

## UNINTENDED PREGNANCY: ASSOCIATED FACTORS AND OUTCOMES AMONG PREGNANT WOMEN

<sup>1</sup>Eman Hassan Ragab El-shrqawy, <sup>2</sup>Prof. Amina Mohamed Rashad El-Nemer

<sup>1</sup> Demonstrator of Woman's Health and Midwifery Nursing, Faculty of Nursing, Mansoura University, Egypt

<sup>2</sup> Professor of Woman's Health and Midwifery Nursing, Faculty of Nursing, Mansoura University, Egypt

### Abstract:

**Background:** Unintended pregnancy is a major public health issue in developed and developing countries. Unintended pregnancies may be mistimed or unwanted. It had multiple risky health outcomes. **Aim:** The study was aimed to assess the associated factors and outcomes of unintended pregnancy among pregnant women. **Subjects and Method:** The study followed a descriptive cross sectional design on 365 pregnant women with unintended pregnancy who were chosen by convenient sample technique. **Setting:** The study was conducted at governmental hospitals in EL-Mansoura City, Egypt including: The antenatal clinics of Obstetric and Gynecological specialty Center at EL-Mansoura University Hospitals, Old General Hospital and Mansoura International Hospital. **Tools of data collection:** Data were collected by using structured Interviewing Questionnaire. **Results:** Age, higher family size, lower family income, gravidity, parity, number of children and birth spacing were significantly associated with unintended pregnancy. Also, (70.7%) of the studied women were used family planning method before pregnancy occurred, while (29.3%) were not using or discontinued contraception. More than half (60%) of studied women were not attended antenatal follow up regularly with (56.8%) attended antenatal follow up only once. **Conclusion and Recommendations:** Age, higher family size, gravidity, parity, number of children and birth spacing were the most important predictors of unintended pregnancy. It is recommended to develop educational programs and campaigns especially for rural areas to improve awareness regarding family planning. **Keyword:** Unintended pregnancy, prevalence, contraception, outcomes.

### I. Introduction

Unintended pregnancy is a major social and public health problem affecting women within the reproductive age group. Federation of international gynecologists and obstetricians defines unintended pregnancy is a pregnancy that is mistimed or unwanted at the time of conception (Alemu, Abageda, Assefa&Melaku, 2019).

Across the globe a large proportion of pregnancies have been reported as unintended. Globally, it is estimated that 44 % of all pregnancies are unintended and 23% of all births are unintended and 56% of all unintended

pregnancies ended in abortion (Beyene, 2019). There are many factors associated with unintended pregnancy including extreme of ages less than 25 or over 40 years old, younger age at marriage, lower educational and occupational status of the mother, history of previous unintended pregnancy, husband refusal to use family planning, less number of children desired, low awareness of the concept of unintended pregnancy is preventable and high parity (Hall, Dalton, Zochowski, Johnson & Harris, 2017).

Many major complications can arise from unintended pregnancy such as

unsafe abortion which may cause 125,000 – 200,000 female deaths annually in developing countries (*WHO, 2017*). Furthermore, unintended pregnancy may lead to many negative consequences such as delay or not utilizing antenatal care services which may influence maternal and fetal health, maternal and fetal outcome as well as increased morbidity and mortality (*Mulat, Fekadu, Abera, Bekele & Bedaso, 2017*).

#### **Significance of the study**

Pregnancy planning is an important public health practice that should be promoted among women of reproductive age. Ministry of Health and Population reported that fertility rate increased after the political revolution from 3.00 in 2007 to 3.27 in 2012, increased to 3.31 in 2017 and reached the highest level to 3.34 in 2019. Egypt still facing the problem of overpopulation reaches to 100.39 million in 2019 (*CAPMAS, 2019*).

#### **Aim of the study**

The present study aimed to assess the associated factors and outcomes of unintended pregnancy among pregnant women.

#### **Research question**

- I. What are the associated factors and outcomes of unintended pregnancy among pregnant women?

## **II. Subjects and Method**

#### **Study design**

The study followed a descriptive cross sectional design.

#### **Study setting**

The study was conducted at governmental hospitals in EL-Mansoura City, Egypt including: The antenatal clinics of Obstetric and Gynecological specialty Center at EL-Mansoura University Hospitals, Old General Hospital and Mansoura International

Hospital. Mansoura city, Dakahlia governorate is located in the North Eastern region of Delta, Egypt.

