
An Epidemiological Study of Abortion among Sample of Patients Attending Two Teaching Hospitals in Baghdad.

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Abstract:

Background: Abortion is expulsion or attempted expulsion of an embryo or fetus before viability. This is generally considered at 24 weeks gestation. Spontaneous abortion is a common cause of maternal anemia and illegal abortion is the fifth most common cause of maternal death worldwide. In developing countries, there is few if any data on abortion. The aim of this study was to find the size of this problem and to highlight on some risk factors of abortion in Baghdad through the study of a convenient sample of 257 patients.

Patients & Methods: The study was a descriptive cross sectional study done in the period between 1/2 - 31/5 in 2009 in Al-Elwya maternity teaching hospital and Al-Yarmouk general teaching hospital. The data were collected through direct interviews by the researcher with the patients using a special questionnaire form, in addition to the results of examination and investigation.

Results: Abortion constituted 14.3 % of the total obstetric / gynecological admissions with a rate of 177.7 per 1000 pregnancy and a ratio of 0.2 to other pregnancy outcomes. Unplanned pregnancy constituted 29.4% of the total spontaneous and illegal abortions, three fifths of them didn't use any contraceptive method. The highest percentage of patients in all types of abortion was married before 25 years (71.2%) and had no antenatal care (80.9%). The highest percentage of patients with spontaneous abortion were para 3 and more (43%), had less than one year interpregnancy interval (40.1%) and more than one third (37.2%) were married to cousin relatives. The highest percentage of patients with illegal abortion had between 1-6 years of education (38.2%), had three and more children (59.2%), in 25% of the cases the pregnancy was unwanted and in 43.4 % of them induction was at 13 weeks of gestation & above.

Recommendation: The study recommended to, increase knowledge attitude and practice surveys on abortion, establish a minimum age for marriage, provide quality antenatal care services, include comprehensive family planning program in primary health care and post abortion care, limit the discharge of abortifacient drugs to medical prescription and involve private sectors in reporting and community nongovernmental organizations in education of women about family planning and antenatal care services in addition to the risks of unsafe abortion.

Keywords: Epidemiology, Abortion, Teaching hospitals

Introduction:

Abortion is expulsion or attempted expulsion of an embryo or a fetus before the 24th week of gestation^[1,2,3].

Spontaneous abortion or miscarriage, refers to the terminated pregnancy that occurs without deliberate measure, while induced abortion, refers to the terminated pregnancy that occurs through a deliberate intervention^[4,5].

In Iraq legal indications for induced abortion were either certain severe maternal diseases or fetal anomalies that are incompatible with life and in the absence of such legal indications, abortion is called illegal induced abortion^[6] which is regarded unsafe, even when it is performed by clinical practitioner^[7]. Complication of abortion by infection which is called septic abortion as well as unplanned pregnancy which is either unwanted or mistimed have most often been associated with illegal abortion so these two criteria used in WHO classification to distinguish between spontaneous and illegal abortion in developing countries where there is usually abortion restriction as follow^[8]:

- 1-Certainly induced abortion: When this information is provided by the woman herself or when there is evidence of trauma or foreign body.
- 2-Probably induced abortion: When the woman has signs of abortion accompanied by sepsis or peritonitis and the woman states that the pregnancy was unplanned.
- 3-Possibly induced abortion: If only one of the probably induced conditions listed above is present.
- 4- Spontaneous abortion: If none of the conditions listed above is present or if the woman states that the pregnancy was planned and desired.

Miscarriage is a common but often neglected cause of maternal morbidity as anemia while illegal induced abortion is an important cause of irreversible complication or maternal death^[9]. Death from illegal abortion is the fifth most common cause of maternal death throughout the world.

In 1999, WHO announced that around 25-50 % of maternal deaths are caused by illegally induced abortion and although 25% of these deaths take place in developing countries, and 50% of obstetric admission in these countries are due to illegal

abortion, there is few if any data on abortion in these countries^{[8][10]}.

All types of abortion have many shared risk factors, some are related to sociodemographic criteria of pregnant woman as age, occupation and educational level, other factors are related to additional medical problems, antenatal care and family planning^[11, 12].

The aim of this study was: a) To find the percentage of abortion admission in gynecological/obstetric departments, the rate of abortion and the ratio to other pregnancy outcomes. b) To highlight on some risk factors for abortion among a sample of patients.

