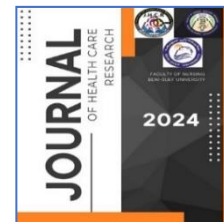




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Knowledge and Attitudes Regarding Reproductive Health among Adolescents Nursing Female Students at Beni-Suef City

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Abstract

Background: Adolescence is a unique stage of human development and an important time for laying the foundations of good health. For nursing students, reproductive health is particularly significant as it directly impacts their physical, emotional, and social well-being. **Aim of the study** Assess knowledge, attitudes regards reproductive health, knowledge, and the effect of reproductive problems on family formation among adolescent nursing female students at Beni-Suef City. **Research design:** Descriptive research design used to achieve the aim of current study. **Sample:** Included 99 nursing secondary schools using simple random sample. in nursing secondary schools in the Village of Tazmant at Beni Suf. **Setting:** The nursing secondary schools in the village of Tazmant at Beni-Suef City. **Tool:** one tool used to achieve the aim of this study is the questionnaire Sheet: which consisted of three parts to assess personnel characteristics, knowledge regarding reproductive health, and attitude regarding reproductive health. **Result:** The study showed that 38.4 % of the studied nursing students were in the first arrangement between sisters, 42.4% of the studied students had a good total level of knowledge, and 41.4% of the studied nursing students had a highly positive attitude of knowledge regarding reproductive health. **Conclusion:** there is a highly statistically significant positive correlation between the studied nursing students' total knowledge score and their total attitude. **Recommendation:** Regular training programs for adolescents to improve their knowledge regarding reproductive health and increase awareness of students about the importance of reproductive health.

Key Words: Adolescents, Attitudes, Knowledge, Reproductive Health

Introduction:

Adolescence is a transitional phase of growth and development between childhood and adulthood. According to the World Health Organization (WHO), adolescence is defined as the period between 10 and 19 years of age.

This phase is characterized by significant physical, psychological, and social changes. During adolescence, individuals experience puberty, which involves the development of secondary sexual characteristics and reproductive maturity. It is also a critical time for developing personal and social identities,

gaining independence, and establishing future health behaviors (WHO, 2022).

Reproductive health is a crucial component of overall health, particularly for adolescents, as it encompasses a wide range of issues related to the reproductive system and its functions and processes. According to WHO, reproductive health implies that people can have a responsible, satisfying, and safe sex life and that they can reproduce and have the freedom to decide if, when, and how often to do so. This concept includes the right to be informed and to have access to safe, effective, affordable, and acceptable methods of birth control, as well as the right to access appropriate healthcare services that enable women to go safely through pregnancy and childbirth (Ara, 2022).

For nursing students, reproductive health is particularly significant as it directly impacts their physical, emotional, and social well-being. Access to accurate information and appropriate reproductive health services can help prevent early and unintended pregnancies, reduce the risk of sexually transmitted infections (STIs), and ensure safe pregnancy and childbirth. Moreover, educating adolescent girls about reproductive health empowers them to make informed decisions about their bodies and futures, promoting gender equality and improving overall health outcomes (AKINWALE, 2023).

In recent years, there has been growing recognition of the importance of reproductive health education, especially among adolescents and young adults. This demographic is particularly vulnerable to reproductive health issues due to a lack of knowledge and access to appropriate resources. Nursing students, who are future healthcare providers, play a crucial role in disseminating reproductive health information and promoting healthy practices among their peers and the communities they serve. Therefore, assessing the knowledge and attitudes of nursing students regarding reproductive health is essential for developing

effective educational programs and interventions (Wigle, 2020).

Reproductive health is a crucial aspect of public health that significantly impacts the physical, psychological, and social well-being of individuals, particularly women of childbearing age. Reproductive health encompasses a wide range of issues, including family planning, sexual health, maternal health, and the prevention and management of sexually transmitted infections (STIs). It is essential to ensure that individuals can have a responsible, satisfying, and safe sex life and that they can reproduce and have the freedom to decide if, when, and how often to do so (Cook, 2020).

Globally, reproductive health is a significant concern, especially in developing countries where access to healthcare services, education, and resources may be limited. According to the World Health Organization (WHO), reproductive health implies that people can have a responsible, satisfying, and safe sex life and that they can reproduce and have the freedom to decide if, when, and how often to do so (WHO, 2022).

Implicit in this are the right of men and women to be informed and to have access to safe, effective, affordable, and acceptable methods of family planning of their choice, as well as other methods of their choice for regulation of fertility which are not against the law, and the right of access to appropriate health care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant (Singer, 2021).

In Egypt, reproductive health remains a critical public health issue. Despite significant progress in recent decades, challenges such as cultural norms, socioeconomic factors, and gaps in the healthcare system continue to impact the effectiveness of reproductive health services. Nursing students, as future healthcare providers, play a vital role in addressing these challenges. Their knowledge and attitudes

toward reproductive health can influence their practice and the quality of care they provide (Elnakib, 2022).

Significance of the Study

Adolescence is a period of life with specific health and developmental needs and rights. The 1.3 billion adolescents in the world today represent more than one-sixth of the global population. They are extremely diverse, differing not only in age but also in developmental stage as well as culture, nationality, wealth, education, family, and urban/rural, across all societies and settings, people aged between 10 and 19 years share key developmental experiences as they transition from childhood to adulthood, which make adolescence a unique formative stage of human development (WHO, 2024)

Egypt's young population is rapidly growing, the adolescents (aged 10-19) are around 17 million in Egypt, representing approximately 19 percent of the total population (Shaaban, 2024)

United Nations Fund Population Agency (UNFPA) promotes and protects the rights of adolescents. It envisions a world in which girls and boys have optimal opportunities to develop their full potential, to freely express themselves and have their views respected, and to live free of poverty, discrimination, and violence. To achieve this, UNFPA works across sectors and with many partners to: Empower adolescents and youth with skills to achieve their dreams, think critically, and express themselves freely; Promote health, by giving them access to sexual and reproductive health information, education, commodities, and services (Shaaban, 2024)

Aim of the Study

This study aimed to assess Knowledge and attitudes regarding Reproductive Health among adolescent nursing Female Students at Beni Suef City:

1. Assess knowledge regards reproductive health among adolescents.

2. Assess attitudes regards reproductive health among adolescents.
3. Assess knowledge of the effect of reproductive problems on family formation.
4. Assess the effect of reproductive health problems on family formation.