#### **Study Sample & technique**

This study utilized a convenient sample of pregnant women who attended antenatal follow up at the antenatal clinic of governmental hospitals at EL-Mansoura over the period of six months from December 2019 to May 2020. Estimated sample size of 365 of pregnant women with unintended pregnancy by using structured Interviewing Questionnaire.

#### **Sample size:**

This aim of the study is to assess the prevalence of unintended pregnancy among pregnant women attending antenatal clinics. Based on data from literature (*Habib et al., 2017*) considering the power of the study is 80.0%, with precision/absolute error of 5% and type 1 error of 5%, then the sample size is calculated according to following formula:

$$\text{Sample size} = [(Z_{1-\alpha/2})^2 \cdot P(1-P)]/d^2$$

Whereas,

$Z_{1-\alpha/2}$  = is the standard normal variate, at 5% type 1 error ( $p < 0.05$ ) it is 1.96.

P = the expected proportion in population based on previous studies.

d = absolute error or precision.

So,

$$\text{Sample size} = [(1.96)^2 \cdot (0.38) \cdot (1 - 0.38)] / (0.05)^2 = 364.03$$

Based on the above formula, the sample size required for the study is 365.

#### **Tools of data collection:**

One tool was utilized for data collection:

#### **Tool (1): A structured interviewing questionnaire**

This tool was designed by the researcher after reviewing the related literatures (*Habib et al., 2017; Haffeejee*

et al., 2018). It was consisted of four parts to measure the following:

**Part (1):** Pregnant women's socio-demographic characteristic it includes: age, level of education, residence, marital status, age of marriage, occupation, family size, income...etc.

**Part (2):** Pregnant women's obstetrical history it covers the: gravidity, gestational age, birth interval, history of abortion, number of living children, desired number of children...etc.

**Part (3):** Information about the current pregnancy and women's practices towards family planning method which includes questions about the intention of the current pregnancy, family planning methods used and reasons for not using FP methods. It also includes questions about antenatal follow up and reasons of not utilizing antenatal follow up services ....etc.

**Part (4):** pregnant woman's practice regarding unintended pregnancy, it cover questions about the practice to get rid of pregnancy and the methods used.

**Validity of the study tools:**

The validity of the study tools was checked by three experts in the field of obstetrics and gynecology nursing. Based on expertise's suggestions, minor modifications were done and the final form was used for data collection.

**Preparatory Phase**

It included reviewing the local and international relevant literature and theoretical knowledge about the various aspect of the study using articles, books, journals to develop data collection tool which prepared by the researcher.

**Pilot study phase**

A pilot study was conducted on 36 women (10% from the sample size) who

attended at the antenatal clinics in the previously mentioned setting to evaluate the clarity and applicability of the tools that were used in the study before start of data collection as well as to estimate the time needed for answer. The women involved in the pilot study were excluded from the analyzed sample. This stage lasted one month (November 2019).

**Fieldwork**

Data were collected for six months in the period from December 2019 to the end of May 2020 from the antenatal clinics in the previously mentioned setting after obtaining official permission to conduct the study. The researcher attended the previously mentioned setting three days weekly from 9 A.M. to 1 P.M. until the end of the six months. The researcher introduced herself to the nurses and the women, explained the aim of the study and obtained women's informed consent for participation in the study after assuring the confidentiality of data.

The researcher interviewed each woman individually for about 15 - 20 minutes to collect data by using structured interviewing questionnaire as well as to assess the associated factors and outcomes of unintended pregnancy, which included questions about their socio-demographic characteristics and obstetrical data as well as their practices regarding family planning methods, their information about their previous pregnancy and current pregnancy. The questionnaire also included questions regarding their practices about unintended pregnancy. Data were gathered by the researcher. Each woman was interviewed separately to give her chance to talk freely about her experience with unintended pregnancy.

**Statistical Analysis**

All statistical analyses were

performed using SPSS for windows version 20.0 (SPSS, Chicago, IL). All continuous data were normally distributed and were expressed in mean  $\pm$  standard deviation (SD). Categorical data were expressed in number and percentage. Chi-square test was used for comparison of variables with categorical

data. Cronbach's alpha test was preformed to test for the internal consistency of the tools used in the study. Statistical significance was set at  $p < 0.05$ .

