

## Health Risk Behaviors among Pregnant Women at Sohag City

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### Abstract:

**Background:** Pregnancy is a special stage linked to various biopsychosocial changes. Several unhealthy lifestyle behaviors may occur during pregnancy that may have potential substantial impacts. **Aim:** To assess health risk behaviors among pregnant women at Sohag City. **Subjects and Method:** A descriptive cross-sectional research design was used in the study by using systematic random sample technique 354 pregnant women had been chosen in the three selected maternal and child health centers. **Tools:** Three tools were used: **Tool 1:** Structured interview questionnaire which include data about (sociodemographic characteristics, obstetric history, history of chronic diseases and current complain). **Tool 2:** Include two parts which used to assess mother's knowledge and reported practice regarding health risk behaviors during pregnancy. **Tool 3:** Women's attitude regarding health risk behaviors during pregnancy. **Results:** Illustrated that (65.8%) of pregnant women had poor score of knowledge, (64.1%) good reported practice and (51.1%) of them had positive attitude about health risk behaviors during pregnancy. Regarding sociodemographic characteristics, there was a statistically significant difference between knowledge, reported practice and attitude where  $p=0.000^*$ . **Conclusion:** About two third of studied pregnant women had fair score of reported practice and poor score of knowledge while about half of them had positive attitude. **Recommendation:** Health education program is needed to increase awareness of pregnant women about healthy behaviors during pregnancy.

**Keywords:** Health, Pregnant Women & Risk Behaviors

### Introduction:

Lifestyle behaviors during pregnancy may change along social, mental and physical changes in a woman's body. Several unhealthy lifestyle behaviors, including physical inactivity, sedentary behavior, alcohol use, exposure to tobacco smoke, unhealthy diet pattern, sleep disturbance, and psychosocial/mental stress, may occur during pregnancy that may have potential substantial impacts on offspring health risks at birth and early childhood (Zong & Xi., 2022).

Lifestyle and unhealthy behavior are two leading causes of death in the world, and the philosophy of providing health services has shifted from disease treatment to health prevention and promotion. The importance of health promoting behavior has played an important role in the healthcare system (Ozgoli., 2020) According to World Health Organization data, roughly 830 women die every day from pregnancy-related diseases that are easily preventable (Khaleel et al., 2021).

Encouraging women to adopt healthy behaviors during pregnancy has the potential to reduce the risk of pregnancy-related conditions such as gestational diabetes, obstetric complications: pre-term birth, miscarriage, and stillbirth. Furthermore, healthy

behaviors developed during pregnancy have the potential to be maintained into the postnatal period and beyond, improving the health of women, as well as their children. (Rockliffe et al., 2021).

Physical activity throughout pregnancy has been proved safe and beneficial for both women and fetuses. Regular physical activity is associated with increased cardiorespiratory fitness and decreased risk of gestational hypertension, preeclampsia, gestational diabetes, and excessive gestational weight gain in healthy pregnant women. Pregnant women who are physically active or regularly participate in exercise are more likely to give birth vaginally and less likely to have urinary incontinence, postpartum weight retention, and the symptoms of depression (Yang et al., 2019).

Optimizing the nutrition in the first 1,000 days of life is opportune to prevent and reduce the risk of developing chronic diseases in the future and adverse neonatal outcomes. A healthy dietary pattern was associated with lower risk of gestational diabetes mellitus, weight gain and hypertensive diseases (Surita et al., 2020).

The sleep pattern presented by women during pregnancy substantially different from the pattern that occurs during other periods of life, and encompasses changes in sleep timing and duration,

satisfaction and architecture (Pires et al., 2021). Psychophysiological changes caused by pregnancy lead to sleep disturbances which approximately 27.9% of women sleep for less than 7 h per night (Wang & Jin., 2020).

The use of prescription medications and other over the counter drugs should be avoided during pregnancy. However, it is unlikely to avoid all drugs during pregnancy because this may put both the mother and fetus in danger from complications of untreated acute and chronic medical disorders such as epilepsy, diabetes mellitus, thyroid disorder, severe depression, hypertension, and bronchial asthma. Besides, respiratory infections, headaches, constipation, nervousness, and other common complaints that occur during pregnancy may also need drug treatments (Alema et al., 2020)

Antenatal care is care during pregnancy and essential even for normal and healthy pregnant women for her own well-being and that of the baby to be born because no pregnancy and childbirth is free from risk for both mother and baby. Ideally the care should start immediately after conception but practically as early as possible during the 1<sup>st</sup> trimester and should continue throughout the 2<sup>nd</sup> and 3<sup>rd</sup> trimester (Rector & Stanley., 2020).

Nurses can play a role in detecting, avoiding, and eliminating inappropriate behaviors and attitudes among pregnant women. Nurses can detect concerns in personal and healthcare-related issues since they are in direct contact with pregnant women undergoing obstetric follow-up. (Weller & Sirin., 2017).

### Significance of the Study:

Healthy People 2030 focus on preventing pregnancy complications and maternal deaths and helping women stay healthy before, during, and after pregnancy. Some women have health problems that start during pregnancy, and others have health problems before they get pregnant that could lead to complications during pregnancy. Strategies to help women adopt healthy habits and get health care before and during pregnancy can help prevent pregnancy complications (Shahi et al., 2022).

