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*Research Article*

### INDICATIONS TO INDUCTION OF LABOUR

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**Abstract:**

*Introduction: The need of time delivery has been recognized and practiced for centuries. Although the indications have clearly changed during the past 200 years from a need to expel a dead foetus, to pre-emptive action, to reduce the threat, to fetal and maternal health. The main indications can be related to maternal causes, fetal or social or a combination of these. Now our subject of concern in this study is to see the indications for induction of labour in obstetric department in POF hospital, WAH. Objectives: 1) to determine the indications for induction of labour in Obstetric department in POF hospital, WAH. 2) To identify the indications in which induction is most frequently done there. Methods: A cross sectional study was conducted on 150 pregnant women admitted in POF hospital, WAH cantonment of Pakistan. Our sampling technique was purposive sampling and a structured questionnaire was used to obtain information about their socio-demographic details and their indications for induction of labour. Data was analyzed through SPSS 19 version, frequencies and percentages were calculated, tables, graphs, charts were made. Results: Out of 150 pregnant women who undergo induction, 71(47.3%) had oligohydroamnios and 67(44.6%) were having pre-eclampsia and 102(68%) was done due to breech presentation and 137(91.3%) were induced without any indication. Conclusion: Medical mode for induction of labor is mostly used in most cases. Most of the women with induced labor are illiterate housewives in the age group of 20-30 years, who are multigravidae with previously alive fetal outcomes. Oligohydroamnios, pre-eclampsia, breech presentation and indication less induction forms a major indication for induction of labour.*

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**INTRODUCTION:**

Labour induction is defined by WHO as initiation of labour by artificial means prior to its spontaneous onset at a viable gestational age, with the aim of achieving vaginal delivery in a pregnant women with intact membranes'.(1)

The need of time delivery has been recognized and practiced for centuries. Although the indications have clearly changed during the past 200 years, from a need to expel a dead foetus to pre-emptive action to reduce the threat to fetal and maternal health. For this purpose effective and safe methods of achieving delivery must always been the primary objectives. During the past 40 years, labour induction has mostly involved combining the advantages of physical manipulation with pharmacological myometrial stimulants. During the 1980's and 1990's patients acceptance of when and how delivery was achieved became a significant and sometimes overpowering consideration.(2) In some countries, the induction of labour become so concerning as the pregnancy outcomes are not entirely favourable although there is no clear medical indication.

During pregnancy the cervix is essential in maintaining uterine stability. To achieve this, the maintenance of cervical ripening is a physiological process occurring throughout the latter weeks of pregnancy and is completed with the onset of labour. When delivery is necessary and ripening has not had time to occur, or has failed to be initiated, the natural process of vaginal delivery has to be accelerated. For this purpose labour is being induced artificially.(3) It reduces perinatal mortality and caesarean delivery rates when compared to expectant management of pregnancy.

During the past 40 years, the main indications can be divided into maternal, fetal or social or a combination of these and may either be anticipated. The maternal indications are considered to be the most important in inducing labour. Among the commonest maternal indication is post term or post date pregnancy. The other maternal indications are hypertensive states, pre-eclampsia, maternal cardiac diseases, premature rupture of membranes, suspected intrauterine growth restriction, placental abruptions and gestational diabetes. Among the fetal causes prenatal death, oligohydramnios and fetal macrosomia constitute the major indications. Elective indications for non medical indication is also widely practiced and is considered ethically and medically acceptable.(4)

Around 20% of all deliveries are preceded by labour induction, a proportion that has varied dramatically

over recent years. The rate of induction varies from 9.5-33.7% of all pregnancies annually.(5) The rate of induction of labour vary from region to region according to the circumstances and health services provided by them. In United States of America and United Kingdom, about 20% of all deliveries are induced. The rate of induction which was reported from Latin America was 11.4%, while the rate is low in the African region. Similarly only 3% of women had labour induction in a specialist unit in Nigeria. On the other hand an increased rate of labour induction for post term pregnancies over 15 years is associated with decrease in still birth rates in Canada.(6) Higher rates of induction may also contribute to lowering of caesarean section rates without increasing other adverse pregnancy outcomes.