Patients & Methods:

This cross sectional study was conducted at Al-Elwyia maternity teaching hospital in Al-Rusafa district and Al- Yarmouk general teaching hospital in Al-Karkh district, from the 1st of February to the 31st of May in 2009. A convenient sample of 257 patients who were attending the two hospitals during the study period due to abortion (spontaneous or induced) was enrolled in the study (any pregnant woman with gestational age of less than 24 weeks and diagnosed by a specialized doctor as abortion was selected).

Data was collected;

- 1- From the statistical units of both mentioned hospitals, the total number of births, abortions and other gynecological cases were taken to calculate the percentage of abortion admission, the rate and the ratio.
- 2-The sample was collected from consultant clinics and in-patient wards after verbal consent to all patients and after excluding those with legal abortion, others were reassured that their cases would not be followed by legal means even if

illegal abortion had been performed. Each patient was interviewed for an average of 5 minutes using a questionnaire containing the following information:

- For all types of abortion: Sociodemographic criteria and antenatal care.
- For legal abortion: History of exposure to toxic drugs and radiation. Examination & investigations.
- For those classified as spontaneous abortion according to WHO classification: information included, parity, abortion, interpregnancy interval, infertility, genital tract defect, exposure to toxic drugs and current smoking. While for those classified as illegal abortion: number of children, past and present attempt of induced abortion and physical abuse by husband.

Examination (vital signs, abdominal and PV) and ultrasound had been done by specialized doctors and other investigations were taken from hospital records.

Variables were presented in numbers, percentage and graphs by using SPSS program (statistical package of social analysis) version 10.

Results

During the study period, 13192 obstetric/gynecological patients were admitted to Al-Elwyia maternity teaching hospital and Al-Yarmouk general teaching hospital; total births were 8765 (66.4%), total abortions were 1893 (14.3%) and total other gynecological diseases were 2534 (19.2%) as shown in **figure (1)**.

Abortion rate per 1000 pregnancy and ratio of abortion to other pregnancy outcomes in the two hospitals during the study period are shown in **table (1)**. The rate was 177.6 per 1000 pregnancy and the ratio to other pregnancy outcomes was 0.2.

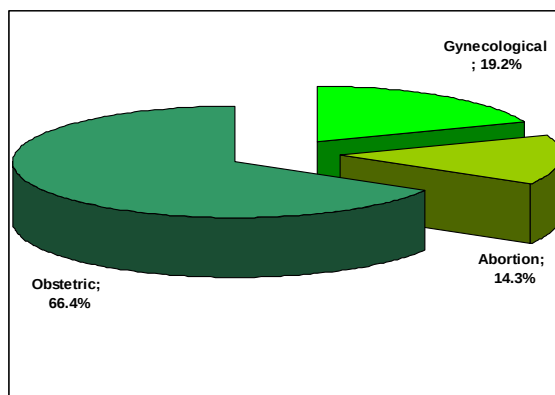


Fig 1: Obstetric / gynecological department admissions during four months study period in Al - Elwyia maternity teaching hospital and Al -Yarmouk general teaching hospital.

