

**A retrospective study to assess the relationship between time of admission to labour room with intrapartum interventions and mode of delivery at selected hospitals, Bangalore.**

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**Abstract**

**Background:** Labour is a crucial stage and is divided into 4 stages in which the first stage is again divided into 2 phases – early phase (latent phase) and late phase (active phase). Interventions given to women admitted in latent or active phase of labour may influence the outcomes of labour. The aim of this study is to assess the relationship between time of admission to labour room with intrapartum interventions and mode of delivery.

**Materials and methods:** A retrospective study was employed to assess the relationship between time of admission to labour room with intrapartum interventions and mode of delivery in Ramaiah Memorial Hospital, Bangalore. Convenient sampling technique was used, and 150 medical records of postnatal women were selected. Structured socio demographic profile and structured clinical data sheet were used to collect the data.

**Result:** The statistical analysis shows that 83.33% of the women were admitted in the latent phase and 16.67% were admitted in the active phase, normal vaginal delivery 37.33%, assisted vaginal delivery 37.3% and caesarean section 12%. Study findings also showed that there is a significant relationship between time of admission to labour room and induction of labour (P=0.000), augmentation of labour (P=0.000), use of analgesics and anaesthetics (P=0.000) and mode of delivery (P=0.000005) whereas for episiotomy

(P=0.060) it was found to have no relationship with time of admission to labour room.

**Conclusion:** The study concluded that women who were admitted early were at higher risk of undergoing more interventions and longer duration of labour whereas less interventions and duration of labour was shorter in those admitted with advanced labour.

**Keywords:** Time of admission to labour room, Intrapartum interventions, Mode of delivery

**Introduction**

Childbirth typically occurs around 40 weeks from the last menstrual period (LMP). The process of childbirth consists of four stages: First stage is the stage in which dilatation of the cervix occurs. Second stage is when the cervix is fully dilated till expulsion of the foetus. Third stage is followed by expulsion of the foetus till the placenta and membranes are delivered and the 4th stage includes 1 hour of observation of mother and baby after delivery.[1]The first stage of labour is the longest and involves three phases: early labour phase or latent phase is the time of the onset of labour until the cervix is dilated to 4 cm. Active labour phase continues from 4 cm of cervical dilatation until the cervix is dilated to 7 cm and transition phase continues from 7 cm of cervical dilatation until the cervix is fully dilated to 10 cm. [2]There are various interventions which are used during labour which include – induction of labour (medical and surgical induction), augmentation of

labour (artificial rupture of membranes and oxytocin administration), epidural analgesia for pain relief and episiotomy during labour. These procedures are mainly used to reduce morbidity and mortality rates for both mother and baby. There are mainly three methods in which a mother can deliver a baby, these are vaginal delivery, instrumental vaginal delivery (ventouse extraction, forceps delivery) and caesarean section. Over the last two decades, women have been encouraged to give birth in health care facilities to ensure access to skilled health care professionals and timely referral should the need for additional care arise. The timing in which a woman should be admitted to the labour room is a very crucial decision, but some women are often confused about when they should be admitted. With concern in this matter, they are advised to stay at home as long as possible during the latent phase, or are sent home because their labour is not established.[3] The right timing is important, because a too late or a too early departure may have negative medical, psychological and economic consequences.[4] A too late departure with an unplanned and unattended birth at home, during transportation, or in a rush to the hospital increases the risk of both maternal and neonatal complications. A too early departure, with early arrival in hospital, may increase the likelihood of early admission and subsequent interventions (including caesarean section, instrumental vaginal delivery, labour augmentation, and epidural analgesia).[3,4] Therefore, it is important to notify the mothers that they should come for admission when the labour pains start and when admitted they should be under constant supervision and should be shifted to the labour room only when she is fully dilated and indicated for normal vaginal delivery.

#### Materials & Method

**A. Study Design:** The study used retrospective research design.

**B. Variables :** Study variables includes age, educational status, religion, occupation, place of residence, marital status, height, weight, body mass index, gravidity, parity, total duration of labour, time of admission to labour room, intrapartum interventions and mode of delivery.

