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Awareness of Adolescents Regarding Prenatal Risk Factors In El-Menoufia Governorate

Neanaa M., Fayed[1];Samah M., Elhomosy[2]
[1]*Assistant Professor of Pediatric Nursing,* [2]*Lecturer ofMaternal and Newborn Health Nursing, Faculty of Nursing, El-Menoufia University, Egypt*
Corresponding Author: Neanaa M., Fayed[1]

Abstract: *Education and awareness of prenatal risk factors in adolescents affects their health status, fertility and sets the stage for health beyond reproductive years.Therefore, the aim of the present study was to assess awareness of adolescents regarding prenatal risk factors in El-Menoufia Governorate. A descriptive design was utilized. The study was carried out in four preparatory and four secondary schools selected randomly from all governmental preparatory and secondary schools affiliated to the Ministry of Education in El-Menoufia Governorate. The total sample size was 600 adolescents .Two tools were developed to collect the necessary data, a structured interview questionnaire sheet and Students risk factors awareness rating scale. The Findings of the present study showed that adolescents either were uncertain or had poor awareness regarding the different categories of prenatal risk factors. Also, there were no statistically significant differences between male or female, rural or urban regarding total awareness score of prenatal risk factors. In conclusion, the largest percentage of adolescents had poor awareness concerning the different categories of prenatal risk factors in the selected schools. It is recommended that establishment of a youth-friendly health center within each school is very important to improve adolescents health awareness.*

Key Words: *Adolescents Age, Prenatal Risk Factors, Nurse Role.*

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I. Introduction

The World Health Organization defines adolescents as young people aged 10-19 years. Adolescents are an important asset to a country because they will become tomorrow`s young men and women and will provide the human potential required for the country development. There are about 1-2 billion adolescents, one-fifth of the world`s population[1].

Adolescence is a particularly serious period in the reproductive, maternal, newborn and child health continuum to promote preconception health [2]. Current scientific research indicates that improving a women`s health before pregnancy increase the potential for healthy pregnancy outcome for both mother and infant [3] A risk factor is anything that increases the probability that a person will suffer harm. Prenatal risk factors are aspects of physical and social characteristics of women problems that have occurred in previous pregnancies and certain complications that women already have which is known to be associated with health-related conditions of the mother or pregnancy outcome[4.]

These factors may be classified into several things. In the current study, we select four most important factors. The first is the history as when mothers have had a problem in a previous pregnancy such as premature infant, underweight infant, a newborn with birth defects, and Rh incompatibility [5].

The second factor of risk factors affecting pregnancy outcome is the medical conditions that women may have before become pregnant. These diseases can maximize the risk of problems during pregnancy. After mothers become pregnant, they may need special care. There are varies examples of such disorders as heart and kidney diseases, High blood pressure, asthma, D.M, epilepsy and blood disorders[6].

The third factor is genetic blood disorders such as sickle cell anemia and thalassemia which considered most frequently single-gene diseases..Mothers who have these conditions are at risk of developing infections, high blood pressure, heart failure and blockage of lung arteries by blood clots during pregnancy [7].The picture is very worse in Arab countries, as the spread of hereditary diseases in the Arab world has been linked with consanguineous marriage. This kind of marriage still takes place especially in the rural areas because they believe that consanguineous marriage will last longer and other social or cultural reasons as well as lack of public awareness of these risks [8].

Nutrition and weight control is the fourth factor to be covered in this study. Obese women have high risk to develop gestational diabetes and preeclampsia [9]. Moreover, obesity during pregnancy is associated with neural tube defects, premature delivery, cesarean section and thromboembolic disease [10]. An appropriate

weight loss before pregnancy may reduce these risks. On the other hand, underweight women are more likely to have small, underweight infants with increased risk of miscarriage [11] and [12] Previous studies indicated that adolescents' students lack awareness of prenatal risk factors and are not well prepared to assume their future parenthood role. Further More, lack of awareness among students affects their well-being and their offspring `s health [13]. Many women enter pregnancy in poor health with untreated preexisting disorders or without awareness of healthy behaviors such as taking a daily folic acid supplement, avoiding exposure to tobacco and other teratogenic agents or updating their immunizations, all of which put them at risk for maternal and neonatal adverse complications [14].