## II. Results

### Part (I): Study women's Socio-demographic characteristics

**Table (1):** Distribution of the socio-demographic characteristics of the studied women (n= 365)

Socio-demographic characteristics	N	%
Age (years)		
<b><math>\leq 25</math></b>	102	27.9
<b>26 – 30</b>	63	17.3
<b>31 – 35</b>	75	20.5
<b><math>&gt; 35</math></b>	<b>125</b>	<b>34.2</b>
<b>Range</b>	<b>18 – 43</b>	
<b>Mean <math>\pm</math> SD</b>	<b>31.8 <math>\pm</math> 7.0</b>	
Age at marriage (years)		
<b><math>\leq 15</math></b>	35	9.6
<b>16 – 20</b>	244	<b>66.8</b>
<b>21 – 25</b>	79	21.6
<b><math>&gt; 25</math></b>	7	1.9
<b>Range</b>	<b>13 – 33</b>	
<b>Mean <math>\pm</math> SD</b>	<b>18.8 <math>\pm</math> 3.0</b>	
Women's Educational level		
<b>Illiterate</b>	60	16.4
<b>Read and write</b>	76	20.8
<b>Middle education</b>	175	<b>47.9</b>
<b>High education</b>	54	14.8
Residence		
<b>Rural</b>	303	<b>83.0</b>
<b>Urban</b>	62	17.0
Women's occupation		
<b>Housewife</b>	296	<b>81.1</b>
<b>Working</b>	63	17.3
<b>Student</b>	6	1.6
Family size		
<b>1 – 3</b>	98	26.8
<b>4 – 6</b>	227	<b>62.2</b>
<b><math>&gt; 6</math></b>	40	11.0
Family income		
<b>Not enough</b>	213	<b>58.4</b>
<b>Enough</b>	135	37.0
<b>Enough and saving</b>	17	4.7

**Table one** shows that (34.2%) of the studied women aged more than 35 years with mean  $\pm$ SD= 31.8 $\pm$  7.0. In addition, (66.8%) of the studied women were married at the age of 20 years or less with mean  $\pm$ SD=18.8 $\pm$  3.0. The majorities of the studied women (83%, 81.1% respectively) were lived in rural

area and were housewives. Moreover, (62.2%, 58.4% respectively) of the studied women were lived in family size four persons with inadequate income. Regarding education, nearly half of the studied women (47.9%) attained secondary education only.

**Part II: Study women's obstetric history**

**Table (2):** Frequency distribution of the obstetric history of the studied women.

<b>Obstetric history</b>	<b>N</b>	<b>%</b>
Gravidity		
1	66	18.1
2	88	24.1
3	95	26.0
>4	116	31.8
Parity		
1 – 2	161	44.1
3 – 5	191	52.3
> 5	13	3.6
Number of living children		
1 – 2	155	42.5
3 – 4	183	50.1
>5	27	7.4
Number of abortions		
None	286	78.4
One	54	14.8
Two	17	4.7
>3	8	2.2
Duration between current and previous pregnancy (years)		
<2	174	47.7
3 – 5	89	24.4
>5	102	27.9
Range	0 – 20	
Mean $\pm$ SD	4.1 $\pm$ 3.7	
Number of desired children		
<3	264	72.3
3-5	95	26.0
>6	6	1.6
Number of desired children by husband		
<3	204	55.9
3-5	151	41.4
>6	10	2.7

**Table two** illustrated that (31.8%) of the studied women had four times pregnancy and more. In addition, (52.3% and 50.1% respectively) had delivered from three to five times and had three to four living children. Also, more than three quarters (78.4%) had no abortion. Moreover, (47.7%) had inter-pregnancy interval of two years and less

with the last pregnancy. Concerning the desired number of children, (26%) of the studied women desired to have three to five children, while (55.9%) of their husbands desired to have less than three children.

**Part (III): Factors associated with unintended pregnancy**

**Table (3)** Comparison of the socio-demographic characteristics among pregnant women with and without previous unintended pregnancy (n=365).