In 2017, maternal mortality ratio for Egypt was 37 deaths per 100,000 live births. Between 1998 and 2017, maternal mortality ratio of Egypt was declining at a moderating rate to shrink from 70 deaths per 100,000 live births in 1998 to 37 deaths per 100,000 live births in 2017 (Omer et al., 2021). The current maternal mortality rate for Sohag in 2020 is 46.5% and for Sohag city is 66.5% per 100,000 live births (The Central Agency for Public Mobilization and Statistics (CAPMAS, 2020).

### Aim of the study:

To assess the health risk behaviors among pregnant women at Sohag city.

### Study Questions:

1. Do mothers have knowledge on the main health risk behaviors during pregnancy?
2. What's the Pregnant women's attitude towards pregnancy related health risk behaviors?
3. What's the lifestyle risk behaviors affect the health of pregnant women?

### Subjects and Method:

**Research design:** A cross-sectional research design was used in the study.

### Study Setting:

The study was conducted at Sohag city which include only three maternal and child health care centers namely: (East child care center, Al-Shaheed medical Center and Al-Emery neighborhood center). Which provide free antenatal care services to pregnant women who attending the maternal and child health care centers from the Sohag city and the nearest villages.

**Sample type:** Systematic Random Sample were used in the study.

### Study sample:

This study included 354 pregnant women who were selected by systematic random sampling technique and who were attending the previously mentioned setting during the study period.

### Sample Size:

The total number of pregnant women attending MCH center at Sohag city is 8191. The sample size was calculated using the EPI info 2000 statistical package. The calculation was done using the expected frequencies of the mean health risk behaviors from previous studies using 95% confidence interval, 80% power of the study, 32.0% prevalence of the mean health risk behaviors and worst acceptable result 5%. The sample size calculated according to the above criteria was 334 pregnant women. However, 354 women were attempted in this research work to avoid non-response rate.

### Proportional sample distributed according to number of pregnant women attending Maternal and Child Health centers at Sohag city, 2020

Site of sample	Number of pregnant	Sample size	%
East Child Care	4433	192	54%
Al-Shaheed Medical Center	3292	142	40%
Al-Emery neighborhood center	466	20	6%
<b>Total</b>	<b>8191</b>	<b>354</b>	<b>100%</b>

**Exclusion Criteria:**

Pregnant women who had no risk factors like (Diabetes, hypertension, thyroid disorders, renal impairment .....etc.)

**Tools of Data Collection:** Three tools were used for data collection:

**Tool (I): A structured Interview questionnaire:** It was developed by the researcher after reviewing the related literatures and include data about:

**Sociodemographic characteristics as:** name, age, level of education, occupation, income, residence.....etc according to (Abdeltwab scale, 2012)

**Obstetrics history as:** Weeks of present pregnancy, age of first pregnancy, number of gravidity, Parity, abortion, living children, stillbirth, type of delivery, Antenatal visit)

**History of chronic diseases such as:** hypertension, gestational diabetes, thyroid disorders, renal impairment .....etc.

**Current complains as:** anemia, dyspnea, back pain, headache.

**Tool II:** It consisted of two parts: **Part (I): Health risk behaviors Knowledge questionnaire:** used to assess mother's knowledge regarding health risk behaviors during pregnancy. It consists of 25 questions such as what the definition of health risk behavior? What the elements of risky health behaviors during pregnancy?.....etc.

**Scoring system:**

It was calculated as (1) for "correct" answer and (0) for "incorrect" answer. The total knowledge score level ranges from (0- 25). Higher score indicates good knowledge. It was categorized as poor < 50%, good 50% - < 75%, very good >75% (Ahmed et al., 2018).

**Part (II): Health Practice Questionnaire-II:** consisted of 25 items concerning four domains (health diet, exercise, relaxation and sleep, using medication and herbal, and antenatal care). With minor change were performed on few items and modified to be suitable of the present study.

**Scoring system:**

A 5-point "Likert scale" with options ranging from "never" to "always". Scoring was made as follows: (a) Never: 1 point, (b) Rarely: 2 points, (c) Sometimes: 3 points, (d) Often: 4 points, and (e) Always: 5 points. Items (1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 21, 22, 23 and 24) were evaluated similarly with a 5-scale scoring. Reverse coding was made for items (6, 15, 17, and 25). Lowest and highest scores that can be achieved from questionnaire are 25 and 125, respectively (Lindgren 2005). A high overall score is interpreted in accordance with an improvement of health-related behavior of the pregnant women.

**Tool III: Pregnant women's attitude questionnaire:** to explore the pregnant women's attitude about health risk behaviors during pregnancy. It includes (17) questions were asked to use 5-point Likert scale in order to rate the extent to which they have the attitude about health risk behaviors during pregnancy: strongly agree, agree, uncertain, disagree and strongly disagree.

**Scoring system:**

Items were respectively scored 4, 3, 2, 1, 0. and the score of each item will be summed-up and then will be converted into percent score. The woman's attitude will consider negative attitude if <60% and Positive attitude if percent score >60% (Ahmed et al., 2018).

**Validity of the study tools:**

The tools were reviewed to ascertain their validity by three experts in the Community Health Nursing department who reviewed the instrument for clarity, relevance, comprehensiveness, understanding, and applicability.