According to a study conducted in PAEC General Hospital, Islamabad from July 2006 to July 2008 rate of induction varies from 9.5-33.7 of all the pregnancies annually. A total of 78 patients were inducted in the study. They were divided in group B (n = 39) induced 41 weeks and group A (n = 39) induced at 40 weeks. Eighty four percent (n = 35) patients in group B delivered vaginally as compared to 71% (n = 28) in the 40 weeks group ( $p < 0.0001$ ). The higher number of vaginal deliveries in 41 weeks group independent of association between the induction agent, parity and mode of delivery. (7) Similarly another study conducted in PIMS, Islamabad in 2010 rate is currently around 20-30 of hospital deliveries in the developed as well as many developing countries. (8)

Now our subject of concern is to see the indications for induction of labour in obstetric department in POF hospital, WAH. Also to see the indications in which induction is most frequently done.

**REVIEW**

The retrospective cohort study was conducted on Outcomes of induction of labour in women with caesarean delivery in Scotland. Outcomes included mode of delivery, perinatal mortality, neonatal unit admission, postpartum haemorrhage and uterine rupture. 40.1 % (2963/7401) of women who underwent IOL 39-41 weeks were ultimately delivered by caesarean. When compared to expectant management IOL was associated with lower odds of caesarean delivery. There were no significant effects on the odds of perinatal mortality but greater odds of neonatal unit admission. Elective repeat caesarean delivery was associated with lower perinatal mortality. A more liberal policy of IOL in women with previous caesarean delivery may reduce repeat

caesarean delivery, but increases the risk of neonatal complication. (9)

A prospective observational study conducted on Maternal obesity and induction of labour .Showed out of 2000 women enrolled, 50.49 (n=1008) were Primigravidae and 17.3 % (n=346) were obese. The induction rate was 25.6 %. The overall caesarean section rate was 22 % .Primigravidae were more likely to have induction of labour than multi gravidae (38.01% vs 23.4% p<0.001). In Primigravidae was induction if labour, the caesarean section rate was 20.6 % (91/442) compared with 8.3 % (17/206) in multigravidae with induction of labour (p<0.001).(10)

A cohort study conducted on elective induction of labour and risk of caesarean section in low risk parous with or previous section and with planned vaginal term (37-41 weeks ), singleton birth in vertex position showed out of 7973 pregnancies 343 (4%) has an elective induction of labour .Out of which 5 % induction were with intravenous oxytocin. Amniotomy were performed in 62 % and 33% induction were done with cervical ripening. Study showed that electively induce labour increases the risk of caesarean section 2 times compared with spontaneous onset of labour and the result was tripled with cervical ripening technique. (11)

A retrospective study conducted on obstetric outcome and significance of labour induction in a health resource poor setting showed the induction rate was 11.5%. Induction was successful in 75.9% of cases but failed in 24.1 % .the commonest induction method was misoprostol (78.2%) and the commonest indication of labour was post date pregnancy (45.8%).(5)

The descriptive cross sectional study on Indication as induction of labor was carried out from April 2008-2009 in D.H.Q teaching hospital Sarghoda in period of 1 year. According to research out of 400 patients, 158 were Primigravidae and rest of 242 were G2\_G9. 342 had alive foetuses and 52 I.O.F.D. Duration of pregnancy ranged from 28-41 weeks. Indication for induction of labour was prolonged pregnancy , (36) pre-clampisa , (46) IUGR ,(16) placental abruption ,(20) fetal anomalies , (58) IURD, (10) diabetes , (108) non medical indication , (242) spontaneous vaginal deliveries ,(60) instrumental deliveries ,(98) C- section.(12)

The randomized clinical trial was performed on 220 pregnant women with a aim of Study induction of indication of labour in the department of Obstetrics , teaching hospital ,Krishna institute of medical sciences .In this study the pregnant ladies was grouped in to two groups -98 cases in dinoprostone and 118 cases in foley's catheter were 2nd group . The mean and standard variation of age in dinoprostone group and Foley's catheter was  $24.3 \pm 4.0$  and  $24.2 \pm 5.0$  ( $p>0.1$ ) respectively. Gestational age in first group was  $39.8 \pm 1.4$  weeks and in second group was  $40 \pm 0.9$  weeks ( $p>0.1$ ). Parity, in first group was  $1.3 \pm 0.63$  and in second group was  $1.7 \pm 1.1$  (  $p > 0.1$  ) .The bishop score in dinoprostone group was  $2.7 \pm 1.3$  and in Foley's catheter group was  $2.0 \pm 1.6$  ( $p > 0.1$  ) . In the rate of vaginal delivery in first group was 89.9 % and in second group was 62.7 %. (13)

