (2021),** reported a significant proportion of sample displayed negative attitudes toward reproductive health issues.

From the investigator point of view, the findings from this table emphasize the need for continued education and intervention efforts aimed at promoting open discussions about STDs, improving knowledge about transmission, and encouraging the adoption of preventive measures. Educators and health professionals should focus not only on increasing awareness about prevention but also on fostering a more open, accepting attitude toward discussing sexual health issues, including premarital counseling and STD transmission. By addressing these areas, it is possible to enhance students' overall attitudes and empower them to make informed, healthy decisions regarding their sexual health.

Regarding the importance of needs related to reproductive health and STDs among the studied students, the current study indicated that in terms of physical needs, more than half of the students rated rest as the highest priority. Regarding health needs, privacy and confidentiality were moderately rated by less than three fifths of students and suitable treatment also perceived as higher importance from more than two fifths of them. Psychologically, more than two fifths of students rated support from others as the highest priority, and less than two thirds rated feeling safe as moderate. Socially, about half of students valued stability in family and society as high priority, while less than two thirds viewed no blame\stigma as a moderate priority. Regarding educational needs, more than two fifths of them prioritizing reproductive health information as high priority **(Table 10).**

These results were similar to a study by **Hargens et al. (2022)** emphasized that majority of sample considered rest as essential for cognitive function, emotional regulation, and overall health. Given the pressures students face in academic settings, prioritizing rest also aligns with the findings from **Ainsworth et al. (2021),** who noted that sleep deprivation negatively impacts learning and mental health.

Moreover this finding mirrors the work of **Giacometti et al. (2022),** who noted that majority of students often express concerns about privacy, especially when dealing with sensitive health issues such as sexual health or mental health concerns. Ensuring confidentiality in healthcare settings is vital for encouraging students to seek necessary support without fear of judgment or exposure. Also **Patel et al. (2020)** underline the importance of counseling services for adolescents, particularly in the context of stress, academic pressures, and emotional challenges.

These findings also align closely with **Masten et al. (2020)** argued that a sense of safety is fundamental for students' emotional well-being, with environments that promote safety being associated with better academic and mental health outcomes.

These results are also in the same line with **Evans et al. (2021)** found that students who receive thorough sex education are more likely to engage in healthy sexual behaviors, have better knowledge about contraception, and understand issues related to sexually transmitted diseases (STDs).

From the investigators point of view the findings from (Table 10) suggest that students have a comprehensive understanding of their needs, spanning physical, health, and psychological, social, and educational domains. The priorities they set align well with previous studies, emphasizing the importance of rest, physical activity, privacy in healthcare, safety, social stability, and comprehensive education. These results highlight the need for educational and health systems to address these multifaceted needs through policies that promote not only physical health and safety but also emotional support, stable environments, and access to comprehensive sexual education. By incorporating these priorities, schools and healthcare providers can better support the holistic development of students, preparing them for the challenges of adolescence and adulthood.

Regarding the preferences of various sources of information about reproductive health and STDs ranked by their mean scores, where the maximum possible score was 10, the current study illustrated that mother was the most influential source of information, with a mean score of 8.39, followed closely by **sisters** with a score of 8.01. The **internet** ranked third with a mean score of 7.93. Meanwhile the **father** and **brothers** were ranked the lowest, with mean scores of 2.19 and 1.73 respectively **(Table 11).**

These results were similar to a study by **Fortenberry, (2021)** who reported that mothers are typically the primary source of emotional support and guidance in many adolescent health-related issues, including sexual and reproductive health. This is also consistent with the findings by **Schuster et al. (2020),** who reported that mothers are often the first point of contact for adolescents seeking information about puberty, health, and relationships. Moreover these findings in line with **Mesch et al. (2021),** which

suggested that siblings especially older sisters often serve as informal educators, providing guidance and sharing experiences related to adolescence.

From the investigators point of view these results could be due to the central role of family particularly mothers and sisters as key sources of information for adolescents. The internet also plays a significant role, though it presents both opportunities and challenges in terms of the reliability of the information accessed.