	Pregnant women without history of previous unintended pregnancy (n=253)		Pregnant women with history of previous unintended pregnancy (n=112)		Chi square test	
	N	%	N	%	X <sup>2</sup>	P
Age						
<25	98	38.7	4	3.6		
26-30	39	15.4	24	21.4		
31-35	47	18.6	28	25.0		
>35	69	27.3	56	50.0	49.244	<0.001
Age at marriage						
<=15	20	7.9	15	13.4		
16-20	174	68.8	70	62.5		
21-25	52	20.6	27	24.1		
>25	7	2.8	0	0.0	6.447	0.092
Educational level						
Illiterate	38	15.0	22	19.6		
Read and write	51	20.2	25	22.3		
Middle education	120	47.4	55	49.1		
High education	44	17.4	10	8.9	4.987	0.173
Residence						
Rural	202	79.8	101	90.2		
Urban	51	20.2	11	9.8	5.882	0.015
Occupation						
Housewife	212	83.8	84	75.0		
Working	35	13.8	28	25.0		
Student	6	2.4	0	0.0	9.004	0.011
Family size						
1-3	96	37.9	2	1.8		
4-6	148	58.5	79	70.5		
>6	9	3.6	31	27.7	80.831	<0.001
Family income						
Not enough	131	51.8	82	73.2		
Enough	115	45.5	20	17.9		
Enough and save	7	2.8	10	8.9	28.427	<0.001

(\*) P is statistically significant if <0.05

(\*\*) P is highly statistically significant if < 0.001

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**Table three** shows that there was highly statistical significant association between age, family size and family income and unintended pregnancy with a value ( $P < 0.001$ ). Also, women from

rural residence and not working women had a statistical significant with unintended pregnancy with a value ( $P = 0.005$ ).

**Table (4)** Comparison of the obstetric history between pregnant women with and without previous unintended pregnancy (n=365).

	Pregnant women without history of previous unintended pregnancy (n=253)		Pregnant women with history of previous unintended pregnancy (n=112)		Chi square test	
	N	%	N	%	X <sup>2</sup>	P
Gravidity						
1	60	23.7	6	5.4		
2	73	28.9	15	13.4		
3	57	22.5	38	33.9		
4 or more	63	24.9	53	47.3	38.321	<0.001
Parity						
1-2	137	54.2	24	21.4		
3-5	116	45.8	75	67.0		
>5	0	0.0	13	11.6	54.825	<0.001
Number of living children						
1-2	137	54.2	18	16.1		
3-4	109	43.1	74	66.1		
4 or more	7	2.8	20	17.9	58.589	<0.001
Number of abortions						
None	202	79.8	84	75.0		
Once	37	14.6	17	15.2		
Two	6	2.4	11	9.8		
three or more	8	3.2	0	0.0	13.041	0.005
Duration between current and previous pregnancy						
≤2	141	55.7	33	29.5		
3-5	56	22.1	33	29.5		
>5	56	22.1	46	41.1	22.909	<0.001
Number of children desired						
<3	176	69.6	88	78.6		
3-5	73	28.9	22	19.6		
6 or more	4	1.6	2	1.8	3.421	0.181
Number of children desired of husband						
<3	144	56.9	60	53.6		
3-5	101	39.9	50	44.6		
6 or more	8	3.2	2	1.8	1.111	0.574

**Table four** shows that shows that women with 4 times and more gravida and Para with number of living children three and more and duration between current and previous pregnancy two years or less was highly statistical significant associated with unintended

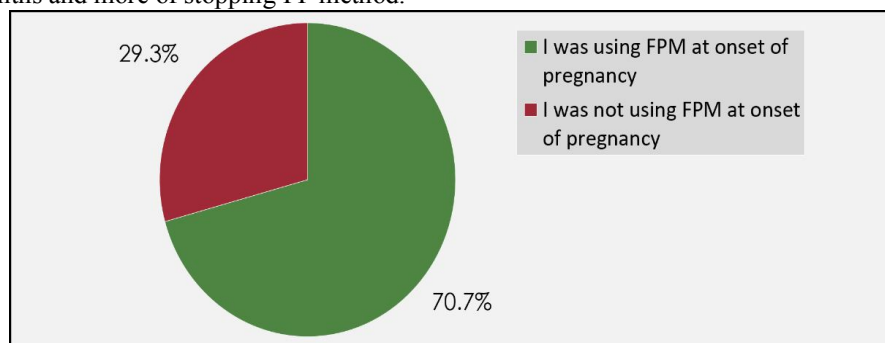
pregnancy with a value ( $P < 0.001$ ), while the number of abortions had a statistical significant with unintended pregnancy with a value ( $P = 0.005$ ).