Failure to promote reproductive health in adolescents stage may lead to health and developmental disorders later in life. Maternity and Pediatric nurses have a significant role in preventing teenage pregnancy. The outcomes associated with mothers and their infants may include low birth weight, developmental delays, poor academic performance and little or no knowledge about child development and parenting [15]. In developing countries like Egypt, primary sexual and reproductive health for adolescents has received little attention. Therefore, it is the responsibility of nurses as researchers to identify needs of adolescents, promote reproductive health and prevent the consanguineous marriage. Nurses must plan and implement the educational programs according to the educational needs of these young adolescents which cannot be ignored. Therefore, the study was conducted to assess the adolescents' awareness regarding prenatal risk factors.

II. Aim of the study

To assess awareness of adolescents regarding prenatal risk factors in El - Menoufia governorate.

III. Research Question

What is an awareness of adolescents regarding prenatal risk factors in El-Menoufia Governorate?

IV .Subject And Method

I. Subject

I.I. Research design: Adescriptive design was used.*(Cross-sectional study).*

I.2.Setting: The study was conducted in four preparatory and four secondary schools selected randomly from all governmental preparatory and secondary schools affiliated to the Ministry of Education in El-Menoufia Governorate. In Shebin El-Kom city "suburban area" two preparatory and two secondary schools were selected and In El Bagour district "rural area" two preparatory and two secondary schools were selected.

I.3.Sample: - A stratified random sampling technique was used in selecting the study subjects. Students in each school were divided into three strata: first, second and third academic year. Then from each stratum, a sample of 30 students was chosen randomly making a total of 90 students from each secondary school (Total = 360 students). As well as a sample of 20 students were chosen randomly making a total 60 students from each preparatory school (Total=240 students), The total sample size is 600 adolescents aged 13-18 years, Sample size has been calculated using the following equation: N = [DEFF*Np(1-p)]/ [(d2/Z21-α/2*(N-1)+p*(1-p)] at CI 95% and power 80%.

I.3.I.Inclusion criteria

- Adolescent aged 13-18 years.
- An absence of physical handicap or psychological problems.

I.4. Tools of the study: Twotools *were used for data collection:*

I.4.I.Tools I:A structured interview questionnaire. It was developed by the researchers to collect data about social characteristics of adolescent and their parents such as child`s age, gender, academic year, parents' age, their level of education, employment and their residence.

I.4.2.Tool II*:* Students risk factors awareness rating scale, It was developed by [13] and adopted by the researchers to assess adolescents awareness of prenatal risk factors. It consisted of four risk factors categories; reproductive health risks, genetic conditions and familial risks, chronic diseases, nutrition and weight control risks.

It was developed on 5- points Likert scale to obtain adolescents agreement or disagreement with these statements that represent prenatal risk factors or not. The statements"total 43" were worded either in the positive or negative response taking into consideration that they will be equally represented. Adolescents respond to each statement in one of the following answers; strongly agree, agree, uncertain, disagree and strongly disagree.

I.4.Scoring system

Item	Score	Total score
Strongly disagree	1	-The minimum possiblescore was 43 -The maximum possible score was 215
Disagree	2	
Uncertain	3	
Agree	4	
Strongly Agree	5	

The awareness level was graded as Negative awareness which means that awareness score was less than 70%., the Positive awareness which means that awareness score of 70%.

II. Method

II.1.Written Permission

An official permission to carry out the study was obtained from the directors of schools at the study settings after submitting an official letter from the Dean of the Faculty of Nursing, El-Menoufia University explaining the purpose of the study. Meetings were conducted first with the director of each school and school health nurse to obtain permission for conducting the study and explaining the aim and expected outcome. Then, meetings were conducted with the adolescent to explain the purpose of the study and discuss their expectation, obtain their cooperation and check their availability of participation in the study. Also, to clarify the items of the scale used in data collection.

II.2. For Protection of human rights

The adolescent was informed about the privacy of their information and it will be used for scientific research only, the study was voluntary, harmless, and anonymous and confidentiality of responses would be respected. Adolescent had the full right to refuse to participate in the study at any time. A formal consent was obtained.

***II.3.*Tools development**

Tools were developed by the researchers for data collection after a review of past and current, local and international literature related to adolescent prenatal risk factors using books, articles, periodicals and magazines to get acquainted with the various aspects of the research problem.

II.3.1. For validity assurance purpose:Tool one was submitted to a jury of three pediatric nursing, and maternal and newborn nursing experts "one professor in pediatric nursing, and two professors of maternal and newborn nursing".