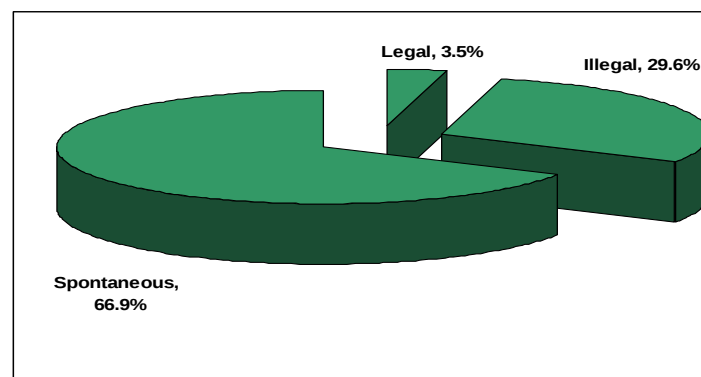
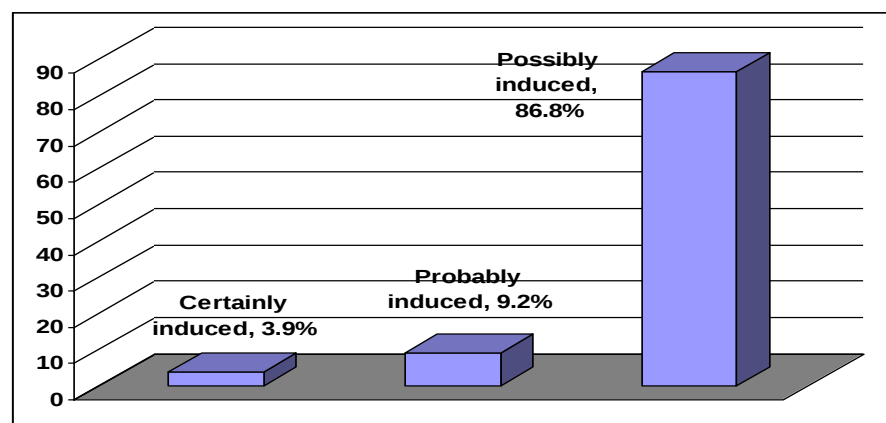
Table 1: Abortion rate per 1000 pregnancy and ratio to other pregnancy outcomes in Al –Elwyia maternity teaching hospital and Al-Yarmouk general teaching hospital during the study period.

Total no. of abortions (n1)	All reported pregnancies (live birth+ still birth + abortion) (n2)	Rate= n1/n2	Ratio= n1/(n2-n1)
1893	10658	177.6	0.2

Figure (2) shows distribution of the studied sample according to types of abortion. Spontaneous abortion formed 66.9 % (172 patients), illegal abortion formed 29.6 % (76 patients) while legal abortion formed only 3.5 % (9 patients) of the total sample.

For the 9 patients with legal abortion, the indications for termination of pregnancy were either maternal or fetal. Fetal indications formed 77.8 % (7 patients) while maternal indications formed 22.2% (2 patient).

The number and percentage of some socio demographic criteria of the patients are shown in **table (2)**. The highest percentage (71.2%) of the patients were married before 25 years, their present age were between 25-29 years(25.3%) and had 1 - 6 years of education (29.6%), and more than three fifths of their husbands (64.2%) were non employed . Patients married to non relatives had the highest percentage (56.4 %) compared to those married to cousins (35%) and other relatives (8.6%).

**Figure 2: Distribution of the studied sample according to type of abortion****Figure 3: Distribution of illegal abortion in the studied sample according to WHO classification****Table2: Distribution of the studied sample according to Socio demographic criteria:**

Criteria	Spontaneous		Illegal		Legal		Total	
Marital age	N.	%	N.	%	N	%	N	%
<25 y	117	68	60	78.9	6	66.7	183	71.2
25-34 y	52	30.2	15	19.7	3	33.3	70	27.2
≥35 y	3	1.7	1	1.3	-	-	4	1.6
Age of the patients								
15-19 y	21	12.2	1	1.3	-	-	22	8.6
20-24 y	41	23.8	15	19.7	2	22.2	56	21.8
25-29 y	43	25	15	19.7	2	22.2	65	25.3
30-34 y	35	20.3	18	23.7	2	22.2	51	19.8
35-39 y	20	11.6	19	25	3	33.3	44	17.1
40-44 y	12	7	8	10.5	-	-	19	7.4
Years of education								
<1 y	34	19.8	9	11.8	1	11.1	44	17.1
1-6 y	46	26.7	29	38.2	1	11.1	76	29.6
7-9 y	45	26.2	22	28.9	2	22.2	70	27.2
10-12 y	12	7	5	6.6	2	22.2	19	7.4
>12 y	35	20.3	11	14.5	3	33.3	48	18.7
Occupation of the husband								
Employed	59	34.3	26	34.2	7	77.8	92	35.8
Non employed	113	65.7	50	65.8	2	22.2	165	64.2
Residency								
Urban	142	82.6	65	85.5	8	88.9	215	83.7
Rural	30	17.4	11	14.5	1	11.1	42	16.3
Consanguinity								
Cousin	64	37.2	23	30.3	3	33.3	90	35
Other relative	13	7.6	8	10.5	1	11.1	22	8.6
Non- relative	95	55.2	45	59.2	5	55.6	145	56.4
Total	172	100	76	100	9	100	257	100

According to WHO classification of illegal abortion distribution of the studied sample is shown in **figure (3)**. Possibly induced abortion formed 86.8 % (66 patients), probably induced abortion formed 9.2 % (7 patients) and certainly induced abortion formed 3.9% (3 patients) . According to pre pregnancy planning, unplanned pregnancy constituted 29.4 % (73 patients) from the total spontaneous and illegal abortions in the studied sample.