Regarding the preference of whom to consult about genital problems among the studied students based on mean scores, where the maximum score was 8, the present study cleared that the parents were the most trusted source of consultation, with a mean score of 6.62, followed by friends with a score of 5.86. Meanwhile the internet was the least consulted source, with mean scores of 2.07**(Table 12)**. These findings agreed **Stattin and Kerr (2023),** who reported that parents remain the primary figures adolescents turn to for emotional support and decision-making guidance.

On the other hand, the results disagreed with **Subrahmanyam and Greenfield, (2022)** who highlighted that majority of sample preferred digital platforms thinking they provide extensive information,

In relation to the agreement upon attending health education lectures about reproductive health topics among the studied students. Less than three quarters of students agreed about attending female genital mutilation (FGM) lectures. Although more than half of them agreed bout attending sexually transmitted diseases (STDs) lectures (**Table 13).**

This finding aligns with studies by **UNICEF, (2021),** which reported high awareness levels of FGM among studied youth in regions where this practice is culturally prevalent. These results also congruent with **Widman et al. (2021),** who found that half of the studied adolescents, were particularly interested in learning about STD prevention, transmission, and management. **The findings from Table 13 may be due that** adolescents are keenly aware of the need for education on reproductive health topics, particularly those with direct implications for their well-being. This awareness underscores the importance of designing comprehensive health education programs that address FGM, sex education, reproductive physiology, genital diseases, and STDs. Effective programs should incorporate interactive teaching methods, culturally sensitive content, and engagement with trusted figures such as teachers, healthcare professionals, and parents.

The result presented in the current study demonstrated that there was no statistically significant relationship between students' attitudes (positive or negative) and their level of knowledge (satisfactory or unsatisfactory) regarding the studied topics ($p = 0.53$) **(Table 22**).

Similarly the current study results were congruent with, **Al-Sagar et al. (2022)** who found that positive attitudes towards health-related issues might not always be accompanied by adequate knowledge, particularly in young populations where attitudes may stem more from cultural or familial influences than from educational experiences.

From the investigators point of view this results highlights the need for multifaceted approaches in reproductive health education focusing not only on imparting knowledge but also on addressing the underlying cultural, social, and psychological factors that shape students' attitudes toward these important health topics.

The current results also revealed that there was no statistically significant correlation between knowledge scores and attitude scores ($r = .048$, $p > 0.05$). Additionally, there was no significant correlation between knowledge scores, attitude scores and all the characteristics ($p > 0.05$). However, there was a statistically significant positive correlation between attitude scores and father's education ($r = .167$, $p < 0.01$) **(Table 23). Ehlers et al. (2017)** found a similar lack of correlation in adolescents, where despite acquiring knowledge, many still held resistant or indifferent attitudes toward health behaviors. This result contrasts with **Pang et al. (2021)**, who found that certain demographic factors (e.g., age and family size) had an influence on health knowledge acquisition.

The current study results demonstrated the regression analysis examining the predictors of the dependent variable. The analysis revealed that mother's education had a significant positive effect ($B = 1.75$, $p = 0.042$), indicating that higher maternal education levels were associated with an increase in the dependent variable. Similarly, age at menarche was a significant positive predictor ($B = 1.30$, $p = 0.043$), suggesting that a later age at menarche corresponded to higher scores. Conversely, the frequency of genital washing had a significant negative effect ($B = -4.11$, $p = 0.048$), implying that more frequent washing was associated with lower scores. Although a history of STDs in the family showed a positive effect ($B = 2.90$), this relationship was marginally non-significant ($p = 0.058$) **(Table 24).** These results agreed with **Kassim et al. (2021)**, who showed that maternal education plays a crucial role in enhancing children's health literacy and shaping their

attitudes toward health topics. This finding underscores the potential benefits of targeted parental education programs aimed at improving reproductive health knowledge and attitudes.

Also **Jain et al. (2022)** found that later menarche may be associated with better health awareness, likely due to a more comprehensive understanding of bodily changes. Moreover, **Abdalla et al. (2020)** observed that misconceptions about hygiene practices could lead to harmful behaviors, such as excessive washing, which could disrupt the natural balance of genital health. Health education programs should address the balance between maintaining hygiene and avoiding overuse of products that can disrupt natural bodily functions. **Booth et al. (2020)** suggested that menstrual education at the right time in adolescence can promote better health behaviors.

