

# THE OUTCOME OF PREGNANCY AND LABOR IN A PRIMIGRAVIDA

An Analytical Study of 2000 Primigravidae Delivered at  
Nowrosjee Wadia Maternity Hospital in 1959

by

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## Introduction

The elderly primigravidae and the young primigravidae have drawn special attention of all obstetricians and rightly so because the elderly and the young primigravidae confront the obstetrician with special problems requiring critical judgment. The literature is studded with references to such studies. Without minimising the importance of the study of the elderly and the young primigravidae, we believe primigravidae as a whole demand special attention. A primigravida is undergoing her maiden experience with the growth of a living foetus in her womb. She is undergoing changes, physiological as well as psychological, not experienced in the past. The primigravida differs from the rest in the following respects:—

1. Higher incidence of uterine inertia.
2. Lower incidence of rupture uterus.
3. Greater incidence of toxæmia of pregnancy.
4. Low incidence of antepartum and post-partum hæmorrhage.
5. Higher incidence of caesarean section and forceps.
6. Lesser chances of abnormal presentations.
7. Greater incidence of engagement of head at 36 weeks.
8. Antenatal complications like hyperemesis gravidarum, pyelitis, etc. more common in primigravidae.
9. Greater still-birth and neonatal death rate.

It should be clear from the above points why a primigravida demands special study. Referring to the literature, very few workers have studied primigravidae as a whole. The only reference where primigravidae are studied is of Baird. He has analysed 2,624 primigravidae at Abardeen Maternity Hospital from 1938 to 1942. It is an excellent study. No such study comprising larger series

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of primigravidae is made from India. We understand that access to the records of larger number of cases is an essential pre-requisite of any such investigation. And that is the reason why there are so few references. It is our aim to present a critical analysis of primigravidae to fill in the gap of such a study in India. We hope it shall be of statistical significance.

The study of primigravidae is like an uncharted sea. The problem has many facets. We do not claim to cover all the facets though we very much wish we could. Incomplete records prevent us from touching all the facets of this interesting study.

#### Material and Methods

This is an analysis of the outcome of pregnancy and labour in 2000 primigravidae admitted in Nowrosjee Wadia Maternity Hospital in 1959. An attempt is made to study and evaluate the complications met with during pregnancy and labor.

#### Analysis

There were 2169 primigravidae delivered in 1959 but we have selected 2000 cases as the case papers of the others were not available.

Table I compares the number of deliveries in primigravidae with total number of confinements monthwise. It shows that more primigravidae deliver in the months of March, April and May. We cannot say whether the increased delivery rate in primigravidae in March, April and May, is related to marriage season. Primigravidae constitute 22% of the total confinements. In western countries where families are restricted to two or three in number, primigravidae

TABLE I  
Analysis of 2000 Primigravidae Delivered  
in Nowrosjee Wadia Maternity  
Hospital in 1959

Month	No. of primigravidae	Total confinements	Percentage of primigravidae
January	162	789	20.0
February	146	665	21.8
March	173	734	24.4
April	187	709	26.3
May	179	694	25.8
June	153	722	20.0
July	178	873	20.0
August	210	994	21.1
September	205	954	21.4
October	225	1028	21.8
November	187	911	20.0
December	164	766	20.7
Total	2169	9839	22.0

constitute about 50% of total confinements. With increasing number of puerperal sterilizations every year, in our country also, primigravidae may contribute major share in total confinements.

Table II shows that 82.5% of the

TABLE II

	No. of cases	Percentage
Booked cases .. ..	1650	82.5
Emergency cases .. ..	350	17.5
Total .. ..	2000	

  

	No. of cases
One antenatal visit .. ..	600
Two antenatal visits .. ..	328
Three to five antenatal visits .. ..	632
More than five antenatal visits .. ..	90
Total .. ..	1650

primigravidae come for registration. Increased understanding among the



people is responsible for higher number of ante-natal registration of primigravidae. Only sad feature is that 600 of the primigravidae after registration preferred to show their face only at the time of labour and so for practical purposes about 50% of the primigravidae still deliver without enough ante-natal supervision. Spread of education with the passage of time shall reduce the number of emergency cases.