II.3.2.Reliability of the Tools: Reliability test was done by applying the structured interviewquestionnaire and students' risk factors awareness rating scale to 30 adolescents using test-retest technique and Pearson Coefficient factor was 90.8%. The tools were applied to them and retested after 2 weeks. The degree of Spearman's rank correlation coefficient test was 0.82.

II.4. A pilot study

It was carried out on "10 %" of the subjects to test the clarity, feasibility, simplicity of the study tools, and time needed for data collection. No modifications were done as revealed from the pilot study. The subjects of the pilot study were excluded from the total sample to assure the stability of the results.

II.5. Data collection procedure

II.5.1.Data was collected over a period of seven months starting from October 2016 to May 2017.

II.5.2.Adolescents were individually interviewed by the researchers, the purpose of the study was explained.

II.5.3. Data collection was conducted four days a week during break time in the classroom or library. A structured interview questionnaire used first after that adolescents utilize students risk factors awareness rating scale to agree or disagree with each statement. This takes about 20-30 minutes.

IV. Data Analysis

Data entry, coding, and analysis were conducted using SPSS (20). Quantitative data were expressed in Mean ($\bar{x}$), Standard Deviation (SD), and Range (minimum-maximum), while qualitative data were expressed in frequency (number), and percent (%).Student t-test is a test of significance used for comparison between two groups having quantitative variables. Level of significance of our statistics was 95%, so, P value < 0.05 was considered a statistically significant difference.

V. Results

Table 1 showed adolescents' age ranged between 13 to 18 years old with the mean age was 15.9±1.5. As regard mothers' and fathers' level of education, 56.3% and 45.2 of them have high education respectively while 68.3 % of mothers were housewives, and 70.7 % of fathers were workers.

Table 2 showed the minor percentage of adolescent families (1.5 %) had genetic diseases; only (0.9%) of them had blood diseases, (0.4%) had birth defects and (0.2%) had mental retardation. On the other hand, the major percentage of them (70.2%) had chronic diseases, diabetes mellitus (35%), cardiac diseases 3.3%, hypertension (23%), renal disease (2%) bronchial asthma (2.7%) and anemia (3.9%).Also, this table illustrates diseases that adolescents are suffering from, about more than a third of them (36.7 %) have chronic diseases (anemia) while only (4%) have genetic diseases (blood and birth defects) and 8.3 % have communicable diseases (STDs, hepatitis, and tuberculosis).

Table 3, table 4, table 5 & table 6 illustrated adolescents' awareness regarding reproductive risk factors, genetic diseases, chronic diseases, nutrition& weight control

Table 3 illustrated the majority of adolescents had poor awareness in relation to the possibility of recurrence of abortion and considering the occurrence of IUFD as a risk factor in subsequent pregnancies, and the recurrence of hemorrhage at third trimester in subsequent pregnancies. The same table showed that two thirds of them had poor awareness in relation to the following; the relationship between menstrual disorders and the occurrence of pregnancy problems, the probability of delivering a child with birth defects in subsequent pregnancies, the possibility of recurrence of premature delivery and low birth weight in subsequent pregnancies, the probability of occurrence of problems after treatment of infertility. Also, nearly one-half of adolescents had poor awareness regarding the impact of multiple deliveries on subsequent pregnancies. However, only about one third of adolescents had poor awareness related to the following: impact of early marriages on mother and child's health, the importance of receiving medical care during pregnancy when health problems occur, the risks of late marriage on mother's health, the importance of blood analysis during premarital examination, impact of congenital anomalies of reproductive system on pregnancy and delivery, and health risks associated with hypertension during pregnancy. Meanwhile, adolescents had good awareness related to the importance of receiving medical care during pregnancy when health problems occur.

Table 4 showed that adolescents' had negative awareness in relation to most of the genetic diseases and family history statements. The majority of adolescents had negative awarenessrelated to the following; Hemophilia, Sickle Cell Anemia and Phenylketonuria and its impact on the infant. On the other hand, two-thirds of adolescents had poor awareness regarding the presence of birth defects in couple's family which may increase the probability of its existence among their children. Moreover, the majority of adolescents' had good awareness concerning the statement of consanguinity has a negative impact on the future of offspring and that the presence of mental retardation in a family increases the likelihood of its happening again.