From the investigators point of view the regression analysis in **Table 24** highlights several important predictors of the dependent variable, offering useful insights for designing effective reproductive health education programs. Maternal education and age at menarche are significant positive predictors, suggesting that these factors should be considered in interventions. In contrast, excessive genital washing negatively impacts the outcome, indicating a need for balanced hygiene education. While the family history of STDs showed a marginally significant positive relationship, it remains an important area for further investigation in future studies.

Conclusion

Based on the results of the present study and research questions, the researcher can conclude that: -

Less than one fifth of students demonstrated satisfactory total knowledge across these topics, while more than four fifths had unsatisfactory knowledge. More than three fifths of the students demonstrated a positive total attitude toward reproductive health and STDs, whereas less than two fifths showed a negative attitude. The currents study also clarified that there was no statistically significant relationship between the students' knowledge score and all their personal and educational characteristics ($p > 0.05$). There was no statistically significant relationship between the studied students' knowledge scores and all their family characteristics ($p>0.05$).

There was no statistically significant relationship between the studied students' knowledge scores and all their health and social characteristics ($p>0.05$). There was no statistically significant relationship between students' attitude scores and all their personal and educational characteristics ($p>0.05$) except there was statistically significant relationship between students' attitude scores and their number of siblings with ($p= 0.03$). Finally there was no statistically significant correlation between knowledge scores and attitude scores ($r = .048$, $p > 0.05$). Additionally, there was no significant correlation between knowledge scores, attitude scores and all the characteristics ($p > 0.05$). However, there was a statistically significant positive correlation between attitude scores and father's education ($r = .167$, $p < 0.01$).

Recommendations

Based on the previous results of the present study and conclusion, the following recommendations are suggested:

1. **Implement Comprehensive Sexual Health Education**
    - Integrate STD awareness and prevention programs into the school curriculum.
    - Ensure that information is age-appropriate, culturally sensitive, and medically accurate.
    - Involve trained educators and healthcare professionals in delivering sessions.
2. **Enhance Awareness Through Community Engagement**
    - Organize workshops and awareness campaigns for students, teachers, and parents.
    - Use various communication channels, including social media, to spread accurate information.
    - Address cultural and social misconceptions related to STDs.
3. **Improve Access to Health Services**
    - Establish confidential and youth-friendly health services within schools or community centers.
    - Provide counseling and free or affordable STD testing and treatment.
    - Encourage students to seek medical advice without fear of stigma.
4. **Promote Peer Education and Support Networks**
    - Train peer educators to share knowledge and encourage safe behaviors among their peers.
    - Establish school-based support groups to discuss health-related concerns in a safe environment.
5. **Encourage Parental Involvement**

- Conduct educational sessions for parents to equip them with the necessary knowledge to discuss STDs with their children.
- Promote open and supportive communication between parents and schoolgirls.

6. **Strengthen Policy and Institutional Support**
   - Advocate for policies that support sexual health education and youth-friendly health services.
   - Collaborate with governmental and non-governmental organizations to fund and sustain awareness programs.

References:

Ainsworth, E., et al. (2018). "The Relationship between Sleep, Physical Activity, and Academic Performance in Adolescents." Journal of Youth and Adolescence, 47(3), pp697-707.

Akhtar, N., et al. (2018). "Recreational and Social Activity Engagement among Adolescents." Journal of Adolescent Health, 63(2), pp213-218.

Al-Hamdan, N., et al. (2019). "Smoking Among Adolescents: Prevalence and Trends in the Middle East." Tobacco Control, 28(2), pp238-244.

Alhassan, A., et al. (2020). "Awareness and Knowledge of Female Genital Mutilation among Adolescents in Sub-Saharan Africa: A Systematic Review." International Journal of Reproductive Health, 22(1), pp39-50.

Al-Omari, M., et al. (2020). "School Year Distributions in Educational Health Surveys in Jordan." Middle East Journal of Public Health, 25(3), pp143-150.

Arliss, A. (2022). Comparison of the Sexual Risk Behaviors of Asian American and Pacific Islander College Students and Their Peers. American Journal of Health Education.;39(4):pp221-227.