Table III shows that 63% of the

TABLE III  
Age of Patients

Age in years	No. of cases	Percentage
Upto 15	5	0.25
16 to 20	1260	63.00
21 to 25	590	29.50
26 to 30	105	5.25
31 and above	40	2.00
Total	2000	

primigravidae who deliver are between 16-20 years age group. Early marriages in our country are responsible. These days there is a growing tendency for late marriages or postponement of child-bearing for economic reasons and so after some years the number of deliveries in primigravidae below 20 years will drop considerably.

Table IV shows that at least 50% of the primigravidae have haemoglobin above 50%. Severe anaemias are not as common in a primigravida as compared to a multipara. In a multipara there is fair amount of drain of iron at every pregnancy.

Table V shows that ante-natal complications are not very common at the Nowrosjee Wadia Maternity Hospital. It is a wrong impression. As about 600 cases did not come for

TABLE IV  
Haemoglobin Percentage at the Time of Registration

Haemoglobin percentage	No. of cases
Upto 40 .. .. .	25
41 to 50 .. .. .	95
51 to 70 .. .. .	690
71 and above .. .. .	310
Information not available .. .. .	530
Total .. .. .	1650

TABLE V  
Diseases Diagnosed in the Antenatal Visits

	No. of cases
Toxaemia of pregnancy .. .. .	56
Heart disease .. .. .	8
Pulmonary tuberculosis .. .. .	9
Pyelitis .. .. .	6
Retention of urine .. .. .	5
Fibroids with pregnancy .. .. .	1
Twisted ovarian cyst at 2 months gestation operated .. .. .	1
Threatened abortion .. .. .	2
Miscellaneous — diarrhoea, fever, pain in abdomen, etc. .. .. .	40

further antenatal visits, whatever complications occurred in those cases are not naturally included and so the data presented in this table should be studied with this background in mind.

Table VI shows the incidence of

TABLE VI  
Presentations at Full Term

Type	No. of cases	Percentage
Vertex	1915	96.75
Breech	65	3.75
Face	7	0.21
Transverse	10	0.50
Brow	3	0.15
Total	2000	

various presentations at full-term. It compares favourably with figures by other authors. The incidence of abnormal presentations is slightly less in primigravidae.

Table VII shows that about 80.7%

TABLE VII

*Incidence of Engagement of Head at the Time of Labor*

	No. of cases	
	Percentage	
Engaged head	1560	80.7
Floating head	365	19.3
Total	1925	

of the primigravidae have an engaged head at full-term. Lister from Nigeria writes that "the incidence of engagement of the foetal head is the same in primigravidae and in multiparae. In most of primigravidae and multiparae the head does not get engaged till late first stage or sometimes after full dilatation of the cervix." She further comments that late engagement of the foetal head does not lead to additional hazards. As will be seen in later tables, cases with engagement of head at the time of labour have higher rate of spontaneous delivery.

Table VIII shows that about 15.5% (310 cases) of the primigravidae had toxæmia. It should be noted that only 56 cases of toxæmia were

TABLE VIII  
*Incidence of Toxaemia of Pregnancy at Full-term*

Type	No. of cases
Mild systolic B.P. upto 140 mm. Hg.	160
Moderate systolic B.P. 140-160 mm. Hg.	91
Severe systolic B.P. 160 mm. Hg. and above	59
Total	310 = 15.5%
	Primi. Total Percentage
Eclampsia	18 30 60

detected in the antenatal period. It proves that 50% of the primiparae who did not attend antenatal department regularly, suffered from toxæmia. It is worth noting that 60% of the total cases of eclampsia occurred in primigravidae.

Table VIII-A clearly shows that the incidence of toxæmia of pregnancy increases with age.

