

Breech Presentation, its risk factors and linkages with child survival: Findings from recent large scale household survey in India

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Introduction

World's 3-5% of pregnant women at term (37–40 weeks pregnant) has a breech presentation of baby and is the second most common delivery presentation. Mode of delivery for such cases has been a topic of debate since long. Hannah and colleagues (2000) in their study of 2088 women with a singleton fetus at 121 centers in 26 countries concluded that planned caesarean is better option over vaginal birth for fetus in breech presentation and reduces adverse perinatal outcome. The study impacted the rate of c-section which has increase to more than 80% in some countries. The unprecedented increase is associated with many complications that include hemorrhage, sepsis, and abnormal placentation in low-resource settings. However, c-section delivery is crucial to saves the life of women and newborn in many cases.

A breech birth occurs when a baby is born bottom first instead of head first. Some babies present with their buttocks or feet pointed down toward the birth canal. This is called a breech presentation. Breech presentations are often seen during an ultrasound exam far before the due date, but most babies will turn to the normal head-down presentation as they get closer to the due date.

In cephalopelvic disproportion, the baby's head is too large to fit through the mother's pelvis, either because of the size or because of the baby's poor positioning. Sometimes the baby is not facing the mother's back, but instead is turned toward her abdomen (occiput or cephalic posterior). This increases the chance of a lengthy, painful, childbirth, often called "back labor," or tearing of the birth canal.

It is general consensus that caesarean should be preferred over the vaginal delivery. Moreover, after the study published by Hannah and colleagues in 2000, American college of Obstetricians and Gynecologists (ACOG) in 2001 officially recommended that child should be deliver through c-section in case of breech presentation. However, many researchers from different countries criticized the move but the change in delivery pattern could not change since then. Contrary to this, obstetricians from low economical settings continued to do vaginal deliveries at term. In 2006, ACOG modified its old recommendations and accepted the vaginal delivery in breech presentation in some specific conditions.

Breech babies are at an increased risk of injury and a prolapsed umbilical cord, which cuts off the baby's blood supply. Breech presentation of child is associated with perinatal, neonatal mortality and serious neonatal morbidity as reported by many studies. Total breech extraction for the singleton breech is associated with a birth injury rate of **25%** and a mortality rate of approximately 10%. A transverse lie is the most serious abnormal presentation, and it can lead to injury of the uterus, as well as injury to the fetus.

In Indian scenario, there are very few studies which are specifically based on hospital records. However, there are no studies which have shown the prevalence of breech presentation using large scale data. Therefore, this study has been done keeping above background in mind. The objective is to find the prevalence of breech presentation in India , its associated risk factors and its linkages with the child survival.

Data and methods:

A secondary source of data available from the fourth round of Indian Demographic Health survey i.e. National Family Health Survey conducted in 2015-2016 is utilized for the study. It provides information on health and nutrition for each Indian state and union territory. The survey is designed to provide estimates of the prevalence of anemia, HIV, glucose level and also malnutrition. It has successfully interviewed 601,509 households that include interviewing 699,686 women age 15-49 years, and 112,122 men age 15-54.

Information on breech presentation is directly available in data for the last birth in last five years as dichotomous variable. The question is asked as “During deliver, did you experience a breech presentation?” For this study, the dependent variable in question is “breech presentation”.

Further, data on “prolonged labour, excessive bleeding, child birth weight and child death” are available in the data sets. This set of variables has also been used as dependent variable as well as independent variables to reach the actual outcome of the study.

Different exposure variable, mother’s age, ANC visit during the last pregnancy, total children ever born or parity, place of residence, mother anemic level, body mass index (BMI) are set of predictors including above. Child size during birth and Caesarean section delivery are other exposure variables among all.

It has been shown by many literatures that in much of the breech cases, caesarean section delivery has been preferred over the normal delivery. So, breech presentation births are further divided into breech caesarean (birth of child using c-section during the breech) and breech other (other delivery which may be either normal or assisted delivery) for the study purpose.

The sample of the study is 95083 which include only last birth of the women, born in last five year in either private or public hospital. The cases of non-hospital delivery have been excluded as there are minimal chances that a child with breech presentation can be delivery by “dai” at home.

Firstly, Prevalence of breech presentation is calculated with respect to different independent factors and finally multivariate logistic regression was used to estimate the effect of related factor on breech in Indian population. The Data is analyzed in STATA 14.1. Map for prevalence of breech presentation in Indian states has been generated using ARC-GIS 10.3.

Results

Puducherry has the highest prevalence of breech presentation child delivery with 68.46 %. And Tripura has the lowest prevalence of breech in India. A total of 13% children have breech

presentation during last birth as per information provided by mothers, highest among the young mothers, who has visited ANC 3 or more times, during first or second parity and urban women. Child survival is highest among those mother have caesarean delivery during breech presentation.

Discussion

Doctors estimate that about 90% of fetuses who are in a breech presentation before 28 weeks will have turned by 37 weeks, while over 90% of babies who are breech after 37 weeks will most likely stay that way.

It is important to note that breech presentation to be very high in India according to this study as it is from large scale survey but it is household based survey, not hospital based. So, the results are reasonable.

Conclusion: Findings from this study will help to policy makers to find atleast some determinants of breech presentation in Indian population.

Predictors	Delivery type			Total frequency
	Normal/ other	Breech Normal	Breech Caesarean	
Age group				
15-19	87.6	10.2	2.2	4,289
20-24	85.7	11.0	3.3	35,155
25-29	85.8	10.5	3.7	34,075
30-34	87.3	9.0	3.7	15,012
35 and above	89.6	7.2	3.2	6,552
ANC visits before last pregnancy				
No visit	89.0	9.1	1.9	12,260
1-2 visits	89.3	8.7	2.0	17,503
3 and more	85.0	10.9	4.1	65,320
Parity				
1	86.3	9.6	4.1	37,629
2	84.0	11.8	4.2	31,399
3	88.3	9.9	1.8	14,345
4 n more	90.7	8.3	1.0	11,710
Place of residence				
Urban	85.0	10.2	4.8	25,362
Rural	86.9	10.3	2.8	69,721
Total	86.3	10.3	3.4	95,083

Predictors	Prolonged labour	Excessive Bleeding	Total frequency
Delivery type			
Normal/other	40.0	31.4	83,475
Breech Normal	69.3	58.1	8,828
Breech Caesarean	61.8	49.8	2,780
Women Anaemic Level			
Not Anaemic	43.6	35.0	43,023
Severe	41.0	37.3	784
Moderate	44.3	35.6	12,691
Mild	43.9	34.3	38,585
Birth size			
Small	46.4	36.5	11,028
Normal	42.6	33.6	66,420
Large	46.4	38.0	17,635
Total	43.8	34.8	95,083