Research question

To fulfill the study purposes, the following research questions were answered:

1. What's the knowledge of adolescent girls about reproductive health?
2. What's the attitude of adolescent girls about reproductive health?
3. What's the effect of reproductive health problems on family formation?

Subjects and Methods

The subject and methods for this study were portrayed under four main designs as the following:

- I. Technical Item
- II. Operational Item
- III. Administrative Item
- IV. Statistical Item

I-Technical Item

The technical design includes Study design, setting, subject, and tools for data collection.

Research design:

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

Study Setting:

The study was conducted at the Technical Secondary School of Nursing for Girls in the eastern village of Tazmant in Beni Suef city. The number of technical secondary schools for nursing in Beni Suef city is 3 schools (Tazmant , Barout and Nursing school with health insurance (choose one school

randomized and the school was School Nursing for Girls in the eastern village of Tazmant in Beni Suef city to assess the knowledge and attitude regarding reproductive health among adolescents, consists from one building. This school had 4 classes capacity is about 25 nursing students. It consists of two floors. On the first floor there are the offices of the administrators, the headmaster, the student's bathrooms, and a large playground), the second floor contains about 4 classes and practical room.

Tools for data collection:

Tool: A structured interviewing sheet: was used in the study, it's developed by the investigator after reviewing the national and international related literature and contains three parts:

Part 1: Demographic characteristics of adolescents nursing students consisted of 12 items such as age, religion, academic grade, place of residence, ranking between sisters, mother's educational level, father's educational level, mother's occupation, father's occupation, number of sisters and brothers, family income, and suffer from any diseases.

Part 2: Adolescents nursing student's knowledge regarding reproductive health, consisted of 8 items:

A- Adolescent nursing students' knowledge regarding components of the reproductive system consisted of 3 closed-end questions such as organs of the internal female reproductive system, organs of the external female reproductive system, and function of the female reproductive system.

B- Adolescents nursing students' knowledge regarding reproductive health consisted of 7 closed-end questions such as the definition of reproductive health, goals of reproductive health (included 6 sub-items), and factors affecting reproductive health(included 3 sub-items), reproductive health services(included 6 sub-items), and women 's rights to

reproductive health(included 4 sub-items), reproductive health problems(included 8 sub-items), and target groups for reproductive health(included 4 sub-items).

C- Adolescents nursing student's knowledge regarding puberty and the menstrual cycle consisted of 8 closed-end questions such as definition of puberty, signs of puberty, definition of menstruation, age of menarche, duration of menstruation, phases of menstruation, fertilization time, and signs of premenstrual syndrome.

D- The adolescents nursing student's knowledge regarding premarital counseling consisted of 6 closed-end questions such as the definition of premarital counseling, components of premarital counseling, time of premarital counseling, places for presenting premarital counseling, purposes of premarital counseling(included 5 sub-items), and types of pre-marital examination(included 5 sub-items).

E- Adolescents nursing student's knowledge regarding pregnancy and childbirth consisted of 12 closed ends questions such as the definition of pregnancy, signs of Pregnancy, sure, signs of pregnancy, dangerous signs of pregnancy, times of Antenatal visit, the purpose of antenatal visits, times of immunization during pregnancy, signs of labor, the definition of puerperium, definition of breastfeeding, benefits of breastfeeding, and contraindications of breastfeeding.

F- The adolescents nursing student's knowledge regarding family planning consisted of 6 closed-end questions such as the definition of family planning, natural methods of family planning, mechanical family planning methods, hormonal methods of family planning, the purpose of family planning, and side effects of family planning.

G- Adolescents nursing student's knowledge regarding sexually transmitted diseases consisted of 6 closed-end questions such as

the definition of sexually transmitted diseases, signs and symptoms of sexually transmitted diseases, causes of sexually transmitted diseases, mode of transmission of sexually transmitted diseases, preventive measures of sexually transmitted diseases, and complications of sexually transmitted diseases.

H- Adolescents nursing students' knowledge regarding menopause consisted of 4 closed-end questions such as the definition of menopause, physiological changes during menopause, and psychological changes during menopause, and complications of menopause.

Scoring system:

Each question was scored (2) for complete correct answer, (1), for incomplete correct answer, and (0) for don't know was scored. The total score was 104 grades from 52 questions.

The total scores knowledge score was calculated as the following: -

- Good knowledge ($> 75\%$) = > 78 grades of total knowledge score.
- Average knowledge ($60 - 75\%$) = $62 - 78$ grades of total knowledge score.
- Poor knowledge ($< 60\%$) = < 63 grades of total knowledge score. (Minhas et al., 2021).

Part (3): Nursing student's attitude regarding reproductive health consisted of 17 closed end question such as adolescent girls need reproductive health services, education about puberty and the changes associated with it is essential for teenage girls, personal hygiene during menstruation prevents infections and sexually transmitted diseases, poor hygiene during menstruation can lead to genital infections, teenagers need to know about the health services available, purity of females to preserve their morals, early marriage affects the health of the mother and the fetus, the spread of sexual culture does not suit our society, mother care during pregnancy is necessary in case of problems, the group that needs advice for those seeking marriage is

those who have a family history of hereditary, contagious, and non-communicable diseases, face a sexual problem, I cannot take anyone's advice, counseling for those wishing to marry must be compulsory, early marriage protects young women and men from corruption, the use of contraceptives is a restriction for reproductive health, breastfeeding to prevent pregnancy is better than other methods of contraception, breast milk is sufficient nutrition for the baby in the first and second months only, and sexually transmitted diseases affect the fetus.

Scoring system:

Each attitude statement was scored as, (2) for agree, (1) for neutral, and (0) for disagree.