**Part (VI): Study women's practices towards family planning method.**

**Table (5):** Frequency distribution of the studied women's practices toward Family planning methods during the current pregnancy (N= 365)

Family planning methods practices	N	%
Using a planning method before pregnancy occurred		
<b>I was using FPM at onset of pregnancy</b>	<b>258</b>	<b>70.7</b>
<b>I was not using FPM at onset of pregnancy</b>	<b>107</b>	<b>29.3</b>
The decision of the using family planning method		
<b>It is my own decision</b>	101	27.7
<b>My husband</b>	92	25.2
<b>Both together</b>	<b>172</b>	<b>47.1</b>
Consulting studied women to stop the method? (n=107)		
<b>Doctor</b>	<b>33</b>	<b>30.8</b>
<b>Myself</b>	32	29.9
<b>Husband</b>	18	16.7
<b>Family</b>	24	22.4
The period between pregnancy and stopping the method? (n=107)		
<b>One month</b>	19	17.8
<b>Two months</b>	11	10.3
<b>Three months and more</b>	<b>77</b>	<b>72.0</b>

**Table five** illustrated that more than two third (70.7%) of the studied women were used FP method before pregnancy occurred. While, (29.3%) of the studied women were not using or discontinued FP method before pregnancy. Near to the half (47.1%) of the studied women make the decision of FP method together with their husbands. In addition, (30.8%) consulted the doctor before stopping the FP method and (72%) became pregnant after three months and more of stopping FP method.



**Figure 1.** Using FP method before pregnancy occurred (n=365)

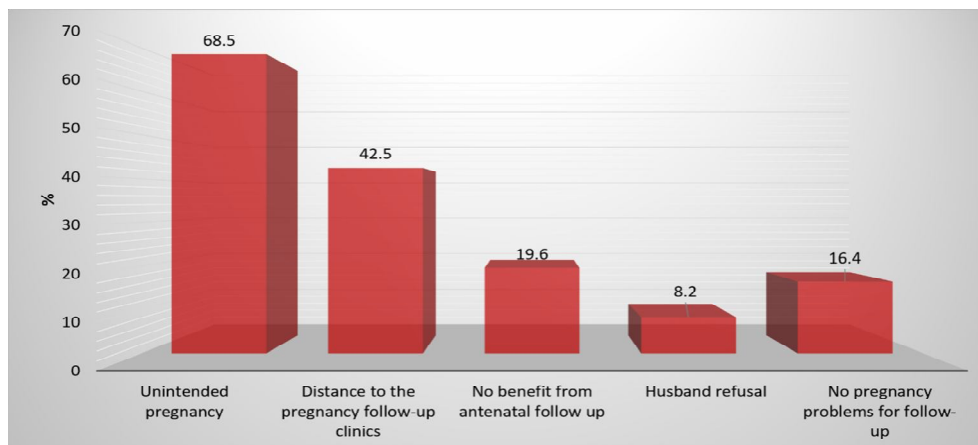


**Table (4):** Antenatal follow up for the current pregnancy (N=365)

<b>Antenatal follow up</b>	<b>N</b>	<b>%</b>
Duration of unintended pregnancy (weeks)		
<b>1 – 15</b>	59	16.2
<b>16 – 32</b>	<b>187</b>	<b>51.2</b>
<b>33 – 40</b>	119	32.6
Attending antenatal follow up regularly		
<b>No</b>	<b>219</b>	<b>60.0</b>
<b>Yes</b>	<b>146</b>	<b>40.0</b>
Number of visits antenatal units (n=146)		
<b>Once</b>	<b>83</b>	<b>56.8</b>
<b>Twice</b>	52	35.6
<b>Three or more</b>	11	7.5
Encouraging studied women to follow up? (n=146)		
<b>Doctor</b>	18	12.3
<b>Husband</b>	29	19.9
<b>Family</b>	38	26.0
<b>Mass media</b>	4	2.7
<b>My-self</b>	57	<b>39.0</b>