**Reliability:**

Sheet reliability was assessed using alpha Cronbach test to test the internal consistency  $K=0.788$ ,  $P=0.929$  which were accepted.

**Methodology:**

**Administrative phase:** An official letter approval obtained from Dean of the faculty of nursing, Sohag University to the first undersecretary of the Ministry of Health as a permission to carry out the study at Maternal, Child health centers in the selected places. This letter included a brief explanation of the objectives of the study and permission to carry out the study.

**Pilot study:** A Pilot study was carried out on 10 % (36 pregnant women) of total sample to test clarity of tools and estimated the time needed for filling the sheet. This sample was added to the total sample because there weren't any modifications in the sheet.

**Data collection phase:****Ethical consideration:**

Before starting the research, ethical approval was obtained from the scientific research ethics committees of the faculty of nursing, Assuit Universities, the researcher met both medical and nursing directors of the selected settings to clarify the purpose of the study and take their approval. Oral consent was obtained from the pregnant women to participate in the study after the objective of the study was explained to them. The researcher informed the pregnant women that the study was voluntary, there were allowed not to participate and they had the right to withdraw from the study at any time without giving any reason. Moreover, they were assured that their information would be confidential.

**Field of work:**

The study was carried out in the period from the first of January to the end of March 2022. The investigator attended the previously mentioned setting two days per week, (Monday and Wednesday); from 9:00 a.m. to 2:00 p.m. to filled the questionnaire sheet through interview with the pregnant women in the waiting hall of the previously mentioned setting. The average time for completing each sheet was around 15-20 minutes depending on the persons' response to questions. About (15-16) pregnant women interviewed / day.

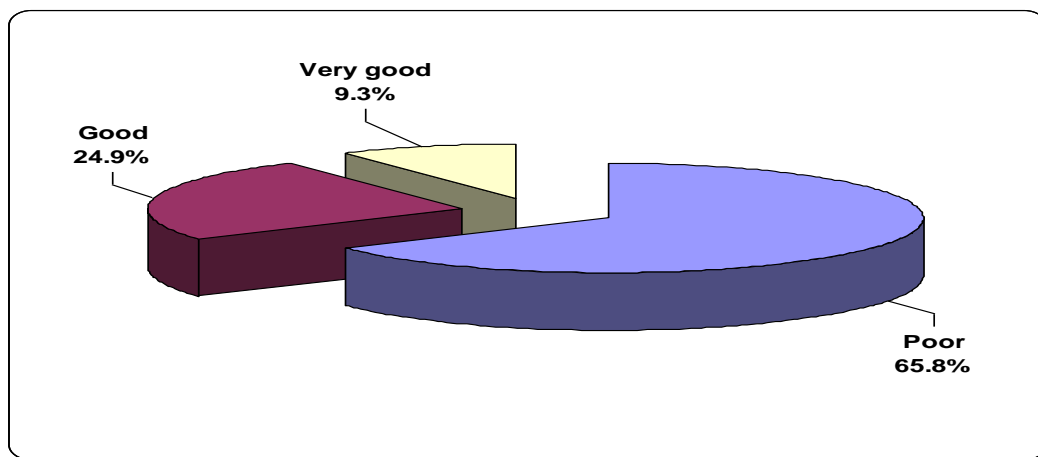
**Statistical Analysis:**

The data obtained were reviewed, prepared for computer entry, coded, analyzed and tabulated. Data entry and Data analysis were done by using SPSS version 22 (Statistical Package for Social Science). Data were presented as number, percentage, mean, standard deviation. Chi-square test was used to compare between qualitative variables. Independent samples t-test was used to compare quantitative variables between two groups and ANOVA test was used for more than two groups. P-value considered statistically significant when  $P < 0.05$ .

**Results:**

**Table (1): Demographic characteristics of the pregnant women at Sohag city, 2022**

Characteristics	No. (354)	%
<b>Age: (years)</b>		
18 < 25	138	39.0%
25 - < 30	132	37.3%
≥ 30	84	23.7%
Mean ± SD (Range)	25.62 ± 4.56 (18.0-37.0)	
<b>Mother education:</b>		
Illiterate	36	10.2%
Read & write	43	12.1%
Basic education	65	18.4%
Secondary education	132	37.3%
University education	78	22.0%
<b>Mother occupation:</b>		
Employee	44	12.4%
Housewife	310	87.6%
<b>Residence:</b>		
Rural	235	66.4%
Urban	119	33.6%
<b>Social class:</b>		
Low	101	28.5%
Middle	181	51.1%
High	72	20.4%