Table 3 shows distribution of patients with history of unplanned pregnancy in the studied sample according to method of contraception used, where 60.3% of them did not use any type of contraception, 30.1% used modern methods of contraception and the remaining 9.6% used traditional methods of contraception.

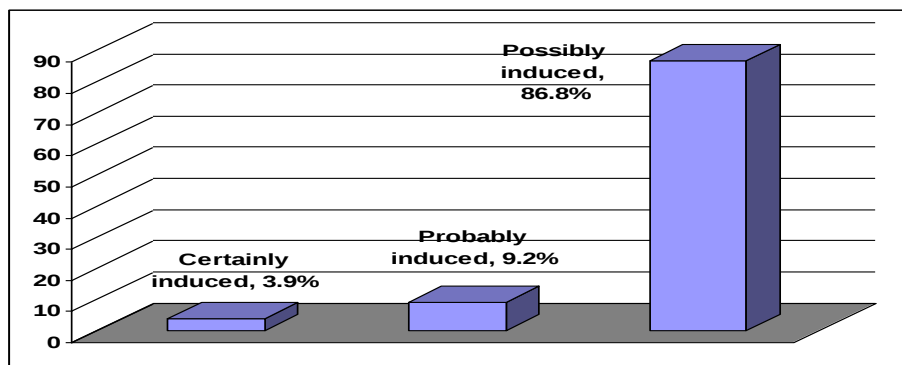


Figure 3: Distribution of illegal abortion in the studied sample according to WHO classification.

Table 3: Distribution of patients with history of unplanned pregnancy in the studied sample according to type of contraception.

Contraceptive Method	N.	%
Non user	44	60.3
Modern method user		
Contraceptive pills(Hormonal)	15	20.5
Intrauterine device	4	5.5
Condom(Male)	3	4.1
Traditional method user		
Lactation	4	5.5
Withdrawal(coitus interrupts)	2	2.7
Abstinence	1	1.4
Total	73	100

Concerning the associated complication with infection, only 4% (10 patients) were had septic abortion of the total spontaneous and illegal abortions in the studied sample.

Table (4) shows the number and percentage of spontaneous and illegal abortions according to stage of abortion. The highest percentage of spontaneous abortion were admitted in the missed stage (38.4 %), while the highest percentage of illegal abortion were admitted in incomplete stage (46.1 %).

Table (5) shows distribution of the studied sample by types of abortions and gestational ages(

weeks) and antenatal care. Regarding gestational age, the percentage of the patients between 5-12 weeks of gestation, constituted 61.9 % of the total sample, 66.9 % of spontaneous abortion, 56.6 % of illegal abortion and 11.1 % of legal abortion.

Regarding antenatal care; 80.9 % of the studied sample had no ANC , 89.5 % of illegal abortion ,79.1 % of spontaneous abortion and 44.4 % of legal abortion and only 5.8 % of the total sample had 1st check up in 1st trimester, 7 % of spontaneous abortion,3.9 % of illegal abortion and no patients in legal abortion .

Table 4: Distribution of spontaneous & illegal abortions in the studied sample according to their stage

Stage of abortion	Spontaneous		Illegal		Total	
	N.	%	N.	%	N.	%
Threatened	53	30.8	15	19.7	68	27.4
Inevitable	5	2.9	5	6.6	10	4
Incomplete	37	21.5	35	46.1	72	29
Complete	11	6.4	2	2.6	13	5.2
Missed	66	38.4	19	25	85	34.3
Total	172	100	76	100	248	100

Table 5: Distribution of the studied sample by types of abortion & their gestational ages and antenatal care.

