



# Flip 180°

Helping the baby turn



postural activity equipment for expecting mothers'



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**ABSTRACT:**

This project aims to target Pregnant women in their pregnancy period and caters to their needs in our context of "Pakistan" as 25% of urban areas in Pakistan hospitals prefer C-section due to satisfaction of mothers which has been rigorously criticized as no more than 15 percent deliveries should be done via C section [*World Health Organization, et al. (2009) (Nazir)*]. Usually, the charges for C section is three times more than vaginal birth depending on the facilities being provided to the maternal care and that the main reason our private and governmental sectors hospitals advise mother to go for surgical processes is to make money. Another reason for C-section is when there is case of threat to the mother or to the child's life, among them the major case highlighting this research is 'Breech Baby', which occurs 3-4% of all deliveries (*Fische*) However, "*The percentage of breech deliveries decreases with advancing gestational age from 22% of births prior to 28 weeks' gestation to 7% of births at 32 weeks' gestation to 1-3% of births at term.*" Said, *HARSHE on SEPTEMBER 6, 2011*. Thus, mothers are not informed about such condition on time, due to lack of awareness and lack in knowledge.

To avoid such conditions our gynecologists, recommend postural activities from first day of their ultrasound when they get to know about their pregnancy in order to have healthy ad active pregnancy to have natural delivery processes, however due to decrease ratio of antenatal care by mothers; which decreased to 36% in recent years, they aren't inform about constant change of position of baby during 09 months of pregnancy which in late pregnancy leads to C-section.

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**KEYWORDS:** *Pregnancy C-section Breech baby Natural Delivery Clinical tools.*

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## **RESEARCH QUESTION :**

***"How might a product create natural delivery process by reshaping the clinical tools to reduce C-section ratio?"***

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**Keywords:** *natural processes C-section pregnancy natural techniques clinical tools*

## **Statistical Research:**

Under-Five Mortality Rate 81 per 1,000 live births out of population of 188,925 000 in Pakistan. Around 800 women die globally during pregnancy due to complications.

We see a decreasing trend in the child mortality rate which is mostly due to the efforts of the government but there is still a high number of child deaths being reported in Pakistan their current number of under five deaths being reported as 431,568.

### **Maternal Health:**

*Proportion of Women aged 15-49 who received postnatal care within 2 days after giving birth: 60 %*

*Caesarean Section: 40 %*

*Proportion of births attended by skilled personnel: 58%*

*Proportion of women age between 20-24 who give birth before of age 18: 8%*

**Education:**

Literacy rate between 17-24 year' age is: 72%

Reported: <https://data.unicef.org/country/pak/>

**Antenatal Care during Pregnancy:**

Private:	0.457	1.58	0.86	2.364
Home:	0.323	1.382**	0.342	1.408
Mix:	0.24	1.271	0.054	1.056