**Figure (1): Total score of knowledge for pregnant women about health risk behaviors at Sohag city, 2022**

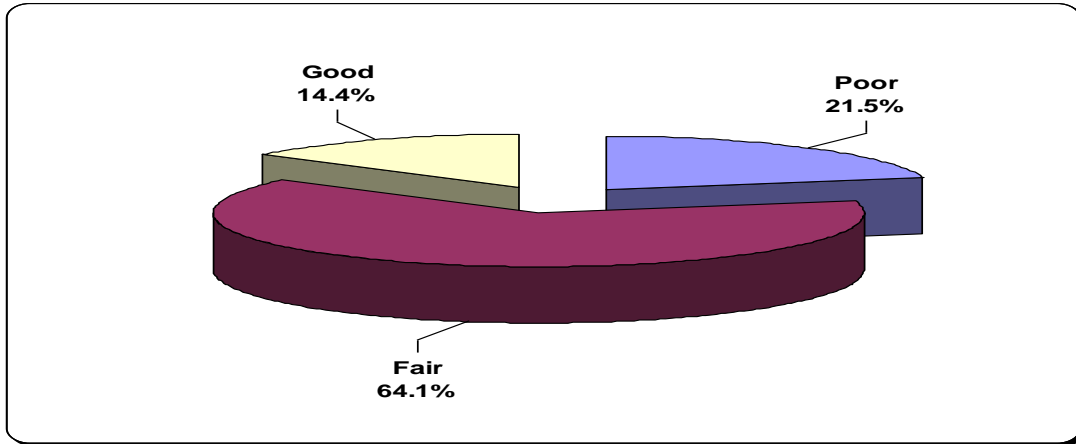


Figure (2): Total score of reported practice for pregnant women about health risk behaviors at Sohag city, 2022

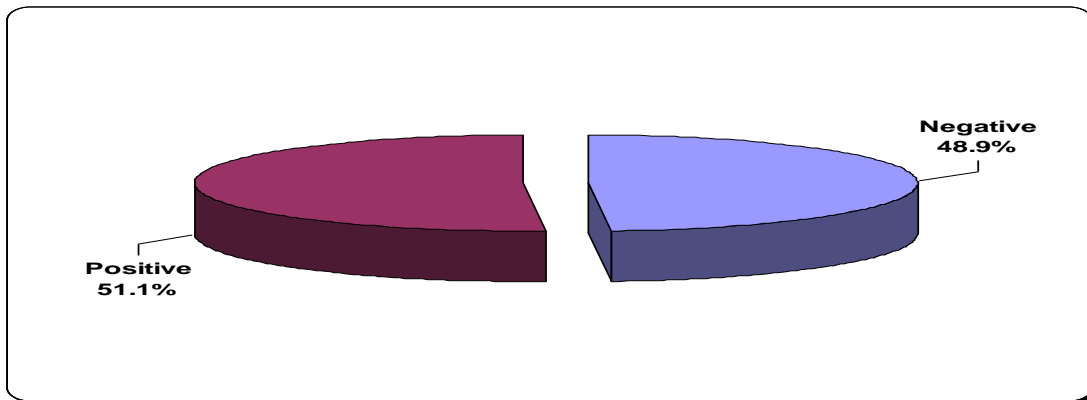


Figure (3): Total score of pregnant women attitude score regarding health risk behaviors at Sohag city, 2022.

Table (2): Reported practice of pregnant women about health risk behaviors at Sohag city, 2022

Items	Never		Rarely		Sometimes		Often		Always		Mean ± SD
	No.	%	No.	%	No.	%	No.	%	No.	%	
<b>*Health diet pattern</b>											
Taking calcium supplements.	89	25.1	62	17.5	68	19.2	30	8.5	105	29.7	3.00 ± 1.57
Eating milk products	108	30.5	89	25.1	36	10.2	35	9.9	86	24.3	2.72 ± 1.57
Taking recommended vitamins	57	16.1	77	21.8	74	20.9	34	9.6	112	31.6	3.19 ± 1.48
Eating five fruits/vegetables/day	23	6.5	179	50.6	91	25.7	20	5.6	41	11.6	2.65 ± 1.08
Eating fiber	31	8.8	205	57.9	77	21.8	13	3.7	28	7.9	2.44 ± 0.99
Drinking more than 2 caffeinated beverages per day	51	14.4	42	11.9	95	26.8	84	23.7	82	23.2	3.29 ± 1.33
Drinking adequate amount of water	164	46.3	117	33.1	27	7.6	28	7.9	18	5.1	1.92 ± 1.15
<b>* Sleep, relaxation and exercise</b>											
Getting at least 8 hours of sleep	114	32.2	76	21.5	60	16.9	55	15.5	49	13.8	2.57 ± 1.43
Practicing 3 times per week	242	68.4	45	12.7	43	12.1	16	4.5	8	2.3	1.60 ± 1.01
Relaxing activities	237	66.9	47	13.3	35	9.9	7	2.0	28	7.9	1.71 ± 1.22
Avoiding excessively hot bath	222	62.7	51	14.4	70	19.8	7	2.0	4	1.1	1.64 ± 0.94
<b>*Using medication and herbs</b>											
Using herbs	127	35.9	99	28.0	84	23.7	24	6.8	20	5.6	2.18 ± 1.16
Avoiding unrecommended drugs	61	17.2	65	18.4	47	13.3	64	18.1	117	33.1	3.31 ± 1.51