Table 5 illustrated that all adolescents had negative awareness concerning chronic diseases and its effect on pregnancy. The majority of them had negative awareness in the following; the relationship between thyroid gland dysfunction and complications occurring during pregnancy, delivery, Systematic Lupus Erythematous. On the other hand, about one-half of adolescents had negative awareness concerning the impact of renal diseases, epilepsy, complications occurrence for the pregnant woman with cancer, Deep Vein Thrombosis in pregnancy and anemia in pregnancy. Also, the same table showed that about one-third of them had negative awareness concerning the impact of heart diseases on pregnancy and delivery, and the impact of diabetes mellitus on the pregnant woman and her infant.

Table 6revealed that the majority of adolescents had negative awareness concerning the following: the role of folic acid for the health of pregnant woman and her child, misconception of the taking more vitamins is better for pregnant women and her child health, the extra requirement for calcium during pregnancy, drinking milk as an extra requirement during pregnancy, role of protein and vitamin C during pregnancy. On the other hand, about two-thirds of adolescents had negative awareness related to the importance of iron during pregnancy, excess weight during pregnancy. In addition, the majority of adolescents had good awareness concerning the impact of extreme underweight on pregnant women and infant's health, the causal relationship between nutrition and health of the mother and her fetus, protein is an important nutrient during pregnancy.

Figure 1revealed that the largest percentages of adolescents (89.2%, 83.8%, and 90%) had poor awareness regarding reproductive health, genetic diseases, and chronic diseases respectively. On other hands, 51.3 % of them had positive awareness regarding nutrition and weight control statements

Table 7 showed that the majority of adolescents (74.3%) had a percent score less than 70% of the highest possible score concerning prenatal risk factors. On the other hand, there were no statistically significant differences between male and female regarding total awareness score of prenatal risk factors (p. value >0.05). Also, there was no statistically significant difference between rural and urban adolescents regarding total awareness score of prenatal risk factors (p. value >0.05).

Table (1) Socio-Demographic characteristics of adolescents and their parents (n=600)

Items		**Mean ± SD**	
Adolescents Age **Range 13-18** years		15.9±1.5	
		No	**%**
Age Groups by years	13-≤14	145	24.2
	15--≤16	234	39.0
	17--≤18	221	36.8
Sex	Male	300	50.0
	Female	300	50.0
Residences	Rural	300	50.0
	Urban	300	50.0
Mothers' Level of education	Illiterate	2	0.4
	primary school	92	15.3
	secondary school	168	28.0
	university education	338	56.3
Mothers' job	housewife	410	68.3
	Worker	18	3.0
	Employee	172	28.7
Fathers' Level of education	Illiterate	21	3.5
	primary school	79	13.2
	secondary school	229	38.1
	university education	271	45.2
Fathersjob	Workers	424	70.7
	Farmers	46	7.6
	Employees	130	21.7

Table (2) Medical & Family History of adolescents (n=600)

Items	**Medical history**		**Family history**	
	No	**%**	**No**	**%**
Genetic diseases **Yes** **No**	**5** **595**	**1.5%** **97.5%**	 **24** **576**	 **4.0** **96**
Chronic diseases **Yes** **No**	**233** **367**	**70.2%** **29.8**	**220** **380**	 **36.7** **63.3**
Communicable diseases **Yes** **No**	 **31** **569**	 **9.3%** **80.7**	 **50** **550**	 **8.3** **91.7**

***Genetic diseases** include blood diseases, birth defects, and mental retardation.

***Chronic diseases** include diabetes mellitus, cardiac diseases, and hypertension, renal disease, bronchial asthma, and anemia ***Communicable diseases** STDs, HIV, viral hepatitis and TB

Table (3) Awareness of Adolescents Concerning Reproductive Health (n=600)

Items	**Strongly agree**	**Agree**	**Not sure**	**Disagree**	**Strongly disagree**	**Mean awareness score ±SD**
	5	**4**	**3**	**2**	**1**	
	%	**%**	**%**	**%**	**%**	
There is no relation between menstrual disorders and pregnancy problems.	8.2	18.5	37.3	13.5*	22.5*	2.86±1.11
Early marriage is not necessarily causing ill- health to mother and child	6.2	12	16	28.8*	37*	2.22±1.23
The pregnant woman should visit the doctor when she complains of any health problems.	57.3*	35.5*	2.7	3	1.5	4.44±0.81
Multiple deliveries could have a negative impact on the following pregnancy.	25.2*	25.5*	25.8	13.5	10	3.66±1.17
Laboratory investigations are necessary when the health condition necessitates this and as long as the woman is not pregnant so there is no need to carry out these investigations.	10.3	10.5	10.5	45.4*	23.3*	2.14±1.07
Late marriage could cause health risks during pregnancy.	27.5*	37.3*	25.7	5.7	3.8	3.79±1.03
Hypertension with pregnancy may increase risks of pregnancy.	38.2*	36.0*	20.8	3.3	1.7	4.06±0.93
Hemorrhage in the third trimester may not recur with next pregnancy.	12.5	13.7	60.8	8.5*	4.5*	2.81±0.86
In our society, I do not find it necessary to make blood analysis for premarital couples.	5.3	14.7	15.0	39.5*	25.5*	2.35±1.20
The existence of congenital anomalies of the reproductive	31.0*	31.8*	20.8	7.2	9.2	3.82±1.13