The total score was calculated as the following:

Highly Positive ($> 75\%$) = > 26 grades of total attitude score.

Positive ($60 - < 75\%$) = $21 - 26$ grades, of total attitude score.

Negative ($< 60\%$) = < 21 of total attitude score. (Permatasari et al., 2021).

Validity and Reliability:

The study tool was designed and submitted to a panel of 5 reviewers & experts from the community health nursing department faculty of nursing. Each one of the experts on the panel was asked to examine the instrument for content clarity, wording, length, format & overall appearance. Modifications of tools were done according to the panel's judgment

Reliability :

the reliability was done by Cronbach's Alpha Coefficient test. it was 0.875 for the knowledge assessment, and 0.987 for the attitude assessment.

Ethical considerations:

Official permission to conduct the proposed study was obtained from the Scientific Research Ethics Committee Faculty of Medicine Beni-Suef University. Participation in the study is voluntary and subjects are given complete full information about the study. The ethical considerations included explaining the purpose and nature of the study, stating the possibility to withdraw at any time, and confidentiality of the information where it not be accessed by any other party without taking permission of the participants. Ethics, values, culture, and beliefs are respected.

II) Operational Item:

Preparatory phase:

It includes reviewing related literature and theoretical knowledge of various aspects of the study using articles, the internet, and magazines to develop tools for data collection.

Pilot study:

A pilot test was conducted on 10% of the nursing students equal to 10 nursing students under study to assess the feasibility of the study as well as the clarity and objectivity of the tools. The needed modification was incorporated and those subjects were excluded from the actual study sample.

Fieldwork:

- An official letter was issued from the dean of the Faculty of Nursing BeniSuef University, official permission will be obtained from the director of nursing secondary schools in the village of Tzimant at Beni-Suef City, including the aim of the study to obtain permission after establishing a trustful relationship, each subject interviewed individually by the investigator to explain the study purpose.
- Data collected within 3 months from the first of September 2023 two days /week (Tuesday-Wednesday), from 9 am - 2 pm, till the needed sample is completed, interview of nursing students, informed consent obtained from

nursing students after the investigator introduce herself for each nursing students, then explain the purpose of the study to assess knowledge and attitude of nursing students about reproductive health. The study was collected through structured face-to-face interviews and the entire tool was filled by the investigator.

- The investigator utilized one tool, which was 20 -30 minutes, and met the nursing students two days per week (Tuesday- Wednesday) from 9 am - 2 pm.
- The investigator took 4 nursing students every one days each week consists about 33 nursing students per month, a total number of nursing students = 99 nursing students.

III-Administrative Item:

Approval to conduct this study was obtained from the dean of the Faculty of Nursing, Beni Suef University, and official permission was obtained from the director of the Training and Schools Department at the Directorate of Health and Population in Beni Suef regarding adolescents enrolled in schools of nursing for whom the study was conducted.

IV-Statistical Item:

Upon completion of data collection, data was computed and analyzed using Statistical Package for the Social Science (SPSS), version 26 for analysis. The P value is set at 0.05. Descriptive statistics tests such as numbers, percentages, and mean standard deviation (SD), are used to describe the results. The chi-square test was utilized to compare qualitative data.

Significance levels were considered as follows:

- | | |
|------------------------------------|-------------|
| • Highly statistically significant | P < 0.001** |
| • Statistically significant | P < 0.05* |
| • Not significant | P > 0.05 |

Results:

Table (1): Shows that, 51.5 % of the studied nursing students have 15 < 17 years with a

Mean \pm SD equal to 14.49 ± 0.522 , and 37.4 % of them were in the third academic grade. Moreover, 83.8 % of them were place of residents in urban areas.

Table (2): Shows that, 58.6 % and 62.6 % of the studied nursing mothers' and fathers' educational levels were secondary education, and 75.8 % of their mothers were housewives. While 59.6 % of their fathers were freelance workers. In addition, 60.6% of them have 1-2 sisters and brothers and 56.6% of them have enough family income.

Figure (1): Illustrate that, 38.4 % of the studied nursing students were in the first arrangement between sisters, 28.3 % of them were in the second arrangement between sisters, and 22.2 % of them were in the third arrangement between sisters.

Table (4): Shows that, the highest level of knowledge among the studied nursing students regarding reproductive health was concerning pregnancy and childbirth at 74.53 %, sexually transmitted diseases at 72.39 %, and family planning-related knowledge at 71.29 %.

Figure (2): Illustrates that 42.4% of the studied students had a good total level of knowledge regarding reproductive health, and 38.4% of them had a fair total level of knowledge. On the other hand, 19.2% of them had a poor total level of knowledge.

Table (5): Shows that, 79.8 %, 78.7 %, 75.7 %, and 74.7 % of the studied students agreed that personal hygiene during menstruation prevents infections and sexually transmitted diseases, adolescent girls need reproductive health services, education about puberty and changes associated with it is essential for teenage girls and mother care during pregnancy is necessary in case of problems, respectively. On the other hand, 72.7 % & 66.7 % disagreed that facing a sexual problem, cannot take anyone's advice and early marriage affects the health of the mother and the fetus, respectively.

Figure (3): Illustrated that 41.4% of the studied nursing students had a highly positive attitude toward knowledge regarding reproductive health, and 49.5% of them had a

positive. On the other hand, 9.1% of them had a negative attitude.

Table (6): Shows that, there was no statistically significant relation between the studied student's age, academic grades, and place of residence and their total reproductive knowledge score as the p-value was >0.05 .

Table (7): Showed that, there was no statistically significant relation between studied nursing students' fathers and mothers' educational level and occupational status, the number of their brothers and sisters and their ranking among their brothers, and their total reproductive knowledge level as p-value was >0.05 .

Table (8): Shows that, there was no statistically significant relation between the studied student's age, academic grades, and residence and their total reproductive health attitude score as the p-value was >0.05 .

Table (9): Showed that, there was no statistically significant relation between studied nursing students' fathers and mothers' educational level and occupational status, the number of their brothers and sisters and their ranking among their brothers, and their total attitude regarding reproductive health level as p-value was >0.05 .