Types of factors	Spontaneous		Illegal		Legal		Total	
	N.	%	N.	%	N.	%	N.	%
Gestational age(weeks)								
5-8	48	27.9	23	30.3	1	11.1	72	28
9-12	67	39	20	26.3	-	-	87	33.9
13-16	27	15.7	10	13.2	2	22.2	39	15.2
17-20	14	8.1	15	19.7	-	-	29	11.3
>21	16	9.3	8	10.5	6	66.7	30	11.7
ANC*								
No ANC	136	79.1	68	89.5	4	44.4	208	80.9
1st check up in 1st trimester	12	7	3	3.9	-	-	15	5.8
1st check up in 2nd trimester	24	14	5	6.6	5	55.6	34	13.2
Total	172	100	76	100	9	100	257	100

Table (6) shows distribution of spontaneous abortions according to some risk factors as. Spontaneous abortion increased with increased parity, as 43 % of them were para 3 or more. Spontaneous abortion also was increased with short interpregnancy interval; with 40.1 % of patients had less than one year interpregnancy interval.

Table (7) shows number and percentage of some of risk factors for illegal abortion as , illegal abortion

was highest in those whose children were 3 and more (59.2 %). Unwanted pregnancy constituted next highest (25%), while additional medical problems constituted 6.6

Number and percentage of some risk factors for nine patients with legal abortion is shown in table 8 as; three patients had history of exposure to radiation.

Table 6: Distribution of spontaneous abortion in the studied sample according to some risk factors.

Risk factor	Spontaneous abortion	
	N.	%
Parity		
0	48	27.9
1	22	12.8
2	28	16.3
3+	74	43
History of spontaneous abortion		
0	105	61
1	31	18
2	22	12.8
3+	14	8.1
Interpregnancy interval		
0	32	18.6
<1year	69	40.1
1-2 years	31	18
>2 years	40	23.3
History of Infertility	29	16.9
G.T.D* (Incompetent Oss)	12	7
Hypertension	7	4.1
History of exposure to toxic drug	7	4.1
Total	172	100

Table 7: Distribution of illegal abortion in the studied sample according to some risk factors

Selected Factor	N.	%
Number of children		
0	1	1.3
1	11	14.5
2	19	25
3+	45	59.2
Unwanted pregnancy	19	25
Additional medical problem	5	6.6
Past attempt of induction of abortion	4	5.3
physical abuse by husband	3	3.9
Total	76	100

Table 8: Distribution of legal abortion in the studied sample according to some risk factors.

Selected Factor	N.	%
History of exposure to radiation	3	33.3
History of exposure to toxic drug	1	11.1
Cytomegalovirus	1	11.1
Diabetes mellitus	1	11.1
Total	9	100

Discussion:

Abortion whether it is spontaneous or induced, is one of the determinants of pregnancy wastage^[13]. In Iraq abortion was the fourth most common cause of hospitalization in 2005 and ranked as the fourth disease in the list of the top ten leading causes of morbidity in 2007^[14].

In this study, percentage of abortion admission was 14.3% of the total obstetric- gynecological admissions, which is less than the percentage found in a cross sectional study done by Dale et al in Egypt in 1995 where the percentage of abortion was 19 % of the total 22656 obstetric- gynecological admissions^[9]

Regarding the rate and the ratio of abortion to other pregnancy outcomes, they were 177.6 per 1000 pregnancy and 0.2 respectively, both are higher than a survey done in Iraq in 1999 for child and maternal mortality (ICMMS), where the rate of abortion was 91 per 1000 pregnancy, and the ratio of abortion to other pregnancy outcomes was (0.1)^[13]. The present rate is also more than that found in a survey done in Iraq in 2006\2007 which was 97 per 1000 pregnancy^[15].

This increase in rate could be due to either the present study is a hospital not population based or due to the fact that abortifacient drugs can be gained without medical prescription in our country nowadays.

Legal abortions constituted only 3.5 % (nine patients). This low percentage could be due to that the indications for termination of pregnancy were limited to seven patients with fetal anomaly (anencephaly) and two patients with severe maternal diseases (malignant diseases on radiotherapy) while in a survey done in USA in 2004, 74% of legal abortions were performed due to inability of women to care for dependant^[16].

In this study, spontaneous abortion formed 66.9 % which was higher than that of illegal induced abortion which formed 29.6 %. In addition possibly induced which constituted 86.8 % of illegal induced abortion was higher than probably induced which constituted 9.2% and certainly induced which constituted 3.9 % .The low percentage of illegal abortion may be due to the fact that patients in this study might deny unplanned pregnancy because they fear of retribution and categorized in spontaneous abortion group according to WHO classification.