system may negatively affect pregnancy and delivery.						
The occurrence of abortion with one pregnancy doesn't necessarily mean its recurrence with the next pregnancy.	16.7	30.8	38.0	11.8*	2.7*	3.47±0.99
Intra-uterine Fetal Death is considered a negative indicator for the next pregnancy.	8.0*	7.2*	66.5	12.5	5.8	3.15±0.81
Premature delivery is not necessarily connected with its recurrence in the subsequent pregnancy.	10.6	2.8	36.8	19.5*	12.3*	3.48±0.89
Low birth weight infant increases the possibility of its recurrence with subsequent pregnancies.	16.3*	173*	43.8	18.8	3.8	2.93±0.93
If the woman delivered an infant with birth defects, it is not probable that this will happen again in subsequent pregnancies.	5.0	22.7	36.7	31.2*	4.4*	2.93±0.96
No complications will happen in pregnancy that comes after treatment of infertility.	5.2	15.0	53.3	23.7*	2.8*	2.96±0.84

- **Means the correct answer**

Table (4) Awareness of Adolescents concerning Genetic Diseases and Couples Family History as prenatal risk factors

Items	**Strongly agree**	**Agree**	**Not sure**	**Disagree**	**Strongly disagree**	**Mean awareness score ±SD**
	5	**4**	**3**	**2**	**1**	
	%	**%**	**%**	**%**	**%**	
Consanguinity has a negative health impact on the future of offsprings.	42.7*	37.8*	12.8	3.4	3.3	4.13±0.99
Hemophilia is a serious blood disease that isn't hereditary transmitted.	12.6	17.5	54.7	9.5*	5.7*	3.10±0.94
Thalassemia and Sickle cell anemia are from blood diseases that can be hereditary transmitted and could have an adverse effect on the child.	3.7*	6.0*	48.5	24.5	17.3	2.75±0.94
Presence of a mental retardation in a family increases the likelihood of its happening again.	12.7*	47.2*	27.8	11.5	0.8	3.59±0.88
Presence of birth defects in the couple's family does not increase the possibility of the appearance of these defects among their children.	3.8	19.5	42.3	32.8*	1.6*	2.91±0.85
A pregnant woman with phenylketonuria can get a normal healthy infant, only with prenatal counseling.	4.0*	9.5*	66.0	16.5	4.0	2.93±0.76

***** Means the correct answer

Table (5) Awareness of Adolescents Regarding Chronic Diseases as prenatal risk factor (n=600)

Items	**Strongly agree**	**Agree**	**Not sure**	**Disagree**	**Strongly disagree**	**Mean awareness score ±SD**
	5	**4**	**3**	**2**	**1**	
	%	**%**	**%**	**%**	**%**	
Heart diseases and hypertension do not necessarily affect pregnancy, or its outcome and delivery.	6.3	14.0	17.5	33.5*	28.7*	2.56±1.30
Diabetes Mellitus may have a health impact on the pregnant woman and her child.	13.3*	48.0*	32.2	4.0	2.5	3.56±0.80
Renal troubles during pregnancy may have an adverse negative effect on the child.	11.2*	39.1*	39.0	9.2	1.5	3.49±0.86
An epileptic woman could become pregnant without causing almost any health risks to her child.	6.3	15.4	31.3	16.5*	30.5*	2.81±1.03
There is no relation between thyroid gland dysfunction and complications occurring with pregnancy, delivery or the infant.	9.0	19.4	57.2	10.2*	4.2*	2.77±0.92
Auto-immune diseases in the pregnant woman may cause adverse health effects for mother and her child.	2.5*	13.2*	36.3	33.0	15.0	2.55±0.98
A woman with Systemic Lupus Erythematous (SLE) could become pregnant without any fears.	12.2	10.1	65.0	5.5*	7.2*	2.76±0.92
There are no risks for complications occurrence for the pregnant woman with cancer.	14.7	15.0	21.5	26.3*	22.5*	2.53±1.13
Deep Vein Thrombosis could occur in all stages of pregnancy causing adverse effects for the woman.	10.0*	41.2*	37.3	9.8	1.7	3.48±0.86
There are no health contraindications for the anemic woman to become pregnant.	4.6	16.8	31.7	27.7*	19.2*	2.90±1.04