**C. Setting of the study:** The study was carried out at Ramaiah Memorial Hospital, Bangalore.

**D. Sample size:** 150 medical records.

**E. Sampling technique:** convenient sampling technique was used to select the samples.

#### F. Inclusion and exclusion criteria

Inclusion criteria: Records of postnatal women who

- had a singleton pregnancy
- were with cephalic presentation
- were with intact membranes at the time of admission

#### Exclusion criteria

- Records of postnatal women
- Booked for elective caesarean section
- Diagnosed with medical or obstetrical conditions complicating pregnancy like hypertension, diabetes mellitus, antepartum haemorrhage, postpartum haemorrhage etc
- Diagnosed with foetal anomalies or intrauterine foetal death
- with previous caesarean section delivery

**G. Development of tool:** Since it is a retrospective study, a socio demographic profile and clinical data sheet was developed by the researcher for collection of information. It was prepared based on the review of literature and some elements were taken from the WHO partograph in order to identify any deviations which will affect the outcomes of labour. After development of the tool, Principal of Ramaiah Institute of Nursing Education and Research and Head of Department of Obstetrics and Gynaecology of Ramaiah Hospital were consulted for further refinement of the tool. Other experts in the field of Obstetrics and Gynaecology Nursing and biostatistician were also consulted for developing an appropriate tool. Items were collected, scrutinized, selected and checked for ambiguity. The homogeneity of the samples was maintained by strictly adhering to the inclusion and exclusion criteria.

**H. Validity:** Relevant content coverage validity for the table to record data pertaining to time of admission, progress of labour, intrapartum interventions and mode of delivery was done by 12 experts from different fields like Obstetrics and Gynaecological Nursing (10), Senior Obstetric Doctor (1) and Biostatistician (1). The relevant suggestions and recommendations given by the experts were incorporated and the table was modified.

**I. Reliability:** The table related to the events pertaining to time of admission, progress of labour, intrapartum interventions and mode of delivery had items that were independent of each other, hence it was decided that reliability testing was not necessary and relevant.

Out of 250 medical records that were eligible, the first 150 medical records were selected according to the convenience of the researcher. The quality of the data was ensured by the following measures:-

- The data in the medical records were collected electronically
- The data in the medical records was entered directly by the obstetricians and staff nurses taking care of the mother during labour
- The primary source of information was collected from the original medical records.

**J. Ethical clearance:** The ethical clearance for this study was obtained from the ethics committee of Ramaiah Institute of Nursing Education and Research.

**K. Pilot study:** Pilot study was conducted at Ramaiah Memorial Hospital, Bangalore. A total of 15 medical records were selected for the study. On completion of pilot study, it was found that it was feasible to undertake main study.

**L. Data collection procedure:** The data were collected in Ramaiah Memorial Hospital after obtaining formal permission from the concerned authorities. The medical records of the past 6 months which was from January 2019 to June 2019 were selected for data collection. A total of 150 medical records of postnatal women who met the inclusion criteria were selected for the study. Data were obtained by using structured socio demographic profile and structured clinical data sheet. The time taken for each sample was about 15-20 minutes. Approximately 15 records were assessed per day. The collected data were coded and entered in the master sheet.

**M. Statistical method:** The data analysis was done by using descriptive and inferential statistics. SPSS (version 20) was used to analyse the data.

1. Frequency and percentage distribution were computed for sociodemographic characteristics.
2. Relationship between time of admission to labour room and intrapartum interventions using chi square test.
3. Relationship between time of admission to labour room and mode of delivery using chi square test.

## Results

The collected data were analysed according to the objectives of study. The findings are presented below.