Table (10): Show that, there is a highly statistically significant positive correlation between the studied nursing students' total knowledge score and their total attitude score ($p < 0.05$).

Table (1): Frequency Distribution of Demographic Characteristics among Studied Nursing Students (n=99).

Demographic characteristics	Variable	No.	%
age in years	15 < 17 years	51	51.5
	17 <19 years	48	48.5
Mean \pm SD		14.49 \pm 0.522	
Sex	Female	99	100.0
Religious	Muslim	90	90.9
	Christian	9	9.1
Academic grade	First	34	34.3
	Second	28	28.3
	Third	37	37.4
Place of Residence	Rural	16	16.2
	Urban	83	83.8

Table (2): Frequency Distribution of Family History of the Studied Nursing Students(n=99).

Demographic characteristics	Variable	No.	%
Mother's educational level	Illiterate	9	9.1
	basic education	20	20.2
	Secondary education	58	58.6
	high education	12	12.1
Father's educational level	Illiterate	9	9.1
	basic education	11	11.1
	Secondary education	62	62.6
	high education	17	17.2
Mother's occupation	Employee	24	24.2
	Housewife	75	75.8
Father's occupation	Government employee	36	36.4
	Freelance work	59	59.6
	Not work	4	4
Number of sisters and	1-2	60	60.6

brothers	3-4	39	39.4
Family income	Enough and saved	13	13.1
	Enough to cover the basics	56	56.6
	Not enough	30	30.3
Suffer from any disease	Diabetes	5	5.1
	Not have any diseases	94	94.9

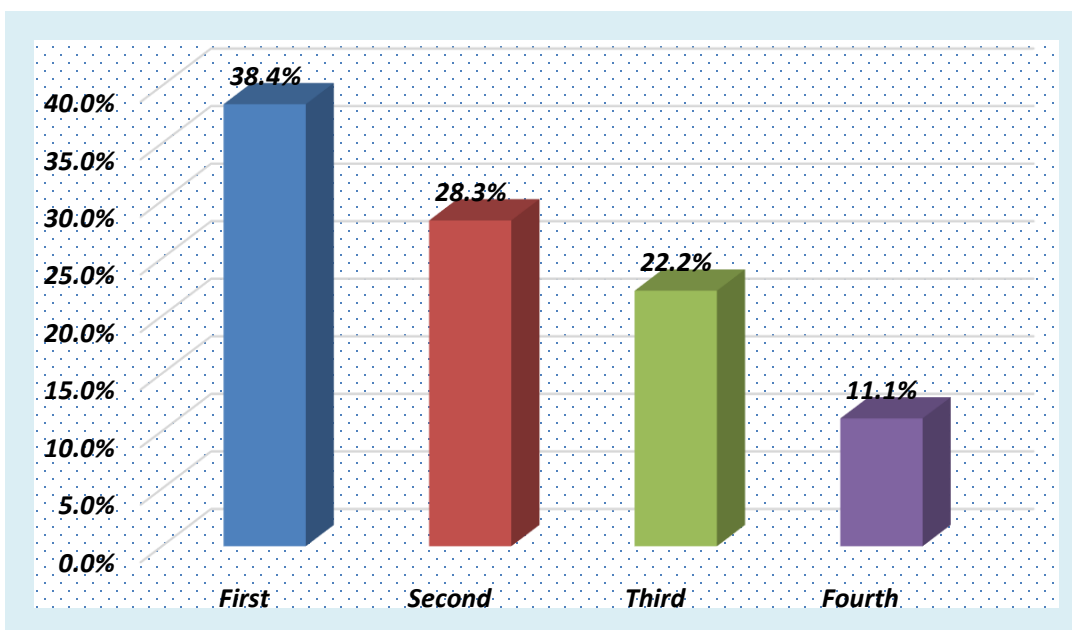


Figure (1): Percentage Distribution of the Studied Nursing Students according to their Arrangement between Sisters (n=99).

Table (4): Frequency Distribution of Reproductive Health Knowledge Mean Score of the Studied Students (n=99).

Items	No of item	Minimum	Maximum	Mean \pm SD	% of mean score
Female the reproductive system	3	.00	2.00	.9394 \pm .69	15.65
Reproductive health	7	2.00	14.00	9.8485 \pm 2.79	70.34
Puberty and the menstrual cycle	8	3.00	16.00	11.1313 \pm 3.24	69.57
Premarital counseling	6	1.00	12.00	8.3737 \pm 2.45	69.78
Pregnancy and childbirth	12	.00	24.00	17.8889 \pm 4.49	74.53
Family planning	6	.00	12.00	8.5556 \pm 2.59	71.29
Sexually transmitted diseases	6	.00	12.00	8.6869 \pm 3.52	72.39
Menopause	4	.00	8.00	5.4545 \pm 2.08	68.18

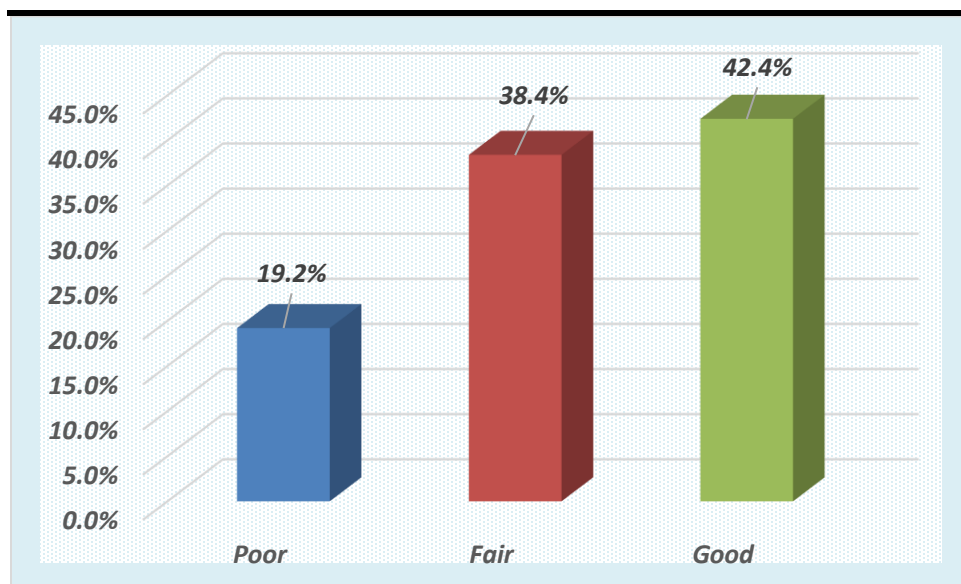


Figure (2): Percentage Distribution of the Studied Nursing Students' Total Knowledge Level regarding Reproductive Health (n=99).