Items	Never		Rarely		Sometimes		Often		Always		Mean ± SD
	No.	%	No.	%	No.	%	No.	%	No.	%	
<b>*Antenatal care</b>											
Following healthy life style	97	27.4	39	11.0	91	25.7	82	23.2	45	12.7	2.83 ± 1.39
Smoking	354	100.0	0	0.0	0	0.0	0	0.0	0	0.0	5.00 ± 0.00
Reading food labels	195	55.1	49	13.8	43	12.1	37	10.5	30	8.5	2.03 ± 1.36
Receiving regular dental care	46	13.0	89	25.1	96	27.1	55	15.5	68	19.2	3.03 ± 1.30
Seeking to gain appropriate weight	77	21.8	155	43.8	26	7.3	53	15.0	43	12.1	2.52 ± 1.31
Avoiding exposure to dangerous substances	86	24.3	39	11.0	46	13.0	64	18.1	119	33.6	3.26 ± 1.60
Gestational age when prenatal care began	12	3.4	6	1.7	22	6.2	231	65.3	83	23.4	4.04 ± 0.82
Avoiding exposure to communicable diseases	200	56.5	62	17.5	40	11.3	18	5.1	34	9.6	1.94 ± 1.32
Discuss questions to prenatal care provider	33	9.3	63	17.8	99	28.0	88	24.9	71	20.1	3.29 ± 1.24
Attending health educational courses	5	1.4	15	4.2	40	11.3	55	15.5	239	67.5	4.44 ± 0.95
Discuss about pregnancy and birth with family, friends	40	11.3	59	16.7	85	24.0	37	10.5	133	37.6	3.46 ± 1.42

**Table (3): Relation between demographic characteristics and total score of knowledge about health risk behaviors at Sohag city, 2022**

Characteristics	Knowledge level						P-value
	Poor		Good		Very good		
	No.	%	No.	%	No.	%	
<b>Age: (years)</b>							
18 < 25	93	67.4	34	24.6	11	8.0	0.197
25 - < 30	88	66.7	27	20.5	17	12.9	
≥ 30	52	61.9	27	32.1	5	6.0	
<b>Mother education:</b>							
Illiterate	25	69.4	11	30.6	0	0.0	0.000*
Read & write	38	88.4	5	11.6	0	0.0	
Basic education	34	52.3	20	30.8	11	16.9	
Secondary education	100	75.8	32	24.2	0	0.0	
University education	36	46.2	20	25.6	22	28.2	
<b>Mother occupation:</b>							
Employee	20	45.5	12	27.3	12	27.3	0.000*
Housewife	213	68.7	76	24.5	21	6.8	
<b>Residence:</b>							
Rural	153	65.1	65	27.7	17	7.2	0.063
Urban	80	67.2	23	19.3	16	13.4	
<b>Social class:</b>							
Low	78	77.2	21	20.8	2	2.0	0.000*
Middle	132	72.9	42	23.2	7	3.9	
High	23	31.9	25	34.7	24	33.3	

Chi-square test

\*Statistically Significant (P < 0.05)

**Table (4): Relation between demographic characteristics and total score of reported practice about health risk behaviors of pregnant women at Sohag city, 2022**

Characteristics	Behavior level						P-value
	Poor		Fair		Good		
	No.	%	No.	%	No.	%	
<b>Age: (years)</b>							
18 < 25	23	16.7	95	68.8	20	14.5	0.203
25 - < 30	28	21.2	86	65.2	18	13.6	
≥ 30	25	29.8	46	54.8	13	15.5	
<b>Mother education:</b>							
Illiterate	19	52.8	15	41.7	2	5.6	0.000*
Read & write	7	16.3	32	74.4	4	9.3	
Basic education	12	18.5	46	70.8	7	10.8	
Secondary education	30	22.7	86	65.2	16	12.1	
University education	8	10.3	48	61.5	22	28.2	
<b>Mother occupation:</b>							
Employee	4	9.1	27	61.4	13	29.5	0.003*
Housewife	72	23.2	200	64.5	38	12.3	
<b>Residence:</b>							
Rural	47	20.0	150	63.8	38	16.2	0.329
Urban	29	24.4	77	64.7	13	10.9	
<b>Social class:</b>							
Low	29	28.7	67	66.3	5	5.0	0.000*
Middle	45	24.9	113	62.4	23	12.7	
High	2	2.8	47	65.3	23	31.9	

Chi-square test

\*Statistically Significant ( $p < 0.05$ )**Table (5): Relation between demographic characteristics and total attitude score of pregnant women about health risk behaviors at Sohag city, 2022**

Characteristics	Attitude level				P-value
	Negative		Positive		
	No.	%	No.	%	
<b>Age: (years)</b>					
18 < 25	54	39.1	84	60.9	0.009*
25 - < 30	76	57.6	56	42.4	
≥ 30	43	51.2	41	48.8	
<b>Mother education:</b>					
Illiterate	20	55.6	16	44.4	0.772
Read & write	20	46.5	23	53.5	
Basic education	30	46.2	35	53.8	
Secondary education	68	51.5	64	48.5	
University education	35	44.9	43	55.1	
<b>Mother occupation:</b>					
Employee	18	40.9	26	59.1	0.259
Housewife	155	50.0	155	50.0	
<b>Residence:</b>					
Rural	106	45.1	129	54.9	0.047*
Urban	67	56.3	52	43.7	
<b>Social class:</b>					
Low	54	53.5	47	46.5	0.050*
Middle	93	51.4	88	48.6	
High	26	36.1	46	63.9	

Chi-square test

\*Statistically Significant ( $p < 0.05$ )

**Table (6): Relationship between demographic characteristics with mean score of knowledge, reported practice and attitude of pregnant women at Sohag city, 2022**