Table IX shows that 65% of the primiparae deliver without a vaginal examination. This is because many of our patients postpone coming to the hospital till the membranes rupture or the head is seen at the perineum. This obviates the need of doing a p.v. Moreover, some patients deliver in a taxi when they are on their way to the hospital. Ours is a

TABLE VIII-A  
*Incidence of Toxaemia of Pregnancy in Relation to Age of Mother*

Age in years	Mild		Moderate		Severe		Total	
	Cases	%	Cases	%	Cases	%	Cases	%
16-20	72	5.0	60	4.7	34	4.0	166	13.0
21-25	64	10.0	20	3.3	19	3.3	103	17.0
26-30	20	19.0	6	5.7	4	3.8	30	28.0
31 +	4	10.0	5	12.5	2	5.0	11	27.5



TABLE IX

No. of P.V. examinations	No. of cases
One P.V. examination .. ..	468
Two P.V. examination .. ..	122
Three P.V. examinations .. ..	52
Four or more P.V. examinations ..	58
	700
+	
Patients delivered without P.V. examination .. ..	1300
Total .. ..	2000

teaching hospital and so vaginal examination is done slightly more frequently.

Table X shows that episiotomy is

TABLE X

	No. of cases	Percentage
Delivered with episiotomy	811	40.5
Delivered with perineal tear	315	15.7
Delivered without episiotomy or perineal tear	727	36.2
Delivered by caesarean section or forceps	147	7.3
Total	2000	
Delivered during day time ..	1053	
Delivered at night time ..	947	
Total .. ..	2000	

given liberally in a primipara as compared to the rest but nevertheless at other centres, more primiparae deliver with episiotomy. It is a sad commentary that 15.7% of the cases had a perineal tear. Timely episiotomy in some of the cases could have saved the perineal tear but we should say that perineal tear in some cases is inevitable, especially in those

cases who deliver in the receiving room or in a taxi. In some cases the labor-ward sisters delay giving an episiotomy because the probationer nurses are supposed to conduct five labour cases in a primipara without an episiotomy or a tear. The perineal tear is produced by allowing longer time to the probationers to conduct delivery without an episiotomy. We do not know whether it is advisable to allow the head to remain on the pelvic floor for a longer time to avoid an episiotomy. Such cases may have to give deferred payments in terms of genital prolapse.

This table also tries to remove the time-old controversy. The number of deliveries during day time and night time are evenly placed with slightly more deliveries during the day time.

Table XI analyses the incidence of

TABLE XI  
Perineal Tears

Conducted by	Total	No. of tears	Percentage
Nurses (probationers)	1127	205	18.2
Students	473	74	19.5
Sisters	176	28	16.0
Doctors	77	8	10.0
Total	1853	315	

perineal tear at the hands of probationer nurses, students, sisters and doctors. As expected, students give perineal tear to more cases whereas the probationer nurses closely follow; surprisingly the labor-ward sisters give perineal tear to 16% of the cases conducted by them. When we discussed the problem with them, their defence was that they conduct more difficult cases and they give easy

cases with lax perineum to the students and nurses. There is some truth in what they say. Doctors of course give fewer perineal tears because they give episiotomy liberally as compared to the sisters.

Table XII shows that majority of our patients deliver within two hours after rupture of the membranes. We have difficulty in finding out the total duration of labor. We believe possibly every obstetrician has the same difficulty. Some of our patients come late in the second stage of labor and they are not able to tell the exact time of the onset of labor and so while recording the onset of

labor, labor-ward sisters have some difficulty. Sixty-three per cent of our cases delivered within 12 hours and only 2½% (50 cases) had the duration of labor more than 30 hours. We agree that the duration of labor in some cases may be more than what the record shows and so we urge to read the table with this background in mind.

Table XIII confirms the general impression that duration of labor increases with age. Thus 69% of the patients in 16-20 year age group delivered within 12 hours whereas only 40% of the patients above 30 years delivered within 12 hours.