These results agree with a study done by Majlessi et al in Asfhan Islamic republic of Iran in period between 2003-2004, where spontaneous abortion formed 88 % and illegal abortion formed 12%^[17] but disagree with a study done by Dale et al in Egypt in 1995, where spontaneous abortion formed 35% and illegal abortion formed 65% (58% possibly induced, 2 % probably induced and 5 % certainly induced)^[9].

Excluding legal abortion from the studied sample, the percentage of patients who gave a history of unplanned pregnancy before their present conception constituted 29.4%. This percentage is less than that reported in a study done by Majlessi et al in Islamic republic of Iran in period between 2003-2004, where unplanned pregnancy constituted 34.5 %^[17]. It was also found that, three fifths (60.3%) of those patients with history of unplanned pregnancy did not use any contraceptive method at the time of the present conception, this percentage agree to that reported in a study done by Agha et al in Dohuk district of Kurdistan region, Northern Iraq in 2003 were also three fifths of those with unplanned pregnancy didn't use contraceptive methods^[18] but it is much higher than that reported in demographic and health survey done in Syria in 2006 where 30% of those with unplanned pregnancy not used any contraceptive method^[19]. The high percentage of contraceptive non users in the current study, could be either due to shortage of family planning services or lack of access to family planning services, or may be fear from contraceptive side effects.

Regarding those who used contraceptive methods in this study, the percentage of modern methods users was 30.1% which was more than that of traditional methods users which was 9.6%. These results are against that found in a survey done in Turkey in 2003 where modern methods users constituted 23% and traditional methods users constituted 53% and also against that of demographic and health survey done in Syria in 2006 where modern method users constituted 25% and traditional method users constituted 45%^[19]. Failure in modern methods in this study could be either due to that the methods used from non licensed sources or they were expired or could be due to non compliance of the patients or poor education about how to use the pills. In addition, the present study found that 20.5 % of

patients with unplanned pregnancy were using oral contraceptives while only 9.6% were using intrauterine device or condom. These results are disagree to that found in a study done by Majlessi et al in Islamic republic of Iran in period between 2003-2004, where oral contraceptive users constituted (21%) while intrauterine device and condom users constituted 25%^[17].

The decrease in condom and intrauterine device use in the current study could be due to non compliance of the husbands in case of condoms or, in case of intrauterine device, due to the fear of women from side effects or due to their relative high cost privately and the non availability in many family planning governmental centers. The absence of other modern contraception methods could be due to unacceptability or non availability in Iraq.

Septic abortion constituted only 4% which is lower than that of a study done by Majlessi et al in Islamic republic of Iran in period between 2003-2004 where, septic abortion constituted 31.9 %^[17] and less than a study done by Jewkes et al in South Africa in 1994, where septic abortion formed 20.5%^[20] but it coincides with a study done by Dale et al in Egypt in 1995 where septic abortion constituted 5%^[9], this low percentage could be due to the use of medical method in induction of illegal abortion. Yet, the percentage of septic abortion in this study is higher than that reported in a study done by Wasan in Iraq in 2008, where septic abortion formed 2.4%^[21], this could be due to that the latter study included only first trimester spontaneous abortion.

Although 25% of all pregnancies are complicated by threatened abortion^[22], in the present study missed stage formed the highest percentage (38.4%) of spontaneous abortion.

This could be due to the fact that this study is a hospital based study, so patients with threatened abortion may attend clinics rather than hospitals. In addition the highest percentage of illegal abortion (46.1%) was presented with incomplete stage, this could be due to the use of abortifacient drugs in induction of abortion, where the most common complication of improper use of these drugs is incomplete abortion^[11]. This result coincides with a study done in Brazil in 1998, which showed an increase in admission of incomplete abortions in hospitals, due to increase in use of Misoprostol drugs by pregnant women at that time^[9].