*** Means the correct answer**

Table (6) Awareness of Adolescents Regarding Nutrition and Weight Control (n=600)

Items	Strongly agree	Agree	Not sure	Disagree	Strongly disagree	Mean awareness score ±SD
	5	4	3	2	1	
	%	%	%	%	%	
Extreme underweight in a pregnant woman may adversely affect her and her infant.	45.7*	43.8*	7.2	2.5	0.8	4.31±0.78
There is no causal relationship between nutrition in general and the health of the mother and/or her fetus.	1.7	10.1	4.0	31.0*	53.2*	1.88±1.09
Folic acid plays an important role in the health of pregnant woman and her infant.	6.8*	7.7*	69.3	6.5	9.7	3.52±0.86
Protein is considered an important nutrient that should be taken in large quantities in order to meet the nutritional requirements during pregnancy.	30.0*	33.4*	29.5	4.3	2.8	3.83±1.00
The more vitamins the pregnant woman consumes during pregnancy, the better it is for her and for her infant.	26.8	43.8	17.5	10.5*	1.4*	3.84±0.98
Calcium is necessary both before and during pregnancy in the same equal manner.	22.3	24.7	41.0	10.5*	1.5*	3.49±1.07
Drinking milk is the natural matter for the pregnant woman as much as in other regular times as before pregnancy.	26.8	36.2	23.2	10.5*	3.3*	3.43±1.09
The more weight the pregnant woman will have the better it is for her and her infant in order to avoid delivering low birth weight child.	14.3	24.7	25.5	25.2*	10.3*	3.08±1.22
The importance of protein is mainly in its role in building the skeletal system of the infant	29.1	44.5	18.2	5.0*	3.2*	3.92±0.98
Iron is considered as one of the essential elements necessary before and during pregnancy in the same equal manner.	11.8	27.2	29.3	18.5*	13.2*	3.46±1.12
Vitamin C plays an important role in a healthy pregnancy.	7.5*	0.8*	18.8	35.2	37.7	3.99±0.96

*** Means the correct answer**

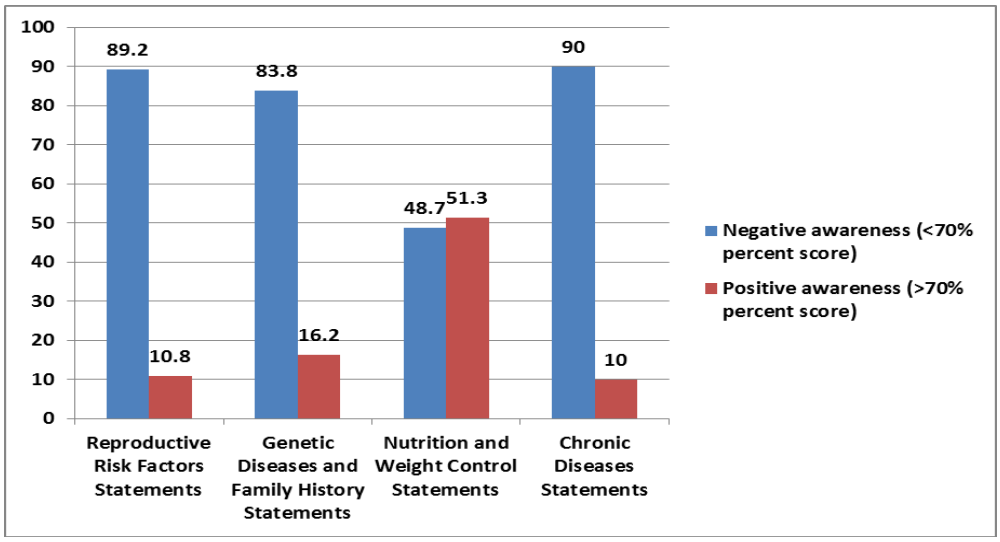

Figure (1) Percent Distribution of Adolescents Awareness According to Prenatal Risk Factors.