### Socio demographic characteristics of the subjects.

Frequency and percentage distribution were computed for sociodemographic characteristics of the subjects. It is observed that majority of the subjects, 46.67 % belongs to the age groups of (26 – 30) years. Majority of the subjects, 48.67 % had an educational qualification of degree and above. 99.33 % of the subjects were hindus. Most of the subjects 37.33% were private employees. All subjects were from urban areas and were married. The height of majority of the subjects, 74.7 % was between 151 – 160 cms. The weight of most of the subjects 45.33% was between 71 – 80 kgs. Majority of the subjects 58% had body mass index between 26 – 30. Most of the subjects 52.7% were multigravidae whereas 47.3% were primigravidae. Most of the subjects 52% were multiparous whereas 48% were primiparous. The total duration for majority of the subjects 69.33% was less than 12 hours.

### Relationship between time of admission to labour room and intrapartum interventions.

Chi square was used to find the relationship between time of admission to labour room and intrapartum interventions. It was observed that there was significant relationship between time of admission to labour room and intrapartum interventions (p value=0.000) except for episiotomy (p value=0.060)

### Relationship between time of admission to labour room and mode of delivery.

Chi square was used to find the relationship between time of admission to labour room and mode of delivery. It was observed that there was significant relationship between time of admission to labour room and mode of delivery (p value=0.000005).

## Discussion

The study findings showed that there is a significant relationship between time of admission to labour room and induction of labour (p=0.000), augmentation of labour (p=0.000) and use of analgesics and anaesthetics (p=0.000).

With regards to the findings of the study, women who were admitted in the latent phase had more interventions during labour, more assisted vaginal delivery and caesarean sections and longer postpartum hospital stay in comparison to those who got admitted in the active phase. Findings of the study shows that all of the women were from the urban area and most of them got admitted early because of anxiety, less tolerance to pain and were also advised by the Obstetricians to come to the hospital as soon as the labour pain starts. Intrapartum interventions like epidural analgesia, induction of labour, augmentation of labour and episiotomy were common obstetric practices in the urban areas.

The findings of this study are discussed in light of past research studies which shows that there was significant relationship between time of admission to labour room with induction of labour and labour augmentation.[6, 7,8]

Since the setting of the study is a tertiary care centre, both primigravidae and multiparous women who got admitted early had undergone more interventions as it was suggested by the Obstetricians for the management of labour. According to the recent guidelines recommended by WHO in 2018, use of epidural analgesia for pain relief was recommended based on the women's request. However, use of augmentation with oxytocin and use of amniotomy are not recommended. For women in the second stage of labour, techniques to reduce perineal trauma and facilitate spontaneous birth are recommended, based on a woman's preferences and available options. Routine or liberal use of episiotomy

is not recommended for women undergoing spontaneous vaginal birth.

These guidelines were not practiced as use of interventions like epidural analgesia, induction of labour, augmentation of labour and episiotomy were carried out as a routine procedure in the study setting irrespective of parity and condition of the mother. Use of intrapartum interventions can lead to maternal exhaustion, subsequent labour arrest, prolonged labour, relaxed pelvic floor and reduced maternal urge to push thus increasing the likelihood of operative vaginal delivery and caesarean section.

The study findings showed that there is a significant relationship between time of admission to labour room and mode of delivery ( $p=0.000005$ ).

The findings of this study are close to findings reported in similar studies which shows that there is a significant relationship between time of admission to labour room with normal vaginal delivery, operative vaginal delivery and caesarean section.[5,6,8]

Findings of this study shows that both primiparous and multiparous women who were admitted in the latent phase had undergone more interventions, operative vaginal delivery and caesarean section. Vacuum delivery was practiced more than forceps delivery in the study setting. The present study confirms that labour ward admission in the latent phase increases the rate of obstetric interventions and mode of birth like operative vaginal delivery and caesarean section.

#### Limitations

- The study is limited to small sample
- Single setting adopted for the study restricts generalization
- Main limitation is the observational nature of this study since direct causal inference is not possible
- The research study expedites the gravity of the problem which invites attention to the need for further studies in related areas.

#### Conclusion

The present study findings indicated that the women who were admitted early to the labour room before onset of true labour pain required more intrapartum interventions and had assisted vaginal delivery and

caesarean section. Women admitted late to the labour room for delivery required less intrapartum interventions and had normal vaginal delivery.

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