Although 55.6% of female in Iraq married at 25 years of age or less^[15], distribution of the studied sample according to some socio-demographic criteria showed that the highest percentage (71.2%) of patients in all types of abortion were first married before the age of 25 years. This percentage dropped to reach its lowest at the age of 35 years or over (1.6

%). This result disagree to that found in the 1999 ICMMS where, the highest percentage of patients (34.2%) were first married at the age of 35 years or over, this percentage dropped to reach its lowest before the age of 25 years (16.5%)^[13], this decrease in marital age could be due to either insecurity conditions in our country or could be due to fact that females leaving school early.

Regarding the age of patients at the time of the study, the highest percentage (25%) of patients with spontaneous abortion in this study was between 25-29 years old and the lowest percentage (7%) was between 40-44 years old. This result disagree to results reported in many studies which showed that increased maternal age increases the risk for spontaneous abortion^[23,24], this could be due to the fact that the current study is hospital based one, so many old age patients may attend clinics rather than hospitals or could be due to that old age women use family planning more than young ones.

Regarding illegal abortion young adults are particularly of high risk^[9].

In the present study one fifth (21%) of patients were between 15-24 years of age, this percentage is less than the percentage in Asia reported by WHO in 2003 where 30% of illegal abortion occur in women less than 25 years^[7]. This difference could be again due to the fact that the current study is hospital based one.

Chromosomal abnormalities increase with increase maternal age^{[16][25]} a fact that partially explained that three of nine patients with legal abortion in this study were equal to or more than 35 years old and no patients less than 20 years. This result is against a surveillance done in USA in 2002, where the highest percentage of legal abortion was in women aged less than 25 years^[27], this difference could be due to the fact that there is abortion liberation in USA, while there is abortion restriction in Iraq^[13].

Regarding years of education, the highest percentage of patients in the current study with spontaneous and illegal abortions (26.7%) and (38.2%) respectively had 1-6 years of education; these results coincide with the 1999 IMMCS, where the highest percentage of patients with abortion (29.1%) had primary school education^[13], this could be due to that Iraq had several decades of wars followed by long periods of violence and insecurity. The highest percentage of patients husbands in spontaneous and illegal abortions {(65.7%) and (65.8%) respectively} were not employed, this is a common observation in our society in the present circumstances. Another study on induced abortion done by Broen et al published in USA in 2005 found that reasons related to finances were highly rated^[28].

Two thirds of our population is living in urban regions^[14]. In this study the majority of patients were from urban places (83.7 %), this could be attributed to the place in which this study took place, or could be in case of illegal abortion, due to that patients from urban places are decided to terminate unintended pregnancy more frequently than those from rural places ;any how the present results agree to results found in IFHS 2006\2007 where the rate of abortion was 10.7 per100 pregnancy in urban patients and 7.6 per100 pregnancy in rural patients^[15].

A marriage between cousins has double the risk of having a child with a severe congenital disorder^[26] and anencephaly occurs more in cousins than other relatives^[25]. In the current study, although patients married to non relatives had the highest percentage in all types of abortion (56.4%), the next highest were those married to cousin relatives which constituted more than one third (35%).

These results are agree to results found in ICMMS in 1999, where the highest percentage of abortion were married to non relatives(29.1%), but the next highest were those married to other relatives (28.9%)^[13].

Regarding gestational age; 61.9 % of the total sample were lost between 5- 12 weeks this is less than that found in a study done by Dale et al in Egypt in 1995 where 86% of abortion lost at 12 weeks or less^[9]. In spontaneous abortions more than 80 % occur in the first 12weeks of pregnancy^[5]. In this study, 66.9 % of spontaneous abortion occurred between 5- 12 weeks and no patients were found with gestational age less than 5 weeks. This could be because this study was a hospital based one so, patient with pregnancy less than 5 weeks gestation may had no complications need attending a hospital. Induced abortion is a relatively safe procedure, especially when performed in the first 2 months of pregnancy but maternal death is doubled for each two weeks of delay after that^[5]. Regarding antenatal care, 80.9 % of the total sample , 89.5 % of illegal abortion, and 79.1% of spontaneous abortion had no antenatal care. This could be either due to the fact that the highest percentage of patients with spontaneous and illegal abortion had low years of education, or pregnant women seeking illegal abortion were usually less taking care of their pregnancy than others^[10].