The Quasi experimental study was conduct in department of Obstetrics and Gynaecology, divisional headquarter of Faisalabad from April 2006 – April 2007 .The survey was conducted for the knowledge and practice of labour induction with oral misoprostol in pre labour rupture of membrane. (14)

## OBJECTIVES OF STUDY

To determine the indications for the induction of labour in a pregnant woman and to find out the most frequent causes for induction.

## MATERIALS AND METHODS:

**Study Design:** Cross sectional study design.

**Study Testing:** This study is carried out in obstetric ward of P.O.F Hospital, Wah Cantt.

**Duration of study:** The study is done in 6 months, i.e. March to August in year 2014.

### Sample Size:

$$\begin{aligned} \text{By WHO sample size calculator:} \\ n &= (1.96)^2 \times (pq)/(0.05)^2 \\ &= (1.96)^2 \times (0.11 \times 88.6)/(0.0025) \\ &= (3.84) \times (9.74) = 150 \end{aligned}$$

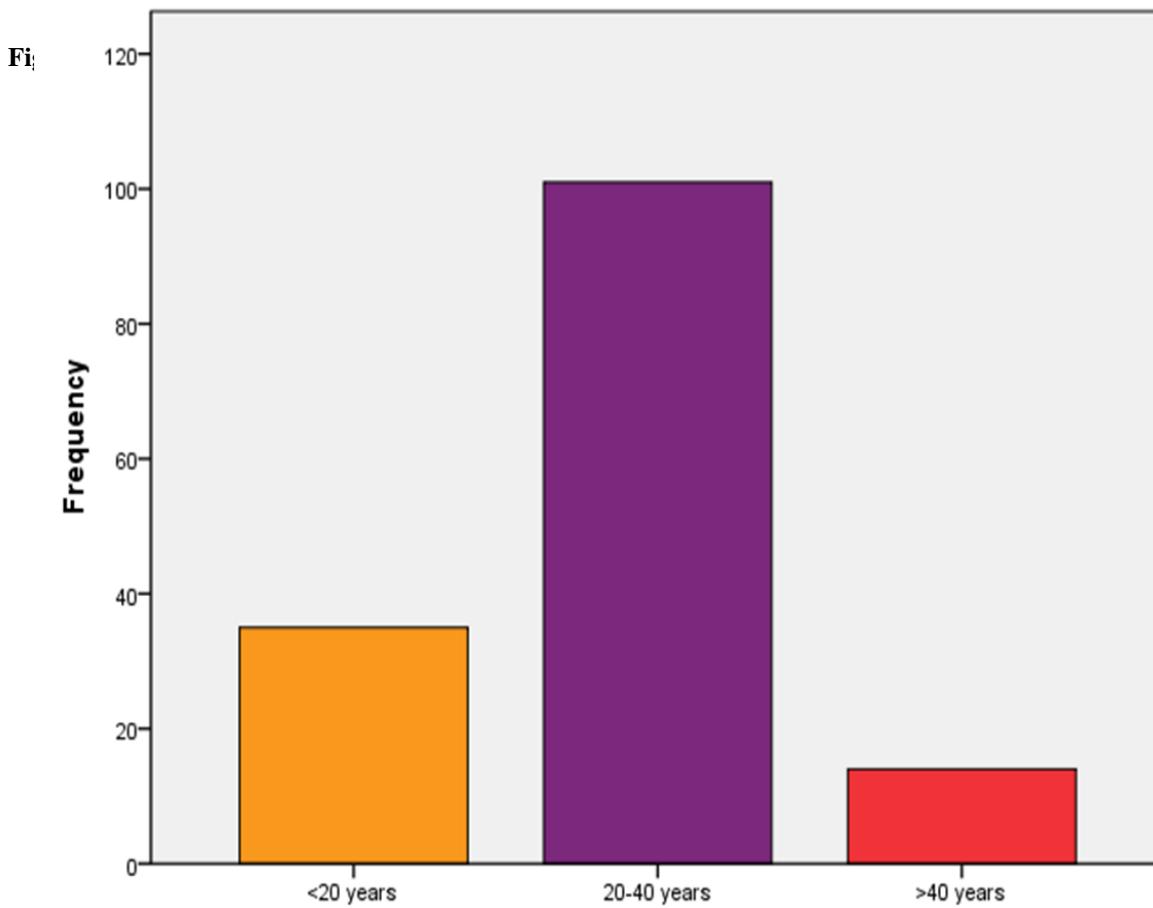
**Sampling Technique:** Purposive sampling.