Table (5): Frequency Distribution of the Studied Nursing Student's Attitude regarding Reproductive Health. (n=99).

Attitude Items	Disagree		Uncertain		Agree		Mean score
	No.	%	No.	%	No.	%	
Adolescent girls need reproductive health services.	6	6.1%	15	15.2%	78	78.7%	2.7
Education about puberty and the changes associated with it is essential for teenage girls.	6	6.1%	18	18.2%	75	75.7%	2.6
Personal hygiene during menstruation prevents infections and sexually transmitted diseases.	10	10.1%	10	10.1%	79	79.8%	2.6
Poor hygiene during menstruation can lead to genital infections.	16	16.2%	14	14.1%	69	69.7%	2.5
Teenagers need to know about the health services available.	10	10.1%	23	23.2%	66	66.7%	2.5
Purity of females to preserve their morals	49	49.5%	14	14.1%	36	36.4%	1.8
Early marriage affects the health of the mother and the fetus	66	66.7%	16	16.2%	17	17.2%	1.5
The spread of sexual culture does not suit our society	32	32.3%	32	32.3%	35	35.4%	2.0
Mother care during pregnancy is necessary in case of problems.	9	9.1%	16	16.2%	74	74.7%	2.6

The group that needs advice for those seeking marriage is those who have a family history of hereditary, contagious, and non-communicable diseases.	18	18.2%	8	8.1%	73	73.7%	2.5
If I face a sexual problem, I cannot take anyone's advice.	72	72.7%	15	15.2%	12	12.1%	1.3
Counseling for those wishing to marry must be compulsory.	48	48.5%	23	23.2%	28	28.3%	1.7
Early marriage protects young women and men from corruption.	49	49.5%	26	26.3%	24	24.2%	1.7
The use of contraceptives is a restriction for reproductive health.	43	43.4%	22	22.2%	34	34.3%	1.9
Breastfeeding to prevent pregnancy is better than other methods of contraception.	22	22.2%	18	18.2%	59	59.6%	2.3
Breast milk is sufficient nutrition for the baby in the first and second months only.	24	24.2%	37	37.4%	38	38.4%	2.1
Sexually transmitted diseases affect the fetus	51	51.5%	23	23.2%	25	25.3%	1.7

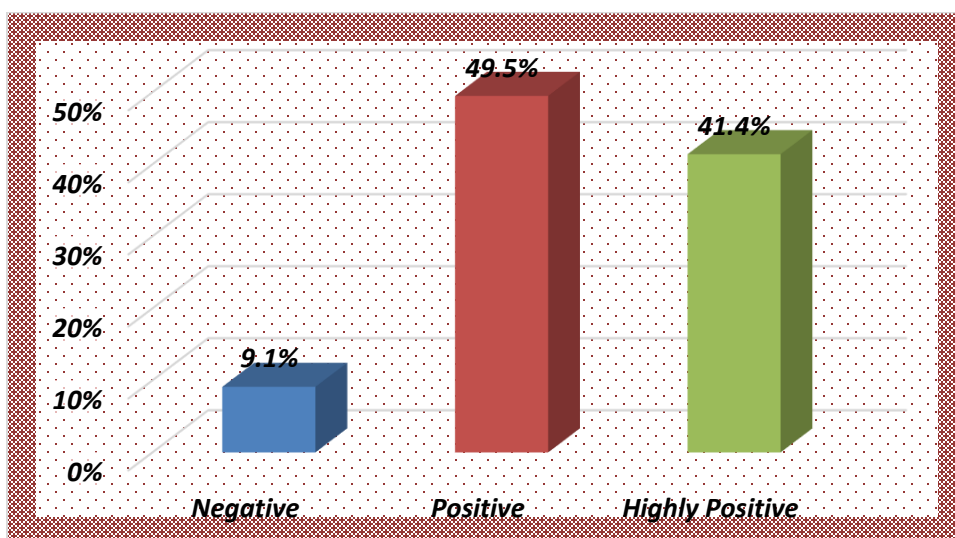


Figure (3): Percentage Distribution of the Studied Nursing Students' Total Attitude regarding Reproductive Health (n=99).

Table (6): Relation between Studied Nursing Students' Demographic Characteristics and their Total Reproductive Knowledge Score (n=99).

Demographic characteristics	Variable	Total knowledge score						Chi-square	P value
		Poor		Fair		Good			
		No.	%	No.	%	No.	%		
Age in years	13 < 15 years	10	52.6%	19	50.0%	22	52.4%	0.057	>0.05
	15<17 years	9	47.4%	19	50.0%	20	47.6%		
Sex	Female	19	100.0%	36	100.0%	42	100.0%	2.21	>0.05
Academic level	First	7	36.8%	11	28.9%	16	38.1%	1.26	>0.05
	Second	6	31.6%	12	31.6%	10	23.8%		
	Third	6	31.6%	15	39.5%	16	38.1%		
Religious	Muslim	10	52.6%	19	50.0%	22	52.4%	1.58	>0.05
	Christian	5	50.0%	2	25.5%	2	25.5%		
Residence	Rural	3	15.8%	9	23.7%	4	9.5%	2.95	>0.05
	Urban	16	84.2%	29	76.3%	38	90.5%		

Table (7): Relation between Studied Nursing Students' Family History and their Total Reproductive Knowledge Score. (n=99).