Table (7) Percent Distribution of Adolescents Awareness level and Its relationship with their gender and residence

	Awareness levels			
	Negative awareness (<70% percent score)		Positive awareness (>70% percent score)	
	No	%	No	%
Overall prenatal risk factors awareness	449	74.8	151	25.2
	Mean ± SD of total awareness score		**t. test**	**p. value**
Adolescents sex:				
Male	64.4±4.5		0.56	0.573
Female	64.6±4.44			
Adolescents residence:	**Mean ± SD of total awareness score**		**t. test**	**p. value**
Rural	64.36±4.48		0.6	0.549
Urban	64.58±4.42			

NB: p>0.05

VI. Discussion

Adolescents are an important asset to a country because they will become future young men and women and will provide the human potential required for the country's development. Awareness of prenatal risk factors should be an essential part of the learning process beginning in childhood and continuing into adult life. Education and perception of prenatal risk factors in adolescents affects their health status, fertility and sets the stage for health beyond reproductive years [16]. Prenatal risk factors cover a wide range of issues like reproductive health, genetic disease, chronic diseases, weight control, and nutrition. If adolescents can be sensitized about issues of prenatal risk factors, it may sponsor to increase maternal health and reduce maternal and infant mortality rates [5]

Concerning to adolescents` awareness of reproductive health "table 3", it was surprising that adolescents had positive awareness regarding premarital testing, whereas about two-thirds of them reported that premarital testing was necessary. This can be rationalized as adolescents acquired knowledge about premarital examination from their peer group, relatives, mass media, and internet. This finding was in accordance with **[17]** who stated in their study about **"Improving awareness of preconception health among adolescents: the experience of a school-based intervention in Lebanon"** that most of the Syrian students reported that premarital testing is necessary. Also, the law in Egypt was constituted by the Ministry of Health and Population in the year 2008 and entails every couple to do premarital examination before marriage **[18].**

Findings showed that the majority of adolescents had good awareness regarding pregnant women visiting the physician or MCH center when she has health complaints. This is very good practice as the women during pregnancy should visit health care center or doctor regularly or when she has health complaints.

Alternatively, most of the adolescents had negative awareness related to many items of reproductive health as possible recurrence of abortion, taking into account that occurrence of intrauterine fetal death is a risk factor in consequent pregnancies and recurrence of hemorrhage at third trimester in consequent pregnancies. These findings were in disagreement with [16] who stated in their study about **'' Awareness of Reproductive Health among College Students of Visakhapatnam** '' that the risk of fetal loss during pregnancy increases from 15- 20% in the first pregnancy up to 40% after one abortion**.** In addition [19] reported that hemorrhage was considered the important cause of maternal mortality worldwide and responsible for 127 000 deaths annually. Postpartum hemorrhage (PPH) is considered the most common type of maternal hemorrhage where 14 million cases occurred each year. In Egypt, the main cause of death was postpartum hemorrhage (25%) and the third cause of death was antepartum hemorrhage (8%) [20]. So that, adolescents need more orientation concerning prenatal risk factors for reproductive health and couple responsibilities.

Also, Study findings showed that two-thirds of adolescents perceived hypertension as a great risk to the health of the mother. This finding supported by[21]who stated in their study about " **Effect of Educational Program for Nurses about Pregnancy Induced Hypertension on their Knowledge in Port Said Hospitals"** that In Egypt, pregnancy-induced hypertension is considered a major cause of maternal death, related to 27% of direct obstetric death and 22% of all maternal deaths. On the other hand, about one-third of adolescents did notconsider heart diseases and hypertension as prenatal risk factors. It was a serious problem since about one-quarter of the sample has a family history of hypertension. So that, the young generation's need for more knowledge about chronic diseases and its effect on pregnancy in order to understand the relationship between these diseases and reproductive health.

As regards adolescents awareness of hereditary disease "table 4", it is surprising that most of the adolescents' had good awareness in relation to the statements of consanguinity has a negative impact on the future of offspring and the presence of mental retardation in a family increases the likelihood of its happening again. This finding was in the same line with [22] who found in their study that consanguinity increased reproductive hazards and the chance for genetic disease. Also, it increased the risk of genetic disorders in future offspring. On average, first cousins have an extra risk of 1.7–2.8% of having a child with an autosomal disorder.