**Sample collection:** The pregnant females undergo induction before delivery in obstetric ward.

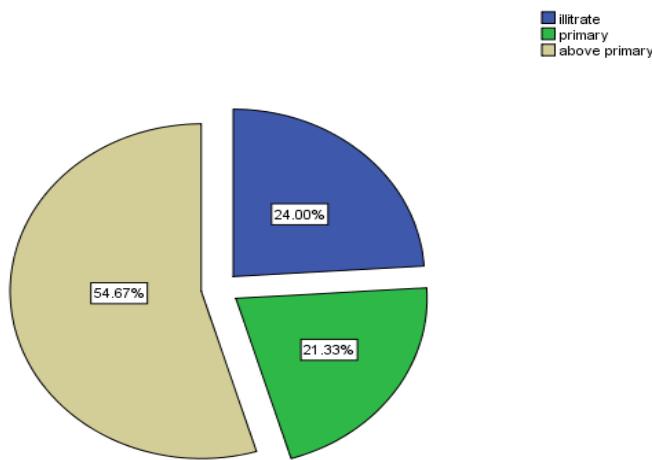
**Sampling Tool:** Structured questionnaire.

**Data collection procedure:** This is done by interviewing the pregnant females who undergo induction.

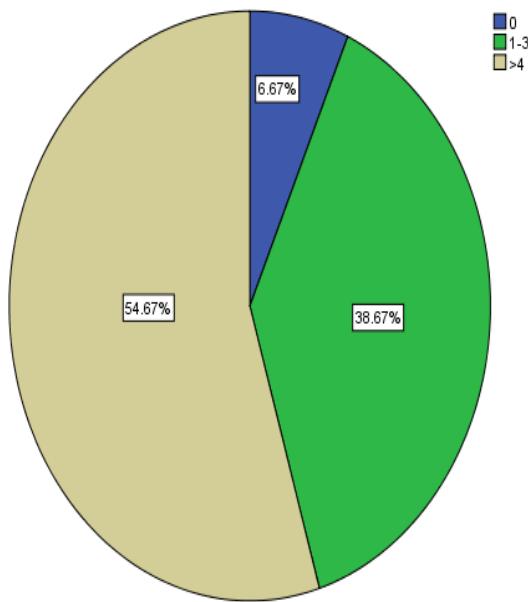
**Data Analysis Procedure:** Data will be entered in SSPE version 17. Charts and table will be made according and cross tabulations will be done where necessary.

**RESULTS:**

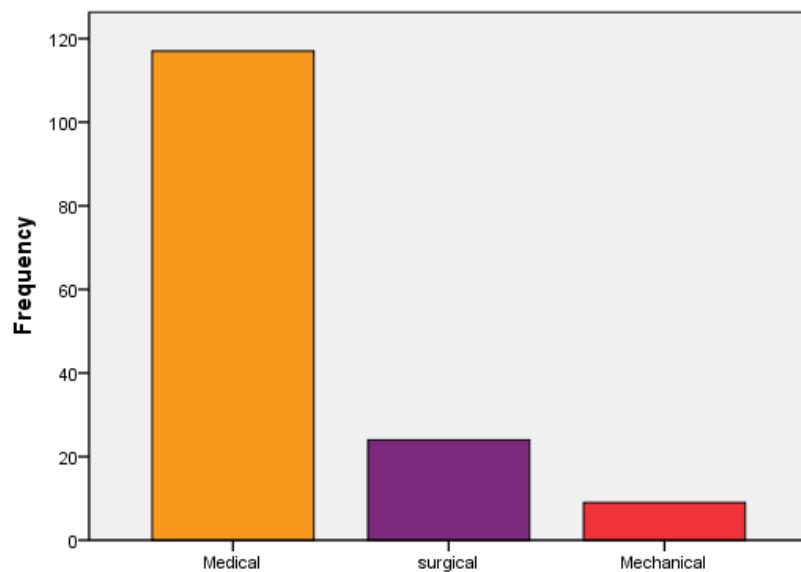
**Figure Number 1: Age distribution of women**  
According to this study the greatest bracket of women is 20-40 years of age.