Items	Knowledge score	Behavior score	Attitude score
	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD
<b>Age: (years)</b>			
18 < 25	28.30 $\pm$ 9.80	90.63 $\pm$ 8.96	46.71 $\pm$ 5.20
25 - < 30	30.92 $\pm$ 12.23	91.71 $\pm$ 10.99	44.31 $\pm$ 5.11
$\geq$ 30	28.51 $\pm$ 10.01	90.01 $\pm$ 11.54	45.74 $\pm$ 6.71
P-value	0.103	0.470	0.002*
<b>Mother education:</b>			
Illiterate	24.03 $\pm$ 9.62	82.86 $\pm$ 11.43	45.64 $\pm$ 4.85
Read & write	21.60 $\pm$ 6.44	90.53 $\pm$ 8.38	45.30 $\pm$ 5.03
Basic education	32.46 $\pm$ 9.60	91.11 $\pm$ 8.64	45.52 $\pm$ 6.82
Secondary education	26.64 $\pm$ 6.72	89.77 $\pm$ 9.88	45.38 $\pm$ 5.24
University education	37.95 $\pm$ 13.39	96.49 $\pm$ 10.21	46.12 $\pm$ 5.99
P-value	0.000*	0.000*	0.913
<b>Mother occupation:</b>			
Employee	37.93 $\pm$ 16.49	96.36 $\pm$ 10.98	47.11 $\pm$ 5.55
Housewife	28.10 $\pm$ 9.20	90.11 $\pm$ 10.07	45.37 $\pm$ 5.63
P-value	0.000*	0.000*	0.055
<b>Residence:</b>			
Rural	28.94 $\pm$ 10.88	91.65 $\pm$ 10.07	45.95 $\pm$ 5.42
Urban	30.09 $\pm$ 10.81	89.39 $\pm$ 10.86	44.86 $\pm$ 6.02
P-value	0.344	0.053	0.084
<b>Social class:</b>			
Low	24.39 $\pm$ 9.05	87.60 $\pm$ 9.47	44.80 $\pm$ 5.64
Middle	27.80 $\pm$ 7.29	89.83 $\pm$ 10.03	45.55 $\pm$ 5.87
High	40.10 $\pm$ 13.32	98.15 $\pm$ 9.10	46.78 $\pm$ 4.90
P-value	0.000*	0.000*	0.075

Independent sample t-test and ANOVA

\*Statistically Significant ( $p < 0.05$ )

**Table (1):** Represents that (39.0%) of the pregnant women their age ranged between 18 < 25 years old with mean  $\pm$  SD 25.62  $\pm$  4.56 (18.0-37.0), (37.3%), (87.6%), (66.4%) and (51.1%) of them had secondary education. Were housewife, were living in rural area and had middle social class respectively.

**Figure (1):** Highlights that (65.8%) of pregnant women had poor score of knowledge while (24.9%) had good score and only (9.3%) of them had very good score of knowledge.

**Figure (2):** Demonstrate that (64.1%) of the studied pregnant women had fair score of reported practice, while (21.2%) of them had poor score of reported practice about health risk behaviors.

**Figure (3):** Donates that (51.1%) of pregnant women had positive attitude about health risk behaviors during pregnancy.

**Table (2):** Demonstrates that reported practice of pregnant women about health risk behaviors. As regarding to behaviors of studied women about nutrition, it was noted that 50.6% of them rarely consuming five servings of fruits/vegetables a day.

Concerning to sleep, relaxation and physical exercise, it was noted that 68.4% of them never exercising at least 20 minutes a day.

As regarding to use of medications and herbs, it was cleared that 35.9% of the studied pregnant women refraining from use herbs.

According to antenatal care, it was noted that 100.0% of them never smoking, while 55.1% never read package labels, while 65.3% of them often start prenatal care in the first three months of pregnancy and 67.5% of them never missed any one of appointment with prenatal care provider.

**Table (3):** States that there was a statistically significant difference between pregnant women education, occupation & social class and knowledge  $P = 0.000^*$

**Table (4):** Demonstrate that there was a statistically significant difference between reported practice with the following factors: (education, occupation & social class)  $P = 0.000^*$

**Table (5):** Illustrates that there was a statistically significant difference between pregnant women attitude and age, residence & social class  $P = < 0.05$ ,



while there was a negative relation between pregnant women education, occupation and attitude

**Table (6):** States that there was a statistically significant difference between pregnant women age and attitude  $P= 0.002^*$ , also there was a statistically significant difference between pregnant women education, occupation & social class and women knowledge and reported practice  $p=0.000^*$ .

### Discussion:

A change of health behaviors in prenatal period seems to be a crucial point that motivates women to maintain the change in the postnatal period and throughout life (Zinsser et al., 2020)

Referral to personal characteristics of the participated pregnant women, more than one third of pregnant women their age ranged between  $18 < 25$  years old. This finding agreed with Khaleel et al., (2021) who carried out a study to Evaluate the Pregnancy-Related Health Behaviors for Pregnant Women's Attending Abo Ghareeb Primary Health Care Sector, Iraq and found that less than one third of the pregnant women aged 20- 24 years. On the other hand, this result disagreed with O'Keeffe et al., (2016) who found that less than three quarter of women aged from 30-39 years.