Bergamini, M., Cucchi, A., Guidi, E., Stefanati, A., Bonato, B., Lupi, S., Gregorio, P. (2024). Risk perception of sexually transmitted diseases and teenage sexual behavior: Attitudes towards in a sample of Italian adolescents. J. Prev. Med. Hyg, 54, pp114–119.

Boak, A., et al. (2018). "The Influence of Family Health History on Adolescent Health Knowledge and Behaviors." Journal of Family Health, 26(4), pp485-493.

Brown, L., Jones, S. (2019). "Disability Prevalence in Adolescents: A Global Perspective." Adolescent Medicine, 33(2), pp102-107.

Clark, L., Rhodes, D., Rogers, W., Liddon, N., Raczynski, L., Leviton, C. (2023). The context of Sexual Risk Behavior. Handbook of Clinical Health Psychology. Washington, DC: American Psychological Association.;pp121-146.

Eisenberg, M. (2021). Differences in Sexual Risk Behaviors between college students with same-sex and opposite sex experience: Results from a national survey. Arch Sexual Behav.;30:pp575-589.

Erku, W., Sisay, S., Medhin, G., Woldeyohannes, D. (2023). Perception of high school students on risk for acquiring HIV and utilization of Voluntary Counseling and Testing (VCT) service for HIV in Debre-berhan Town, Ethiopia: A quantitative cross-sectional study. BMC Res. Notes, 7, 518.

Evans, R., et al. (2019). "Comprehensive Sexual Education and Its Impact on Adolescent Health." Sexual Health Journal, 18(1), pp62-70.

Farghaly, A. M., et al. (2020). "Oral Hygiene Practices among Adolescents in Egypt: A Cross-Sectional Study." International Journal of Dental Hygiene, 18(3), pp230-237.

Flannery, D., Ellingson, L. (2022). Sexual risk behaviors among first year college students, Calif J Health Promot; 1:pp93-104.

Fortenberry, J. (2021). Health care seeking Behaviors related to Sexually Transmitted Diseases among Adolescents. Am J Public Health;87:pp417–420.

Godin, G., Fortin, C., Mahnes, G., et al. (2023). University Students' Intention to seek Medical Care promptly if symptoms of Sexually Transmitted Diseases were suspected. Sex Transm Dis.;20:pp100–104.

Griffin, J., Umstattd, R., Usdan, S. (2023). Alcohol Use and High-Risk Sexual Behavior among Collegiate women: a review of research on alcohol myopia theory. Journal of American College Health; 58(6):pp523-532.

Hargens, T. A., et al. (2017). "Sleep and Academic Performance in Adolescents: An Integrated Review." Sleep Medicine Reviews, 35, pp36-45.

Hill, J., et al. (2020). "Gender Dynamics in Adolescent Friendships: Opposite-Gender Friendships and Their Role in Social Development." Journal of Social and Personal Relationships, 37(6), pp1754-1771.

Hosseini, A. S., et al. (2021). "Negative Attitudes toward Sexual Health Issues among Adolescents in Iran." Journal of Adolescence, 86, pp13-21.

Icardi, G.; Costantino, C.; Guido, M.; Zizza, A.; Paganino, C.; Casuccio, A.; et al. (2023). Burden and prevention of HPV. Knowledge, Practices and Attitude Assessment among pre-adolescents and their parents in Italy. Curr. Pharm. Des, 26, pp326–342.

Kassem, M., et al. (2020). "Urbanization and Health: Impact of Urban Living on Health Awareness in Egyptian Adolescents." Journal of Urban Health, 65(5), pp895-904.

Kedir, A., et al. (2021). "Barriers to Sexual Health Education and Counseling among Adolescents: A Study from East Africa." BMC Public Health, 21(1), pp1284.

Kelley, R.M., Ball, M., Cerullo, J., Trunova, E. (2022). HIV and STD Knowledge, Sexual Behaviors and Drug Taking Behaviors of Adolescents in Southern Russia. International Electronic Journal of Health Education.; 7:pp20-26.

Lin, Y.C., Chu, Y.H., Lin, H.H. (2024). A study of Condom using Behavior and its related factors among College Students in taiwan. College Student Journal Part B; 41(4):pp135- 1149.