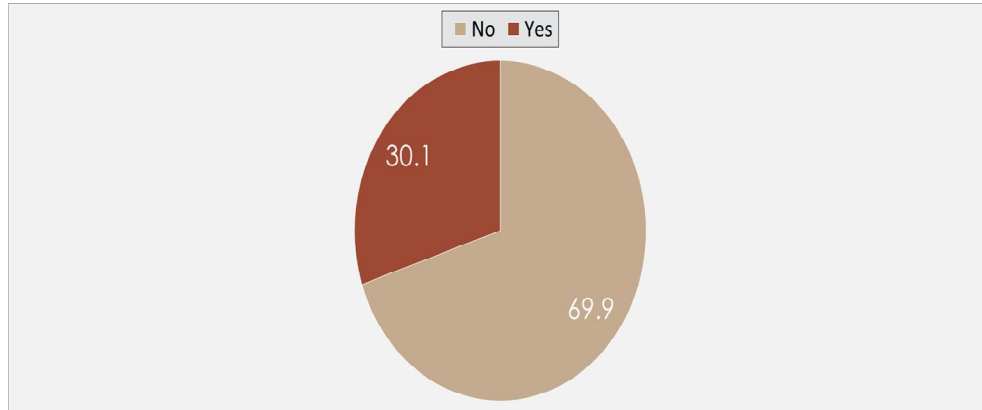
**Table four** shows that slightly more than half (51.2%) of the studied women were pregnant between 16-32 weeks of gestation. only (40%) of studied women were attended antenatal follow up regularly with (56.8%) of them

attended antenatal follow up only once. Moreover, (40.6%) came to the antenatal follow without any encouragement from others and only (0.9%) of them reported that mass media encouraged them to attain antenatal follow up.

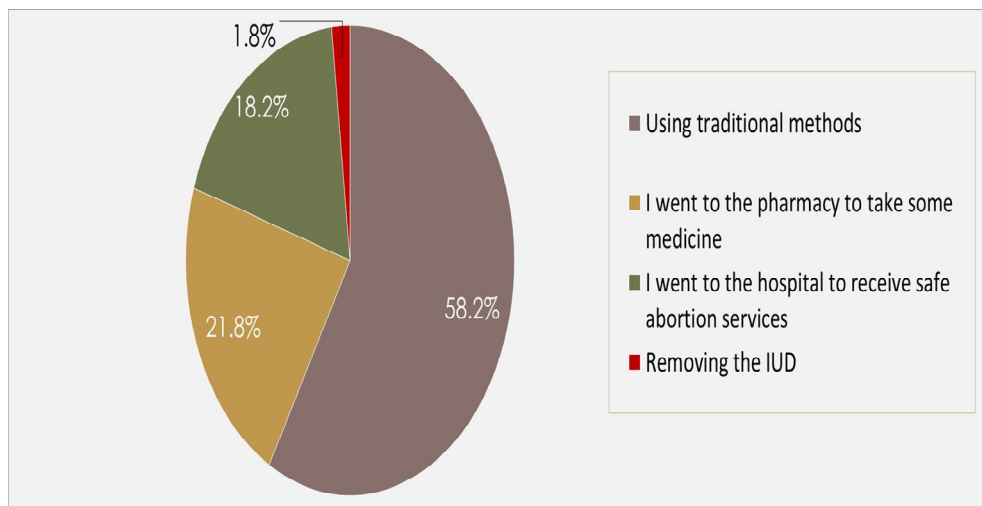


**Figure (2)** Distribution of the reasons that preventing regular attending antenatal follow up (n=219)

**Part (V): Practice regarding unintended pregnancy among study women.**



**Figure (3).** Distribution of attempt of the study women to terminate pregnancy (n=365)



**Figure (4):** Distribution of the method by which study women tried to terminate pregnancy? (n=110)

**IV.Discussion**

The present study was implemented to assess the associated factors and outcomes of unintended pregnancy among pregnant women attending antenatal clinics. The findings of the present study answered the research question concerning the associated factors of UP. The present study finding showed that age, family size and family income, gravidity, parity,

number of living children, number of children desired are important factors which significantly associated with the occurrence of UP.

The present study revealed that UP is significantly associated with the extremes of childbearing age (less than 20 years of age and 35 years of age and above). This may be due to women aged 35 years and above were inappropriately use family planning methods (FP). On

the other hand, younger age has significant association with the occurrence of UP due to women's desire to have some years of inter-pregnancy interval, but due to unmet need for contraceptives, they usually end up with mistimed pregnancies.