Concerning to the level of education; more than one third of the studied mother were had secondary level of education. This finding agreed with Weller & Sirin., (2017) who study the Evaluation of health-related behaviors and attitudes of women during pregnancy in Edirne, Turkey and found that more than half of the pregnant women had secondary education. On the other hand, this finding disagreed with Oechsle et al., (2020) who found that more than half of the pregnant women had high education.

Regarding occupational status, the most of studied pregnant women were housewife. This result is going well together with Khaleel et al., (2021) who reported that most of studied pregnant women were housewife. Also, this result is supported by Hassan & Omer., (2020) Who reported that two third of studied pregnant women were housewife.

Regarding place of residence; it was noticed that about two third of pregnant women were from rural area, this finding agreed with Khaleel et al., (2021) who recorded that less than two-third of the studied sample were from rural area.

According to economic level of the pregnant women; The present study revealed that about half of them were in the middle economic class. This finding incongruent with Oechsle et al., (2020) who found that more than half of the studied women were in the middle class. On the other hand, this results incongruent with Ali & Abo-Kresha et al, (2021) who studied Patterns and Determinants of Utilization

of Antenatal Care Services by Pregnant Women in Sohag, Upper Egypt and found that less than fifth of the studied pregnant women were in the middle class. The current findings disclosed that about two third of studied pregnant women had poor knowledge scores. This attributed to absence of health education programs which include knowledge about healthy lifestyle during pregnancy, another cause revealed to educational level of studied pregnant women which only less than quarter of them had higher education. This finding is in the same line with Oechsle et al., (2020) who reported that studied pregnant women had poor knowledge scores. Also, this finding supported by Zaki & Fouad., (2021) who found that more than half of studied pregnant women exhibited poor knowledge.

This study presented that there was no statistically significant difference between age, residence and knowledge which ( $p=0.197$  and  $p=0.063$ ) respectively this finding agrees with Weller & Sirin., (2017) who reported that no statistically significant difference detected between age groups ( $p=0.849$ ).

Also, there was a statistically significant difference between education, occupation, social class and knowledge that knowledge was high in employed women than housewife this may be because of contact with other people and exchange opinions about any topics.

The proposed study results revealed that about two third of studied pregnant women had fair score of reported practice during pregnancy. This result explained by experience during previous pregnancy which three quarter of studied pregnant women had more than two pregnancies and had communicated with others as (mother, nurse, doctor). Also include the socioeconomic status of pregnant women which there was less than three quarter of them had middle and high social class.

This result was in agreement with Mahmoodi et al., (2015) & Khaleel et al., (2021) who found that the study sample had an average score of health promoting behaviors

However, the study results disagreed with Pilewska-Kozak et al., (2018) who presented that the overall rate of health behaviors was high was on average  $93.9 \pm 10.8$

Regarding the health diet pattern domain, the present study finding that about quarter of studied pregnant women reported daily milk consumption. This finding agreed with Zelalem et al., (2018) who reported that less than one third of pregnant mothers reported daily milk consumption.

This study finding that over than one quarter and less than one third of pregnant women take recommended calcium and recommended vitamins respectively. This finding in agree with Xiang et al., (2022) who

reported that calcium, followed by iron, folic acid used during pregnancy

This study finding that less than one quarter of pregnant women drinking more than two caffeinated beverage per day. This agreed with **Aboud et al., (2019)** who reported that one quarter of pregnant women drink more than two caffeinated beverage per day.

Regarding the sleep, relaxation and exercise domain, the present study finding that about one-third of pregnant women experienced poor sleep quality. This result in the same line with **Loo et al., (2022)** who reported that more than one-third of pregnant women experienced poor sleep quality.

This study finding that about two-third of pregnant women not practicing exercise at least 3 times per week, and this is lower than the finding of **Al-Youbi & Elsaid., (2020)** who reported that most of the pregnant women weren't practicing exercise during pregnancy.

This result in the same line with **Janakiraman et al., (2021)** who reported that less than one-third of the pregnant women practiced exercise during pregnancy. Regarding using medication and herbs domain, the present study finding that about one-third of pregnant women refraining from use of unrecommended drugs. This finding is in the same line with **Navaro et al., (2018)** who reported that more than one-third of pregnant women use medication with physician's advice.

This study finding that more than one-third of pregnant women refraining from use of herbal medicines. This finding is agreement with **Ahmed et al., (2018)** who reported that more than two-third of pregnant women used at least one herbal product during their last pregnancy.

This finding is disagreement with **Aljofan & Alkhamaiseh., (2020)** who reported that about one-third of pregnant women claimed to have used herbal medicines during pregnancy. The difference in the prevalence of herbal medicine use could be explained by several factors such as culture, socio-demographic factors, and use of health care services

Regarding antenatal care domain, the present study finding that more than one quarter following healthy lifestyle this result is in agreement with **Khaleel., 2020 & Morris et al., 2020** who reported that the most pregnant women is limited engage in healthy lifestyle.

This study finding that all studied pregnant women never smoke during pregnancy. This finding is disagreement with **El-Shahawy et al., (2021)** who reported that more than quarter of pregnant women reported smoking during pregnancy. This difference explained by that the rates in a major city, such as

Cairo, may be substantially higher than the rest of Egypt.