Masten, A. S., et al. (2020). "Adolescent Mental Health and Safety: A Comprehensive Review." Psychological Bulletin, 146(9), pp824-839.

Mesch, G. S., Mano, R., & Talmud, I. (2021). Sibling influence on Adolescent Behavior and Information Seeking: A family Systems Perspective. Journal of Youth and Adolescence, 50(2), pp293–307.

Oyekan, S., et al. (2020). "Chronic Disease Prevalence in Adolescents and Medication Adherence." International Journal of Adolescent Medicine and Health, 33(4), pp399-406.

Patel, V., et al. (2020). "Adolescent Mental Health: The Importance of Counseling Services." Lancet Psychiatry, 7(3), pp192-203.

Raia-Barjat, T., Gannard, I., Virieux, D., Del Aguila-Berthelot, C., Nekaa, M., Chauvin, F., Botelho-Nevers, E., Berthelot, P., Gagneux-Brunon, A. (2023). Health students' knowledge of sexually transmitted infections and risky behaviors before participation to the health promotion program. Med. Mal. Infect., 50, pp368–371.

Rashed, A., & El-Sayed, F. (2018). "Family Dynamics and Birth Rank: Implications for Health and Behavioral Outcomes." *Journal of Social Health Studies*, 33(4), pp467-474.

Rhodes, S.D., McCoy, T., Omli, M.R., Cohen, G., Champion, H., Rant, R. (2023). Findings from a Large Internet-Recruited Random Sample of Unmarried Heterosexual College Students in the South-eastern United States. Journal of HIV/AIDS Prevention in Children and Youth.;7(2):pp9-29.

Ross, J., Godeau, E., Dias, S. (2022). Sexual health. In Young people's health in context. Health Behaviour in School-aged Children (HSBC) study: International report from WHO.

Schuster, M. A., Corona, R., & Elliott, M. N. (2020). Mothers as Primary Sources of Health Information for Adolescents: Implications for intervention design. Journal of Adolescent Health, 67(4), pp345–352.

Shaheen, A. H., et al. (2019). "Reproductive Health Knowledge among Adolescents in Pakistan: A Cross-Sectional Study." BMC Public Health, 19(1), pp15-24.

Sharma, R., et al. (2020). "Menstrual Hygiene Practices and Its Impact on the Health of Adolescents." International Journal of Environmental Research and Public Health, 17(2), pp567-577.

Smith, E.A., Palen, L.A., Caldwell, L.L.; Flisher, A.J., Graham, J.W., Mathews, C., Wegner, L., Vergnani, T. (2022). Substance use and Sexual Risk Prevention in Cape Town, South Africa: An evaluation of the Health Wise program. Prev. Sci, 9, pp311–321.

Stattin, H., & Kerr, M. (2019). Parental monitoring and adolescent trust: A longitudinal analysis. Developmental Psychology, 55(2), pp364–374.

Subrahmanyam, K., & Greenfield, P. M. (2019). The impact of Digital Platforms on Adolescent Consultation Behavior. Computers in Human Behavior, 92, pp244–251.

Visalli, G., Cosenza, B., Mazzù, F., Bertuccio, M.P., Spataro, P., Pellicanò, G.F., (2022). Knowledge of Sexually Transmitted Infections and Risky Behaviors: A survey among high school and university students. J. Prev. Med. Hyg, 60, pp84–92.

WHO (2020). Indoor Environment - Health aspects of Air Quality, Thermal Environment, Light and Noise. Geneva, World Health Organization.

Youssef, A., et al. (2019). "Examining the Educational Backgrounds of Adolescents: Adolescent Health and Knowledge." Journal of Adolescent Health, 64(2), pp205-211.

Zak, S., Place, J., Stern, M. (2022). Health Belief Factors and Dispositional Optimism as Predictors of STD and HIV Preventive Behavior. Journal of American College Health; 52(5):pp229-236.

Zewdu, T., et al. (2019). "Knowledge and Attitudes of Adolescents towards Sexually Transmitted Diseases in Ethiopia." Journal of Global Health, 9(2), pp1-9.