As regards to chronic diseases "table 5", results of the current study revealed that although, about two thirds of adolescents had knowledge about diabetes mellitus and its effects on the mother and her child, yet nearly one third of them had poor understanding regarding the effect of diabetes mellitus, where they were uncertain that Diabetes Mellitus may lead to negative effect on the pregnant woman and her child. This was very odd since about one-third of the subjects have a family history of D.M. So that adolescents should be informedthat diabetes mellitus during pregnancy raises the risks of stillbirth, congenital anomalies, abortion, premature labor, macrosomia, and traumatic delivery[23].

As regards to nutrition and weight control as prenatal risk factors "table 6", The majority of adolescents mentioned that good nutrition was an important factor for the maternal health and her child's but they did not know well the different nutritional components and their impact. For example, most of the adolescents had poor awareness regarding the role of folic acid and its effects on the health of pregnant woman and her child**.** This was in constant with [24] who stated in their study about **"Folic Acid Prevents Neural Tube Defects-International Comparison of Awareness among Obstetricians/ Gynecologists and Urologists"** thatfoliate is

very important for women of childbearing age. Lack of foliate in the diet during pregnancy can lead to birth defects during a critical phase of organogenesis as neural tube defects, cardiovascular defects, urinary tract congenital anomalies and orofacial clefts. Certain drinks and foods, such as citrus juices and vegetables are particularly beneficial sources of foliate

The current study revealed that about two-thirds of adolescents had poor knowledge toward the importance of iron intake during pregnancy. This reflects the need of adolescents to know that iron deficiency anemia is the most common nutritional deficiency in the world.Iron supplementation guards both the mother and her infant against iron deficiency anemia and its complications. Adolescents should know that anemia influences about 43 percent of women of reproductive age in developing countries**.** These findings werein the same line with [25] who found in his study about **"The Factors Affecting The Knowledge Of Girls' Students Regarding Iron Deficiency Anemia "** that more than half of students had poor knowledge related to iron deficiency anemia.

The current study showed that the majority of adolescents believed that taking more vitamins is better for during pregnancy. This can be rationalized as, in our community; there was misconception where women believe that the more vitamins she takes, the healthier will be and her child. These misconceptions should be corrected through nutritional counseling provided to adolescents by healthcare personnel in different community settings. A similar research conducted by[13] who found in their study about "**Awareness of Adolescent Student Regarding Prenatal Risk Factors"** that students had a very low level of knowledge about vitamins intake that women needed during pregnancy**.**

The current study indicated that the majority of adolescents had poor information concerning the function of the protein and an extra requirement for calcium during pregnancy. Adolescents should know that Low-protein intake in the period of fetal development during pregnancy causes changes in the building and function of skeletal muscle and skeletal system. Also, healthy diet throughout pregnancy has an important effect on birth weight[26].

Alternatively, the majority of adolescents in the present study think that a pregnant woman should take milk in the same way as the non-pregnant woman. This can be rationalized as the adolescents have lack of knowledge regarding the ideal nutrition of the pregnant women. A similar study conducted by [13].They found that students had extremely poor knowledge about the ideal nutrition of the pregnant women. Adolescents must understand that calcium is an essential element in the diet of pregnant women. It is important for growing and strengthening fetal bone, developing healthy nerves, heart, and muscles. If the mother does not take sufficient calcium in her diet, the fetus will take it from her bones; this will impair her own health later on[27]**.**

Finally, adolescents have a significant lack of information concerning most items of prenatal risk factors and they have not exposed adequately to health education from healthcare professionals. Thus, there was an urgent need to improve community awareness especially youth regarding prenatal risk factors and its impact on their future reproductive health.

VII. Conclusion

Based on the results of the present study, it is concluded that the majority of adolescents' had negative awareness regarding prenatal risk factors.Also, there were no statistically significant differences were found between adolescent's awareness of prenatal risk factors and their gender or residence.

Recommendations

Based on the results of the present study, the following recommendations can be suggested:-

9.1.Establishment of a youth-friendly health center within each school and each health care center

9.2.Encouragement of adolescents to visit these centers through advertisements and social media.

9.3. Health care professionals, especially maternity and pediatric nurses, should be capable of conveying health messages to youth in these centers based on needs assessment.

9.4.Health centers should hold conferences for adolescents to increase their awareness regarding psychosomatic changes during adolescence period, prenatal risk factors, premarital counseling, sexual health, and health-related behaviors

9.5. For generalizability purpose, the study should be conducted on a large sample of adolescents.

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