This study finding that less than quarter of pregnant women receiving regular dental care. This finding in the same line with **Azizah et al., (2021)** who reported that less than quarter of pregnant women had was in a good category of Oral health care practice

This finding is in disagreement with **Javali et al., (2022)** who reported that the most of the pregnant women had positive practice and receiving regular dental care. This difference explained by Low educational level and unawareness lead to improper oral hygiene practices. social relations and meeting with people may increase the positive attitude toward oral health

This study finding that less than half of pregnant women seek to gain an appropriate amount of weight. This finding is in agreement with **Khaleel., 2022 & Morris et al., 2020** who stated that less than one third of pregnant women had low rate of appropriate gestational weight gain.

This study finding that about quarter of pregnant women expose to dangerous substances (second hand smoke, pesticides).

This finding is in agreement with **Sobh et al., 2021** who reported that less than quarter of pregnant women expose to active smoker. Also, this finding is supported by study performed by **Quiñones et al., 2022** who reported that more than quarter of pregnant women expose to active smoker.

This study finding that about two-third of pregnant women start prenatal care in the first trimester. This finding Is in agreement with **Ali, & Abo-Kresha., (2021)** who reported that less than two-third of pregnant women encounter an antenatal care provider for the first time within the first trimester.

Finding of this study is higher than the finding of **Fagbamigbe et al., (2021)** who reported that only quarter of pregnant women start antenatal care during first trimester while, finding of this study is lower than the finding of the study performed by **Krukowski et al., (2022)** who reported that the majority of the sample was able to receive prenatal care in the first trimester

This difference explained by the associated factors with the timely initiation of antenatal care contact are maternal age, maternal education, spouse education, household wealth quintiles and region of residence, ethnicity, religion and birth order.

This study finding that over than half of studied pregnant women can avoid exposure to communicable diseases. Finding of this study is in agreement with **Ali, & Abo-Kresha., (2021)** who reported that less than two third of pregnant women knew that they needed tetanus vaccination during the pregnancy period.

This study finding that more than one third of pregnant women discuss pregnancy and birth with family and friends and only less than quarter were ask question to antenatal care provider as a source of information. This finding Is in disagreement with **Vogels-Broeke et al., (2022)** who reported that most of pregnant women found professional information sources trustworthy and useful.

This study finds that about two-third of studied pregnant women had regular prenatal follow up. This finding of this study is lower than the finding of study was performed by **Farrag et al., (2019)** who studied Patterns and factors affecting antenatal care utilization in Damietta Governorate, Egypt and reported that the majority of them mentioned that they attended regularly ( $\geq 4$  visits). This difference can be attributed to the regional differences which reflect that some regions in Egypt are in more need for focusing and devoting efforts for primary health care improvement especially rural areas that may be deprived or facing economic difficulties.

The current results disclosed that there was a significant relationship between reported practice and women's educational level ( $p=0.000^*$ ), occupation ( $p=0.003^*$ ) and social class( $p=0.000^*$ ).

This agreed with **Weller & Sirin., (2017)** who reported that there was a significant relationship between reported practice and professions ( $p=0.001$ ) and educational levels ( $p<0.001$ ) and social class ( $p<0.001$ ).

This finding is in disagreement with **Mahmoodi et al., (2015)** who reported that the only demographic variable found to have a significant relationship with health promoting behaviors was occupation ( $P<0.032$ ).

The offered findings found that there was no statistically significant difference between total score of reported practice with pregnant women's age groups ( $p=0.203$ ), site of accommodation ( $p=0.329$ ).

This finding in the same line with **Weller & Sirin., (2017)** who reported that no statistically significant difference could be detected between age groups ( $p=0.849$ ), site of accommodation ( $p=0.572$ ) and reported practice

Concerning pregnant women's attitude toward health risk behaviors during pregnancy, the present study showed that about half of the studied women had positive attitude toward healthy lifestyle. This explained by Pregnancy might cause women to increase their interest in matters of their own health and adopt a healthier lifestyle.

This study presented that there was statistically significant difference detected between age groups ( $p=0.009^*$ ), site of accommodation (urban vs. rural) ( $p=0.047^*$ ), social class ( $p=0.050^*$ ) and total attitude score regarding health risk behaviors.

On the other hand, this study reported that no statistically significant difference detected between education level ( $p=0.772$ ), and occupation ( $p=0.259$ ) and total attitude scores.

This result agrees with **Razik., (2018)** who reported that no statistically significant difference between occupation, educational level, age and total attitude score of women.

This result is in disagreement with **Ma et al., (2020)** who studied Maternal health behaviors during pregnancy and found that maternal age and education is closely linked to better health behaviors. This result was due to about one third of pregnant women had completed senior high school or higher. The majority of women had worked as migrant workers in the past, and were still migrant workers at the time of the survey.

### Conclusion:

Based on the results of the present study, it can be concluded that there was statistically significant difference between knowledge and reported practice of pregnant women with demographic characteristics as (education, occupation and social class.

### Recommendations:

**In the light of the study's finding, the researcher is recommended that:**

- Community health nurse as a director needed to promote strategies to improve health risk behaviors among pregnant women during health education session in the maternal and child health care centers.
- The mass media should be utilized and community organizations mobilized to disseminate correct and relevant information about health risk behaviors of pregnancy to women and communities.
- Further studies are needed in this field to assess the effect of health education program on women's knowledge and practices toward health risk behaviors during pregnancy.

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