**Figure Number 2 : Educational status of pregnant women**

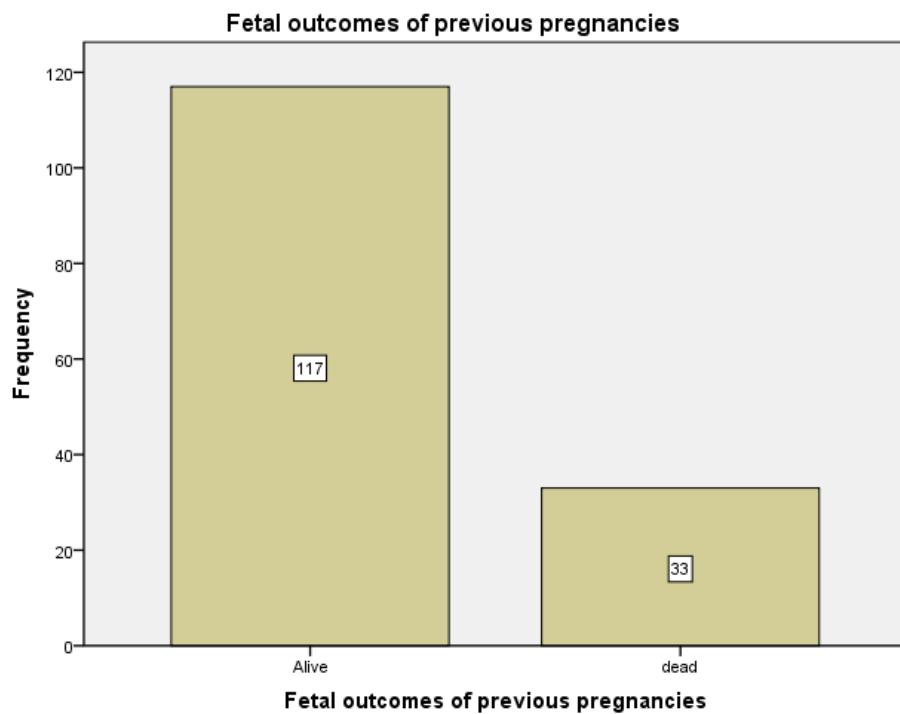
Pie-chart showing the 54.67% women with above primary education, 24% illiterate women and 21.33% with primary education.

**Figure number 3: Number of Antenatal visits during pregnancy**

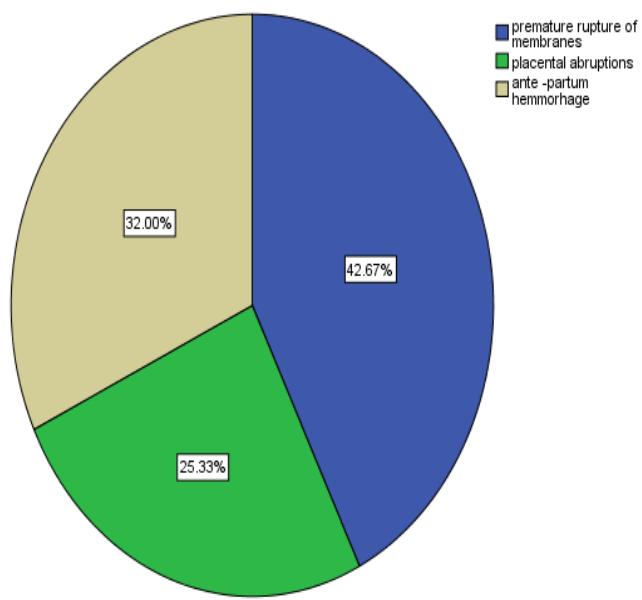
Pie-chart shows 54.67% women pay less than four visits, 38.67% women had 1-3 visits and 6.67% woman did not have any antenatal visits.