Demographic characteristics	Variable	Total knowledge score						Chi-square	P value
		Poor		Fair		Good			
		No.	%	No.	%	No.	%		
Father educational level	Illiterate	1	5.3%	3	7.9%	5	11.9%	10.74	>0.05
	basic education	4	21.1%	3	7.9%	4	9.5%		
	Secondary education	9	47.4%	30	78.9%	23	54.8%		
	high education	5	26.3%	2	5.3%	10	23.8%		
Mother educational level	Illiterate	1	5.3%	1	2.6%	7	16.7%	7.49	>0.05
	basic education	6	31.6%	8	21.1%	6	14.3%		
	Secondary education	10	52.6%	25	65.8%	23	54.8%		
	high education	2	10.5%	4	10.5%	6	14.3%		
Mother Occupation	Employee	4	21.1%	8	21.1%	12	28.6%	0.744	>0.05
	Housewife	15	78.9%	30	78.9%	30	71.4%		
Father	Governmental employee	6	31.6%	14	36.8%	16	38.1%	2.62	>0.05

occupation	Freelance work	11	57.9%	23	60.5%	25	59.5%		
	Not work	2	10.5%	1	2.6%	1	2.4%		
Number of sisters and brothers	1-2	10	52.6%	23	60.5%	27	64.3%	0.744	>0.05
	3-4	9	47.4%	15	39.5%	15	35.7%		
Ranking among brothers	First	6	31.6%	13	34.2%	19	45.2%	3.24	>0.05
	Second	4	21.1%	13	34.2%	11	26.2%		
	Third	6	31.6%	8	21.1%	8	19.0%		
	Forth	3	15.8%	4	10.5%	4	9.5%		
Income	Enough and saved	2	10.5%	4	10.5%	7	16.7%	5.62	>0.05
	Enough to cover the basics	8	42.1%	21	55.3%	27	64.3%		
	Not enough	9	47.4%	13	34.2%	8	19.0%		

Table (8): Distribution of relation between studied students' demographic characteristics and their total reproductive health attitudes core. (n=99).

Demographic characteristics	Variable	Total attitude score						Chi-square	P value
		Negative		Positive		Highly positive			
		No	%	No	%	No	%		
Age in years	13 < 15 years	6	66.7%	25	51.0%	20	48.8%	0.955	>0.05
	15<17 years	3	33.3%	24	49.0%	21	51.2%		
Sex	Female	9	100.0%	29	100.0%	41	100.0%	0.558	>0.05
Academic level	First	3	33.3%	18	36.7%	13	31.7%	0.390	>0.05
	Second	3	33.3%	13	26.5%	12	29.3%		
	Third	3	33.3%	18	36.7%	16	39.0%		
Religious	Muslim	6	66.7%	25	51.0%	20	48.8%	0.478	>0.05
	Christian	4	35.2%	3	24.6%	2	18.9%		
Residence	Rural	1	11.1%	8	16.3%	7	17.1%	0.196	>0.05
	Urban	8	88.9%	41	83.7%	34	82.9%		

Table (9): Relation between Studied Nursing Students' Family History and their Total Reproductive Health Attitude Score. (n=99).

Demographic	Variable	Total attitude score						Chi-square	P value
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characteristics		Negative		Positive		Highly positive			
		No	%	No	%	No	%		
Father educational level	Illiterate	0	0.0%	5	10.2%	4	9.8%	8.55	>0.05
	basic education	1	11.1%	9	18.4%	1	2.4%		
	Secondary education	7	77.8%	29	59.2%	26	63.4%		
	high education	1	11.1%	6	12.2%	10	24.4%		
Mother educational level	Illiterate	1	11.1%	4	8.2%	4	9.8%	7.93	>0.05
	basic education	1	11.1%	12	24.5%	7	17.1%		
	Secondary education	7	77.8%	30	61.2%	21	51.2%		
	high education	0	0.0%	3	6.1%	9	22.0%		
Mother Occupation	Employee	0	0.0%	11	22.4%	13	31.7%	4.21	>0.05
	Housewife	9	100.0%	38	77.6%	28	68.3%		
Father occupation	Governmental employee	2	22.2%	16	32.7%	18	43.9%	5.98	>0.05
	Freelance work	7	77.8%	29	59.2%	23	56.1%		
	Not work	0	0.0%	4	8.2%	0	0.0%		
Number of sisters and brothers	1-2	3	33.3%	31	63.3%	26	63.4%	3.08	>0.05
	3-4	6	66.7%	18	36.7%	15	36.6%		
Ranking among brothers	First	2	22.2%	15	30.6%	21	51.2%	7.62	>0.05
	Second	4	44.4%	16	32.7%	8	19.5%		
	Third	3	33.3%	12	24.5%	7	17.1%		
	Forth	0	0.0%	6	12.2%	5	12.2%		
Income	Enough and saved	1	11.1%	7	14.3%	5	12.2%	0.685	>0.05
	Enough to cover the basics	5	55.6%	29	59.2%	22	53.7%		
	Not enough	3	33.3%	13	26.5%	14	34.1%		

Table (10): Correlation between the Studied Nursing Students' Total Knowledge Score and Total Attitude Score (n=99).

Variables		Total knowledge score		Total attitude score	
Total knowledge score	R	1		.357	
	P- value	-		0.001**	
Total attitude score	R	.357		1	
	P- value	.000**		-	

****Highly statistically significant p < 0.000**

Discussion:

Adolescents, individuals between the ages of 10 and 19, experience a crucial period of physical, emotional, and social development that lays the foundation for their future well-being. This stage is marked by significant changes, including puberty, increased cognitive abilities, and a growing sense of identity and independence. Adolescents navigate complex social dynamics and begin to form more mature relationships with peers and family members. Addressing the unique needs of this age group through targeted health services, education, and social support can promote their physical and mental well-being, setting the stage for a healthy and productive life (*Beeson et al., 2023*).