TABLE XII

*Time Interval between Rupture of Membranes and Birth of Baby*

Less than 1/2 hour	1/2 to 2 hours	2-5 hours	5-10 hours	10 hours or more	Not known	Total
1365	372	148	20	10	55	2000

*Total Duration of Labor*

Less than 12 hours	12-30 hours	31-48 hours	48 hours or more	Total
1270	680	42	8	2000

TABLE XIII

*Duration of Labor in relation to Age*

Age in years	Duration of labor								Total
	Less than 12 hours		12-30 hours		31-48 hours		48 hours and above		
	No.	%	No.	%	No.	%	No.	%	
Less than 15 years	5		—		—		—		5
16-20	870	69.0	366	29.0	20	1.9	4	0.3	1260
21-25	313	63.0	262	44.0	12	2.0	3	0.5	590
26-30	66	63.0	31	29.0	7	6.3	1	0.9	105
31 & above	16	40.0	21	51.0	3	8.0	—		40
Total	1270		680		42		8		2000



TABLE XIV

*Mode of Delivery in relation to Engagement of Head at Time of Labor*

Mode of delivery	Floating	Engaged	Total
Spontaneous	333 (90%)	1447 (93.5%)	1780
Forceps	16 (4.3%)	83 (5.4%)	99
Caesarean section	16 (4.3%)	30 (1.8%)	46
Total	365	1560	1925

TABLE XV

*Duration of Labor in relation to Engagement of Head at Time of Labor*

Duration	Floating	Engaged	Total
Less than 12 hours	146 (39.8%)	1058 (67.9%)	1204
12 - 30 hours	200 (54.8%)	478 (30.6%)	678
31 - 48 hours	14 (4.1%)	22 (1.4%)	36
48 hours and more	5 (1.3%)	2 (0.1%)	7
Total	365	1560	1925

Table XIV summarises the mode of delivery in relation to the engagement of the head at the time of labor. The caesarean section rate is two and a half times more when the head is floating at the time of labor, though the forceps rate is only slightly higher when the head is engaged at the onset of labor. The incidence of spontaneous delivery is only slightly higher in engaged head cases; it will be seen from the next table that the incidence of spontaneous delivery within 12 hours is one and a half times greater than in cases with floating head.

Table XV clearly shows that the duration of labor is definitely shorter when the head is engaged at the time of labor. Incidence of prolonged labor (more than 30 hours) is higher in cases of floating head (5.4%).

TABLE XVI

	No.	Percentage survival
Full-term babies	.. 1620 (81%)	98.4
Premature babies	.. 380 (19%)	69.7
Male babies	.. 1082	
Female babies	.. 918	

*Baby Weights*

Weight Lbs. - ozs.	Less than 2-8	2-9 to 3-8	3-9 to 4-8	4-9 to 5-8	5-9 to 6-8	6-9 +	Total
Total cases	32	95	253	715	665	240	2000
Living at time of discharge	8	29	228	684	643	237	1829
Percentage survival	25.0	30.0	90.0	95.0	97.0	98.7	91.5

*Still-births and Deaths during Stay in Hospital*

Still-births	12	25	8	17	11	1	74
Deaths in hospital	12	41	17	14	11	2	97
Total deaths	24	66	25	31	22	3	171

Table XVI shows that 81% mothers, i.e. 1620, had full-term babies, whereas 19%, i.e. 380, mothers had given birth to premature babies. The survival rate as expected is greater in full-term babies (98.4%) than in premature babies (69.7%). Seventy per cent of the babies weigh between 4½ to 6½ lbs. The survival rate of the babies increases with increased birth weight. It also shows that 60% of the still-births in primiparae were premature babies (weigh less than 4½ lbs.).

Table XVII shows that percentage loss of babies is only slightly more in primiparae than in total series. The foetal loss rises as the duration of labor increases. The foetal

TABLE XVII

	In primi.	Total
Still-births	74	396
Obstetric deaths	97	220
Percentage loss	8.5	8.2

loss increases considerably when the labor lasts for more than 48 hours.

Table XVIII shows that foetal deaths increase with advance in age. Foetal loss is least in the 16-20 year age group.