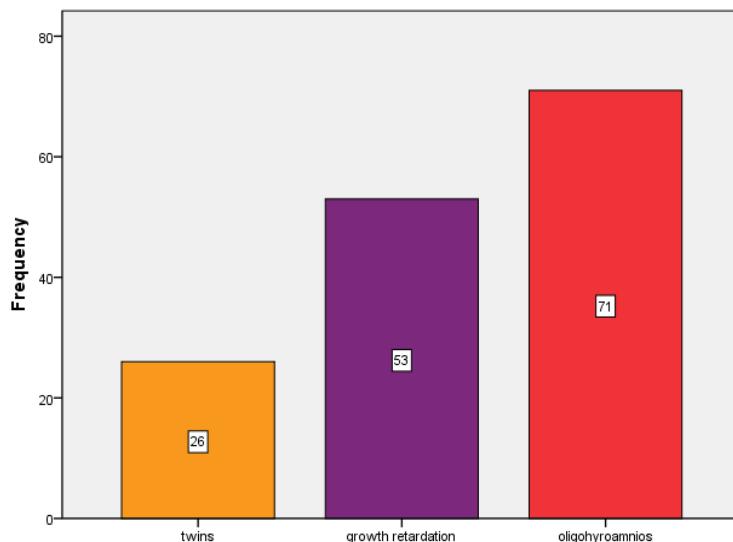
**Figure Number 4: Methods adopted for induction of labour during delivery**  
Frequency diagram showing the most commonly used methods for induction are medical methods.



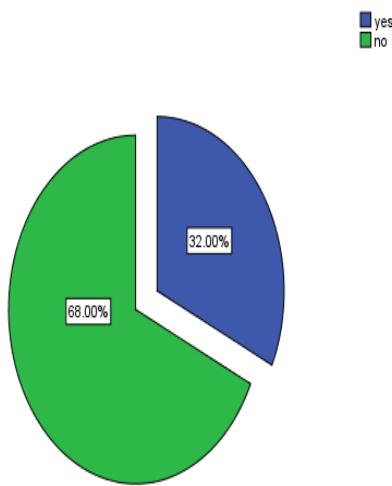
**Figure number 5: Pregnancies outcome after induction**  
Frequency diagram showing that 117 deliveries consisted of live births while 33 of them were born dead.

**Figure number 6: Significant pathological history during pregnancy or before delivery**

This diagram shows that 42.67% of the women from the sample had premature rupture of membranes, 32% had ante-partum hemorrhage and 25.33% had placental abruptions.

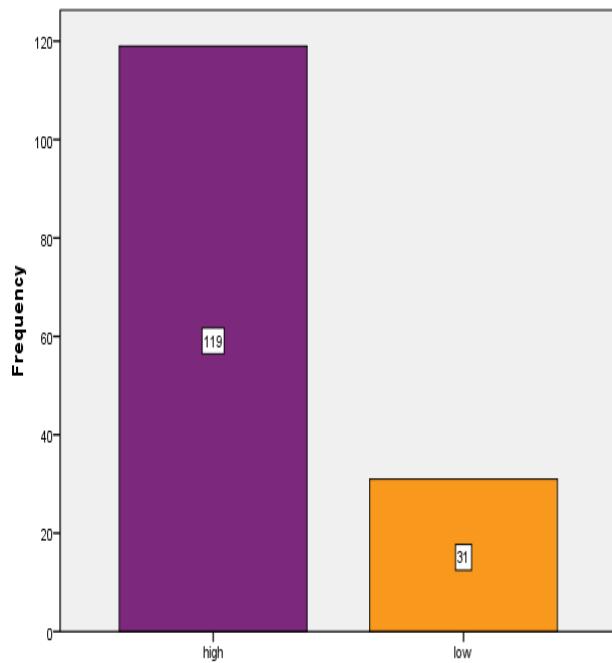
**Figure number 7: Fetal insufficiency as an indication for induction**

The data shows that in 71 cases oligohydroamnios was the indication for the induction, growth retardation in 53 cases and twins in 26 cases.



**Figure number 8: Breach presentation as an indication for induction**

In our data 32% woman had breach presentation as the indication of labour.



**Figure number 9: Availability of Health care facilities**

In this data for 119 cases, the availability of health care facilities was high, and for 31 cases the availability and ease of access of health care facilities was low.