Reproductive health among adolescent nursing females is a critical area of focus in healthcare, as it encompasses both the physical and psychological well-being of young mothers. This demographic faces unique challenges, including the need for comprehensive prenatal and postnatal care, access to family planning services, and education on sexual and reproductive health (*Rapee et al., 2023*).

Nursing adolescent mothers often require tailored support to navigate the complexities of motherhood while managing their own developmental needs. Effective reproductive health programs for these young women should integrate counseling, healthcare services, and educational initiatives to promote healthy behaviors, prevent further unintended pregnancies, and support their transition to adulthood. Additionally, addressing social determinants such as education, socioeconomic status, and access to healthcare can significantly enhance their reproductive health outcomes and overall quality of life (*Fainardi et al., 2022*).

Regarding demographic characteristics age. The present study findings related that the mean age of studied nursing students was 14.49 ± 0.522 years. result is similar to a study conducted by *Scarano-Pereira et al., (2023)* who conducted a study in Spanish about "Young nursing and medical students' knowledge and attitudes

towards sexuality and contraception in two Spanish universities: an inferential study".

They found that the mean age of adolescent females was 14.33 ± 3.3 years. These results were incongruent with *Ali et al., (2023)*, who conducted a study in Egypt about "Lifestyle and Reproductive Health Knowledge in Female Nursing Students about Polycystic Ovary Syndrome" in mean age of the studied female was 27.49 ± 0.358 years.

Concerning the academic grade, the current study result revealed that, more than one-third of the studied nursing students had a third academic grade. This result is in the same line with *Varelis et al., (2024)* who carried out a study conducted in Nigeria about "Sexual and reproductive health knowledge, attitudes, and behaviors: A survey of 12–17-year-old Sudanese refugees in Chad.", they found that 39.3 % of studied sample had at third academic grade. These results were incongruent with *Rahman et al., (2023)*, who conducted a study in Egypt about "Reproductive Health Education Using Interactive Learning Approach among the University Students" They found more two two-thirds of the studied students had a third academic grade.

Regarding to place of residence. The present study findings related that the majority of the studied nursing students were in urban areas. This result is similar to a study conducted by *Kistiana et al., (2023)* who conducted a study in Indonesia about "Differentials in Reproductive Health Knowledge among Adolescents in Indonesia".

They found that 88.9 % of the studied sample's place of residence was in an urban area. From the investigator's point of view, urban areas typically offer a wide range of amenities and services as healthcare facilities, educational institutions, shopping centers, entertainment venues, and cultural attractions. Urban areas usually have more extensive public transportation systems, including buses, subways, trains, and bike-sharing programs.

Concerning the mother's occupation, the current study result revealed that, nearly three-quarters of the studied nursing students mother's

occupation had housewives. This result is in the same line with **Al-Gburi et al., (2023)** who carried out a study conducted in Baghdad about "Assessing knowledge, attitudes, and practices toward sexually transmitted infections among Baghdad undergraduate students for research-guided sexual health education", they found that 75.6 % of the studied sample had mother's occupation had housewife.

These results were incongruence with **Fouad Abd Elkodoos et al., (2023)**, who conducted a study in Egypt about the "Effect of Educational Program Utilizing Audio and Braille Text on Knowledge and Practice of Visually Impaired Adolescent Girls Regarding Reproductive Health" They found most of the studied girl's mother's occupation had working. From the investigator's point of view, in many societies, traditional gender roles dictate that women are primarily responsible for household duties and childcare while men are the primary breadwinners. As a result, many women may identify themselves as housewives if their primary focus is on managing the home and caring for their families.

Regarding to number of sisters and brothers. The present study findings related that less than a quarter of the studied nursing students had several sisters and brothers from 1 to 2. This result is similar to a study conducted by **Emenike et al., (2023)** who conducted a study in Northern Nigeria about "Adolescents' sexual and reproductive health education: perspectives from secondary school teachers in Northern Nigeria".

They found that, 61.9 % of the studied sample's number of sisters and brothers from 1 to 2. From the investigator's point of view, it could be reflective of broader demographic trends in the population from which these nursing students are drawn. In some societies, smaller family sizes have become more common due to factors like urbanization, economic considerations, and changing cultural norms.

Concerning the mother's educational level, the current study result revealed that, more than half of the studied nursing student mothers' educational level had secondary education. This

result is in the same line with **Halloran et al., (2023)** who carried out a study conducted in Australia about "Reproductive and fertility knowledge and attitudes among transgender and gender-expansive youth: A replication and extension", they found that 59.1 % of the studied sample had student's mothers' educational level had secondary education.

From the investigator's point of view, in many regions, there has been a historical trend of limited access to higher education for women. Societal norms and cultural practices may have restricted educational opportunities for girls in the past, leading to a higher prevalence of secondary education among older generations of mothers.

Regarding studied nursing students' total knowledge, the current study revealed that less than half of them had good knowledge, more than one-third had average knowledge and less than a quarter of them had poor knowledge, this result agrees with **Alamoudi et al., (2023)** who conducted a study in an Aotearoa New Zealand tertiary institution about "Sexual and reproductive health knowledge: a study with Pacific young people enrolled in an Aotearoa New Zealand tertiary institution", they found that, 46.5 % of the studied sample had good total knowledge. Also, 17.5 % had poor knowledge and 36.0 % of them had average knowledge. From the investigator's point of view, adolescents have significant access to a wealth of information through the Internet, books, and other media.

Regarding personal hygiene during menstruation to prevent infections and sexually transmitted diseases, more than two third of studied nursing students agreed that personal hygiene during menstruation prevents infections and sexually transmitted diseases. This study's finding agrees with a study by **Ahmed et al., (2024)** who conducted a study in Benha about the "Effect of an Instructional Supportive Guideline Concerning Women's Reproductive Rights on Student Nurses' Perception and Satisfaction".

They found that 76.8 % of the studied sample had agreed that personal hygiene during menstruation prevents infections and sexually

transmitted diseases. From the investigator's point of view, parents or guardians might discuss menstrual hygiene with their children.