Table XIX shows that foetal deaths increase with the severity of toxæmia. The foetal mortality in cases of eclampsia is 44%

*Foetal Deaths due to Prolonged Labor*

Duration of labour	Premature	Full-term	Total deliveries	Percentage death
Less than 12 hours	83	17	1270	7.8
12 - 30 hours	30	33	680	9.2
31 - 48 hours	2	3	42	11.9
48 hours +	—	3	8	37.5
Total	115	56 = 171		

TABLE XVIII  
*Foetal Deaths in relation to Age of Mother*

Age in years	Premature	Full-term	Total births	Percentage death
16 - 20	70	28	1260	7.7
21 - 25	36	19	590	9.3
26 - 30	6	6	105	11.4
31 +	3	3	40	15.0



TABLE XIX  
Foetal Deaths in Toxaemia Cases

Type		No. of cases	Total cases	Percentage foetal cases
Mild	Premature	7	160	5.6
	Full-term	2		
Moderate	Premature	11	91	18.6
	Full-term	6		
Severe	Premature	11	59	27.1
	Full-term	5		
Eclampsia		8	18	44.0

TABLE XX  
Foetal Deaths due to Asphyxia

Babies asphyxiated at birth	140
Babies with asphyxia at birth and lived	100
Babies with asphyxia at birth and died	40

Foetal Deaths with Cord round Neck

Babies alive with cord round the neck	70
Babies still-born with cord round the neck	6

Foetal Puerperium

Diarrhoea	74
Jaundice	36
Congenital anomalies	21
Convulsions	6
Miscellaneous	40

Table XX summaries foetal deaths due to asphyxia and due to cord round the neck.

Table XXI shows that fair number of primiparae get fever. Episiotomy wound has gaped in 20 cases. We have lost 8 primiparae. Though 4 cases were booked cases they did not

attend the ante-natal department regularly. Out of 18 cases of eclampsia, 2 died. It is the general impression that post-partum haemorrhage is less common in primiparae. We have lost 2 cases of post-partum haemorrhage. One of these cases was of severe anaemia.

TABLE XXI  
Maternal Puerperium

	No. of cases
Fever more than 100°F.	168
Wound gaping	20
Breast abscess	5
Abdominal wall abscess after caesarean	2
Recto-vaginal fistula	1
Maternal deaths	8
Booked	4
Emergency	4
Eclampsia	2
P.P.H.	2
Heart disease	1
Pulmonary oedema and bronchiectasis	1
Liver failure	1
Severe anaemia	1
	8

TABLE XXII  
Abnormal Labor in relation to Baby Weights

	2-8 to 3-7		3-8 to 4-7		4-8 to 5-7		5-8 to 6-7		6-8 +		Total	
	L.	D.	L.	D.	L.	D.	L.	D.	L.	D.	L.	D.
Caesarean	—	—	5	—	10	3	14	2	15	—	45	5
Forceps	—	—	2	4	20	—	34	5	22	2	78	11
Breech	4	7	11	1	22	2	17	1	—	—	54	11
Int. Pod. version	—	1	1	3	2	1	—	—	—	2	3	7
Vertex	33	82	209	17	630	25	578	14	200	—	1649	138
Total	37	90	228	25	684	31	643	22	237	4	1829	172

L. = Living.

D. = Died.

Table XXII shows that interference is rarely needed at the time of delivery in babies weighing less than 4.5 lbs., whereas caesarean section and forceps rate considerably increase with baby weight.

Table XXIII shows that out of 50 primiparae who delivered after 30 hours of labor, 39 cases required

caesarean section or forceps. The incidence of caesarean section and forceps definitely increases with prolonged labor.

Table XXIV shows that the caesarean section and forceps rate increases with age. Above 30 years age only 70% had spontaneous delivery.