**Table : 1 Occupational status of pregnant women**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	house wife	113	75.3	75.3	75.3
	working	37	24.7	24.7	100.0
	Total	150	100.0	100.0	

In our study the frequency of housewives is 113 whereas that of working women 37.

**Table: 2 Previous Obstetric history of pregnant women**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	primigravida	46	30.7	30.7	30.7
	multigravida	104	69.3	69.3	100.0
	Total	150	100.0	100.0	

In our study 30.7% of women were primigravida whereas 69.3% were multigravida

**Table: 3 Frequency of Cesarean section as an indication at Term**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	34	22.7	22.7	22.7
	no	116	77.3	77.3	100.0
	Total	150	100.0	100.0	

**Table : 4 Post date pregnancies as an indication for induction**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	58	38.7	38.7	38.7
	no	92	61.3	61.3	100.0
	Total	150	100.0	100.0	

In this data 58 women had post date pregnancies whereas 92 did not.

**Table :5 Significant medical history as an indication for induction**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	*gestational diabetes	58	38.7	38.7	38.7
	*pre-eclampsia	67	44.7	44.7	83.3
	*maternal cardiac disease	25	16.7	16.7	100.0
	Total	150	100.0	100.0	

In this study 38.7% of the women had gestational diabetes, 44.7% of them had pre-eclampsia and 16.7 of them had maternal cardiac disease as significant medical history.

**Table: 6 Request for induction of labour**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	13	8.7	8.7	8.7
no	137	91.3	91.3	100.0
Total	150	100.0	100.0	

From amongst the women in this study 8.7% of them personally requested for an induction of labour whereas 91.3% did not.

#### **DISCUSSION:**

Induction of labour is an obstetric intervention usually employed to prevent adverse pregnancy outcomes. Attention to reduce perinatal morbidity, mortality and induction of labour has continued to rise over the past few decades, in our study, the percentage of live births after induction is 78%.

In a study conducted in Catholic maternity hospital Nigeria, medical methods were utilized for induction in 79% deliveries while in our study, medical methods were adopted for 78% deliveries.

In a study on induction of labour by G. Gordon and F.R. Coq in Bristol 47.8% cases were presented with pre-eclampsia and other forms of hypertension while in our study the percentage of pre-eclampsia was 44.7%. This comparison shows moderate decrease but according to our study, pre-eclampsia is a commonest cause of induction of labour.

Oligohydroamnios and IUGR are also important indications for induction of labour according to our study. The percentage of deliveries with oligohydroamnios is 47% and with IUGR is 35%. A study performed in Nigeria by Takur.J in 2005 indicates in conclusive data about oligohydroamnios as an indication for induction of labour.

According to study performed in Africa in 2004-2005, percentage of post date pregnancies beyond 40 weeks in Kenya is 18%. In Nigeria it is 16% and Uganda is 15% while in our research percentage of post date pregnancies is 38%. It indicates an increase in post date pregnancies.

In our study 42.7% of the deliveries were presented with PROM while in an analysis performed by WHO in 2004-2005 named Global Maternal and Perinatal survey, PROM was an indication for the induction of 20.8% deliveries.

In our study, indications for induction of labour came out to be oligohydramnios, PROM, IUGR, pre-eclampsia, post date pregnancies, placental abruptions and gestational diabetes. While in a prospective study conducted by the Assistant

Professor (Gynaecology) Sargodha Medical College, indications of induction of labour were prolonged pregnancy, pre-eclampsia, fetal abnormalities and non medical indications.

#### **CONCLUSION:**

Medical mode for induction of labour is mostly used in most cases in most health facilities. Most of the women with induced labour are illiterate housewives in the age group of 20-30 years, who are multigravidae with previously alive fetal outcomes. Oligohydroamnios forms a major indication for induction of labour.

We concluded from our study that major cause for induction of labour is availability of induction of labour at health care facilities.

#### **RECOMMENDATIONS**

1. Awareness about the induction of labour and its indications should be created among medical personnel.
2. Induction should be performed only when there is a clear medical indication for it and expected benefits outweighs its potential harms.
3. Wherever induction should be carried out facilities should be available to assess fetal and maternal well-beings.
4. Significant pathological history during delivery and before delivery should be taken in selection of patient for induction of labour.
5. Patient should be counseled about indication of induction, the agents and the method use for stimulation and the possible need for induction.

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