Concerning adolescent girls needing reproductive health services, more two two-thirds of studied nursing students had agreed that adolescent girls need reproductive health services. This study is in agreement with a study by **Lagadinou et al., (2024)** who conducted a study in Greece about "Knowledge and Attitudes of Medical and Nursing Students in a Greek University Regarding Sexually Transmitted Diseases".

They found that 77.1 % of the studied sample had agreed that adolescent girls need reproductive health services. From the investigator's point of view, access to reproductive health services provides adolescent girls with accurate information about their bodies, menstruation, puberty, contraception, pregnancy, sexually transmitted infections (STIs), and other reproductive health topics. This knowledge empowers them to make informed decisions about their health and well-being.

Regarding early marriage affecting the health of the mother and the fetus, nearly two-thirds of studied nursing students disagreed with early marriage affecting the health of the mother and the fetus. This study is in agreement with a study by **Zhao et al., (2023)** who conducted a study in China about "Assessment of knowledge, attitude, and practice of sexual health among students in a Chinese medical college: a cross-sectional study".

They found that 67.8 % of the studied sample disagreed that early marriage affects the health of the mother and the fetus. From the investigator's point of view, in some cultures, early marriage and childbearing are accepted practices. Adolescents growing up in these communities may view early marriage as a normal part of life, without considering the potential health consequences.

Regarding sexually transmitted diseases affecting the fetus, nearly more than half of studied nursing students disagree that early marriage affects the health of the mother and the

fetus. This study is in agreement with a study by **Martin et al., (2023)** who conducted a study in Perlin about "The Use of Nursing Theory to Support Sexual and Reproductive Health Care Education in Nursing Curricula". They found that 50.8 % of the studied sample disagreed with sexually transmitted diseases affecting the fetus.

From the investigator's point of view, some nursing students may hold personal beliefs or biases that influence their perception of early marriage and its effects on health. These biases could stem from cultural, religious, or social influences that shape their views on marriage and family planning.

Regarding nursing students' total attitude, the current study revealed that nearly half of them had a positive attitude, and more than two-thirds had a highly positive attitude toward knowledge regarding reproductive health, this result agrees with **Koksoy et al., (2024)** who conducted a study in Tehran about "Perspectives of midwifery and nursing students on recommending the COVID-19 vaccine to women of reproductive age and factors influencing counseling competency: a cross-sectional study.", they found that, 49.7 % of the studied sample had a positive attitude. Also, 37.5 % had a highly positive attitude of knowledge regarding reproductive health.

From the investigator's point of view, nursing students are pursuing a career in healthcare, where they will be directly involved in providing reproductive health services and care to individuals across the lifespan.

Regarding to relation between studied nursing students' socio-demographic characteristics and their total attitude, the current study revealed no statistically significant relation between studied students' age, academic grades, and residence and their total reproductive health attitude score.

This result agrees with the study done by **LU et al., (2024)** who conducted a study in southern Taiwan about the "Effectiveness of sexual health care training to enhance psychiatric nurses' knowledge, attitude, and self-efficacy: a quasi-experimental study in southern Taiwan", they found that, no statistically significant relation

between studied samples' age, level of education and occupation, and their total attitude scores. From the investigator's point of view, a larger sample size would provide greater statistical power to detect meaningful associations, but if the sample size is small, even substantial differences may not reach statistical significance.

Concerning to relationship between studied nursing students' family history and their total reproductive health attitude score, the current study revealed no statistically significant between the studied nursing students' family history and their total reproductive health attitude score.

This result agrees with the study done by **Azie et al., (2023)** who conducted a study in the Upper West Region, Ghana about “Parents’ attitude towards sexual and reproductive health communication: The case of Wa West district of the Upper West Region, Ghana”, they found that, no statistically significant relation between family history and their total reproductive health attitude score. From the investigator's point of view, the complexity and diversity of family influences may make it challenging to detect a significant relationship between family history and attitudes toward reproductive health.

Regarding to correlation between total knowledge score and their total attitude score, the current study revealed that there highly statistically significant positive correlation between the studied nursing students’ total knowledge score and their total attitude score. This result agrees with the study done by **Wang et al., (2023)** who conducted a study in southern Indonesia about “Mediating effects of ageism and knowledge on the relationship between contact with older adults and attitudes toward older adults' sexuality among nursing students”, they found that, there highly statistically significant positive correlation between the studied nursing students’ total knowledge score and their total attitude score.

From the investigator's point of view, as they acquire more knowledge, they may develop more positive attitudes toward reproductive health, recognizing its significance for individual well-being and public health.

Conclusion:

Based on the findings of the present study, it can be concluded that:

Increasing student awareness regarding the importance of reproductive health will positively affect their knowledge of reproductive health and attitude toward reproductive health the present study concludes that adolescents, specifically nursing students aged around 14.49 years, demonstrate varying levels of knowledge and attitudes towards reproductive health. Less than half of the studied nursing students had good knowledge, more than one-third had average knowledge, and less than a quarter had poor knowledge. Moreover, there was a significant positive correlation between the student's total knowledge score and their total attitude score toward reproductive health .

Recommendations:

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

- Regular training program for adolescents to improve their knowledge regarding reproductive health, this training should include updated information, communication strategies, and methods to engage adolescents.
 - Increase awareness of students about the importance of reproductive health.
 - Implementation of Comprehensive Health Education Programs Schools and educational institutions should introduce comprehensive reproductive health education programs.
- Involvement of Parents and Guardians by Parents and guardians should be involved in the educational process to reinforce learning at home.
- In further research:**
- Future studies in different cultural settings will shed light on how behavioral and emotional regulation in adolescence is influenced by different social expectations

regarding age, gender, family dynamics, and academic level.

- Replication of study using large study sample in different correction settings to generalize the results.
- Additionally, using standardized study methods to conduct future research should make it possible to pool individual study data, which may be necessary to obtain precise estimates for assessing knowledge and attitudes regarding reproductive health among adolescents.

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