There are many risk factors for spontaneous abortion, one of them is Multiparity^{[11][12]}. Spontaneous abortion is increased with increased parity in this study, where 43% of patients were para 3 or more. This result coincides with results of a study done by Laufer et al published in USA in 2004 concluded that, abortion rate increased with parity^[29]. Other risk factor for spontaneous abortion

is the short interval after abortion or birth^[30]. In the present study, 40.1 % of patients with spontaneous abortion had less than one year interpregnancy interval while 23.3 % of them had more than 2 years interval. This result coincides with that found in a study done by Conde-Agudelo et al in Latin America between 1985– 2002, which concluded that short post abortion interpregnancy interval were significantly associated with increased risk of adverse maternal outcomes^[31].

Infertility is other risk factor for spontaneous abortion^[32]. In the current study 16.9 % of patients with spontaneous abortion gave a history of infertility prior to present conception. Two other risk factors for spontaneous abortion are incompetent Oss and hypertension^[1].

They constituted 7% and 4.1% respectively in this study. A study done by Sheiner et al between 1988 – 2002 published in USA concluded that, there is a significant association between recurrent abortion and cervical incompetence and hypertension^[33]. Exposure to toxic drugs early in pregnancy is also a risk factor for spontaneous abortion^[34]. In the present study, 4.1 % had early exposure. A study done by Yaris et al published in USA in 2005 on pregnant women with history of psychotropic drugs found that, 7.3 % of their pregnancy end with spontaneous abortion^[35].

For illegal abortion, there are many risk factors. One of them is number of children^[34]. In the present study, patients with 0–2 children formed 40.8% while those with three and more formed 59.2 %.

This result coincides with the 2004 national survey of women in Philippine where 43% of patients had 0 -2 children and those with three and more formed 57%^[36]. Unwanted pregnancy is another risk factor for illegal abortion. It constituted 25%, which is less than a study done by Majlessi et al in Asfhan Islamic republic of Iran in period between 2003-2004, where unwanted pregnancy formed 78 % of illegal abortion^[17].

Low percentage of unwanted pregnancy in the present study could be due to that the percentage of patients sought illegal abortion for causes other than unwanted pregnancy such as socioeconomic status was high.

Other risk factor for illegal abortion is history of additional medical problems^[34]. A study done by Khan et al in India in 1998 found that additional medical problem is one of the causes drive the decision of women toward abortion^[37]. In this study additional medical problems constituted 6.6%. History of previous trial of abortion and physical abuse of patients by her husband are another risk factors for illegal abortion^[8].

They constituted 5.3 % and 3.9 % respectively in the current study , a result that is disagree to that of a study done by Fisher et al between 1998 - 1999 and published in USA who found that 32 % of patients had previous trial of abortion and 2.8 % of them had a positive history of physical abuse by their husbands ^[38] .

Legal abortion in Iraq has limited indications to anencephaly and some maternal diseases ^[6] .Exposure to radiation and infection with cytomegalovirus are risks for anencephaly ^[25] .

In this study, three of nine patients with legal abortion had history of exposure to diagnostic or therapeutic radiation and one patient had infection with cytomegalovirus A study done by Al-Ali et al in Mousel published in 1999 found that six of sixty infected pregnant women with cytomegalovirus developed fetal central nervous system anomalies ^[39].

In conclusions; Abortion constituted 14.3 % of the total obstetric / gynecological admissions with a rate of 177.7 per 1000 pregnancy and a ratio of 0.2 to other pregnancy outcomes. Unplanned pregnancy constituted 29.4% of total spontaneous and illegal abortions, three fifths of them didn't use any contraceptive method. The highest percentage of patients in all types of abortion were married before 25 years (71.2%) and had no ANC(80.9%). The highest percentage of patients with spontaneous abortion were para 3 and more (43%), had less than one year interpregnancy interval (40.1%) and more than one third(37.2%) were married to cousin relatives. The highest percentage of patients with illegal abortion with 1-6 years of education(38.2%) , had three and more children (59.2%) and 25% were unwanted pregnancy. Two fifths (43.4 %) induced at 13 weeks and more.

The study recommended to increase knowledge, attitude and practice surveys on abortion , establish a minimum age for marriage, provide good quality ANC services, include comprehensive family planning program in primary health care and post abortion care, limit the discharge of abortifacient drugs to medical prescription and involve private sectors in reporting and community nongovernmental organizations in education of women about family planning and ANC services in addition to the risks of unsafe abortion.

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