This finding was in the same line with *Andini&Mutahar (2020)* who revealed that women younger than 20 years and older than 35 years were more likely to experience UP than women aging 20-35 years. In "congruent to this finding was the study of *Almasi-Hashiani, Omani-Samani, Sepidarkish, Khodamoradi&Ranjbaran (2019)* they reported that the prevalence of UP was high in older age groups.

Regarding family size and income, the present study finding showed that there was significant association between family size and income with UP as the women with family size more than 4 members and socially disadvantaged were more likely to have UP. This may be due to families with a greater number of children already reached the desired number of children. Also, women who financially disadvantaged were inappropriately use FP methods as a result of its cost.

This is supported by *Beyene (2019)* who stated that the risk of UP increased with increasing family size. In addition, *Bekele, Dheressa, Mengistie, Sintayehu&Fekadu (2020)* and *Haffejee et al. (2018)* reported that socially disadvantaged women with family size more than 5 members were 8 times more likely to have UP. These findings were in contrast with recent researches carried out by *Ayele, Hamba&Gudeta, 2017; Alene, Yismaw, Berelie, Kassie, Yeshambel&Assemie (2020)* who stated that there was no significant association between socioeconomic status of women

and unintended pregnancy.

The present study revealed that nearly one third of women with UP were multigravida. This finding was almost similar to *Goshu&Yitayew (2019)* who found that when gravidity increased, the probability of exposure to UP was increased. Moreover, *Fite, Mohammedamin&Abebe (2018)* study revealed that women whose gravidity 5 and above were 3.88 times more likely to have unintended pregnancy than those whose gravidity 1-2.

Concerning the number of living children, the finding of the present study shows that half of the studied sample had three to four living children. This is supported by *Mohamed, Hamed, Yousef & Ahmed (2019)* who found that living children 5 and above was a risk factor for unwanted pregnancy.

Regarding the desired number of children, the finding of the present study showed that half of the studied women and their husbands desired to have less than three children. This finding in agreement with *Beyene (2019)* who noticed that those who desired to have less than four children were 2.89 times more likely to report UP compared to those who desired to have six or more number of children.

The present study finding revealed that contraceptive failure (70.7%) was the major reason for UP. While, nearly one third had UP due to not using or discontinued FP method before pregnancy. Several studies in agreement with the current study finding who found that contraceptive failure was the major reason for UP followed by not using FP for mistimed pregnancy (*Bekele, Dheressa, Mengistie, Sintayehu & Fekadu (2020); Moges, Worku, Niguse & Kelkay (2020)*).

The present study also highlights some prenatal outcomes, including antenatal care, practices regarding the current unintended pregnancy in which (40%) only from the studied women were attended antenatal follow up regularly with (56.8%) attended antenatal follow up only once. This is in accordance with *Abame et al. (2019)* who found that women with unintended pregnancy were 69% less likely to receive antenatal care. On the other hand, *Mohamed, Hamed, Yousef & Ahmed (2019)* revealed that there was no significant difference between pregnancy intention status and the number of antenatal care visits.

Moreover, the present study finding revealed that (30.1%) of the studied women tried to terminate their pregnancy and (58.2%) of them used traditional methods to terminate their pregnancy. These findings were in agreement with *Sultana, (2020)* who revealed that nearly one third of the study were exposed to induced abortion with the majority of women used traditional methods.

#### Conclusion

Based on the present study findings of the associated factors and outcomes of unintended pregnancy, it is concluded that the extremes of age of housewives women and living in rural areas with low family income and family size more than 4 children were high risk for UP. Additionally, the present study findings highlighted that contraceptive failures were the main reasons for UP in the present study. The highlighted failure rate was among oral contraceptives usage. Moreover, women with unintended pregnancy were less likely to attend antenatal visits.

#### VI. Recommendation

- 1- Antenatal and postnatal counseling

programs for women using simple illustrative booklets and pamphlets in Arabic language can be used to reduce the unmet need for contraception.

- 2- Increasing awareness of the women about factors associated with the occurrence of unintended pregnancy and consequences on women and their families.

#### Acknowledgement

The researchers would like to thank all participants for their cooperation during the study.

#### Conflict of Interests

The authors state that there is no conflict of interests regarding this study.

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