TABLE XXIII  
Abnormal Labor in relation to Duration of Labor

	Upto 12 hours	12-30 hours	31-48 hours	48 + hours
Caesarean	5	26	14	3
Forceps	15	62	20	2
Breech				
Normal	1250	592	8	3
Total	1270	680	42	8

TABLE XXIV  
Outcome of Labor in relation to Age

Type of delivery	Age							
	16-20 years		21-25 years		26-30 years		31 years & over	
	No.	%	No.	%	No.	%	No.	%
Spontaneous	1172	92.0	503	84.0	78	74.0	28	70.0
Caesarean section	19	1.5	16	2.6	10	9.0	5	12.5
Forceps	42	3.5	40	6.7	10	9.0	7	17.5
Breech	27	2.5	31	5.0	7	6.0	—	—
Total	1260		590		105		40	



TABLE XXV  
Outcome of Labor

Type of delivery	Author's series		Dougald Baird
	Primigravidae %	General %	Primigravidae %
Spontaneous .. .. .	88.8	93.7	83.0
Caesarean section .. .. .	2.4	1.9	1.5
Forceps .. .. .	5.0	1.7	13.5
Breech .. .. .	3.8	2.7	Not mentioned

Table XXV summarises the outcome of labor in primigravidae and all the cases and compares it with primiparae in Dougald Baird's series. It is worth noting that caesarean section rate in primiparae in Baird's series is even less than the caesarean section rate in all the cases in the Nowrosjee Wadia Maternity Hospital. However, the forceps rate is higher in Baird's series than in our series. We should note that Baird's series is from 1938 to 1942, when caesarean rate was low even in primipara.

Table XXVI is a summary of complications of labor in the primiparae as well as in the total cases. It shows that 58.2% of the forceps and 24.8% of caesarean sections were done in primiparae. Forty per cent of the cases of trial labor were in primipara. Eclampsia takes a heavy toll of primiparae.

#### Summary

(1) Incidence of primiparae in our hospital is 22%. It is likely to increase.

TABLE XXVI  
Complication Rates in General and in a Primigravida

Operations	In primi.	General	Percentage
L.S.C.S. .. .. .	48	193	24.8
Forceps .. .. .	99	170	58.2
M.R.P. .. .. .	15	64	17.1
Trial labor .. .. .	24	60	40.0
P.P.H. .. .. .	8	74	10.8
Heart disease .. .. .	8	23	34.7
Eclampsia .. .. .	18	30	60.0
Int. podalic version .. .. .	10	43	18.6
Comp. presentation .. .. .	3		
Face .. .. .	7	67	10.4
Brow .. .. .	3	7	43.0
Breech .. .. .	65	267	24.0
Cord prolapse and presentation .. .. .	12	28	42.0
Craniotomy .. .. .	6	23	18.1
Maternal deaths .. .. .	8	56	14.2
Symphysiotomy .. .. .	1		
3rd degree P.T. .. .. .	2	—	—
Placenta praevia .. .. .	6	59	10.0
Acc. haemorrhage .. .. .	4	55	7.2

(2) 82.5% of primiparae come for ante-natal registration.

(3) 63% of the primiparae are between 16 and 20 years.

(4) 80.7% of the primiparae have engaged head at the time of labor.

(5) 15.5% of the primiparae had toxemia of pregnancy at the time of labor. Eighteen cases of eclampsia out of 30 were in primiparae.

(6) P.V. examination is not frequently done at Nowrosjee Wadia Maternity Hospital.

(7) 92.7% had spontaneous vaginal delivery, 7.3% had instrumental delivery.

(8) Students and nurses closely compete for giving perineal tears.

(9) About 85% of the primiparae deliver within 2 hours after rupture of the membranes.

(10) 97% of the primiparae deliver within 30 hours after the onset of labor.

(11) 98.4% of the full-term babies survived. 69.7% of the premature babies survived.

(12) Perinatal mortality is only slightly more in primiparae.

(13) Foetal death increases with severity of toxemia.

### Conclusions

(1) 16-20 years is an ideal age for child-bearing in our country as it is associated with least complications and most foetal survival.

(2) The increasing age adversely affects the duration of labor and antenatal complications, such as toxemia of pregnancy.

(3) Increased duration of labor, and age of the mother and lesser

birth weight have deleterious effect on foetal survival.

(4) Toxaemia of pregnancy is frequently found with increasing age and adversely affects foetal survival.

(5) Caesarean section and forceps rate increase with the baby weights, duration of labor and age of the mother.

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