**Women Education:**

Matric	0.327	1.387*	0.201	1.222
Higher	0.437	1.548**	0.214	1.239

**C-section in different urban region of Pakistan:**

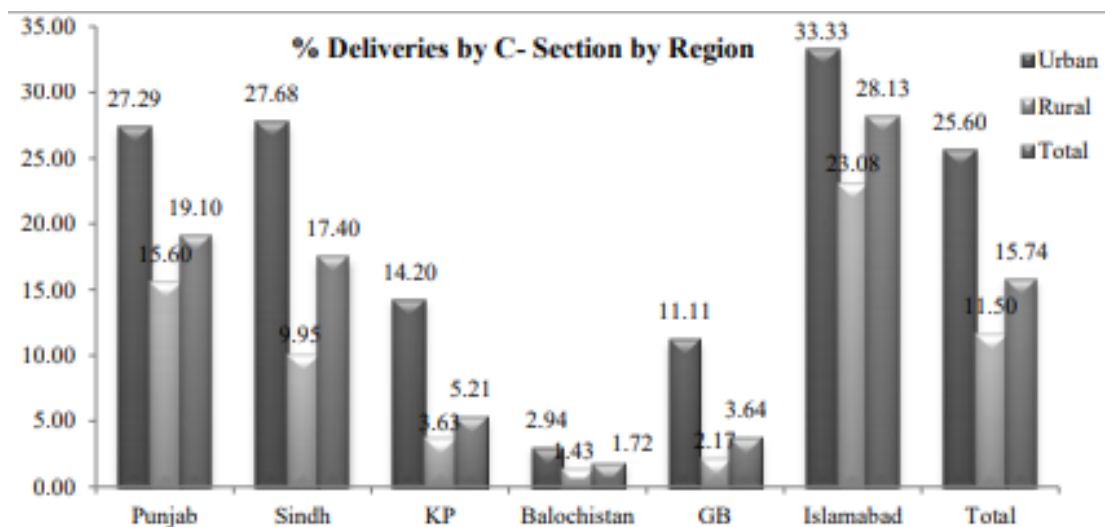


Figure 1

### **Private and government hospital sectors of Pakistan:**

*Institutional deliveries show a high rate of cesarean section in Pakistan*

*CHM Rawalpindi 2011-12 - 56%*

*Holy family hospital Rawalpindi 2008 - 45%*

*Ayyub Medical College 2006-07 - 35%*

*Ganga Ram hospital 2000-01 - 21%*

Reported: : <http://www.pide.org.pk/pdf/Working%20Paper/WorkingPaper-122.pdf>

### **Analysis:**

This helps us understand that most women across the region do not get caesarean. The proportion of births attended by skilled personnel is only 75% in urban areas according to (Faraz Arshad) discussed in *Issues of maternal health in Pakistan: trends towards millennium development goal 5* hence in 2011 it increased to 86% thus this shows that there is opportunity to create a link between the experienced qualified doctors amongst other practitioners such as midwives or mother themselves, where with correct guidance at the right time the child mortality rate can be decreased.

### **INTRODUCTION :**

**What is breech baby?** Right before birth, the baby is in head down position in mother's uterus, sometimes the baby is in bottom first or in feet position, this positioning of baby right before birth is called breech. Breech baby is detected during the 26<sup>th</sup> week or 34<sup>th</sup>-37<sup>th</sup> weeks of pregnancy and C section is advised by advisor which in Pakistan costs eighty to ninety thousand excluding the services and facilities provided to you by different private and governmental sectors.

**Reason behind having a breech baby?** The reason behind having a breech baby is that either you previously had a premature birth, or you have too

much or too little of amniotic fluid. Or either you have abnormal uterus shape with abnormal growth called fibroids.

**Types of Breech Babies:** There are three different kinds of breech babies, Complete breech (5-10%): Here, the buttocks are pointing downward with the legs folded at the knees and feet near the buttocks. Frank breech (50%-70%): In this position, the baby's buttocks are aimed at the birth canal with its legs sticking straight up in front of his or her body and the feet near the head. Footling breech (10-30%): In this position, one or both of the baby's feet point downward and will deliver before the rest of the body.

*Reported by Richard. Statistics of Breech. 2011*

**When Diagnosed?** It is diagnosed few weeks prior to the due date, your health care provider will place her hands on the mother's lower abdomen to locate the baby's head, back, and buttocks. If it appears that the baby might be in a breech position, they can use ultrasound to confirm the position. If vaginal delivery is possible they perform ECV; *External Cephalic Version*, before that a medication is given to mother to help them relax the uterus. Gentle pushing on the lower abdomen can turn the baby into the head-down position. Throughout the external version the baby's heartbeat will be closely monitored so that if a problem develops, the health care provider will immediately stop the procedure. External version has 30%-80% success rate and it also unsuccessful rate; said, Laurens. However, this procedure becomes more difficult as the due date gets closer.

*Reported by Doctor Laurens. Breech Spinning Baby Consultant.*

**If not ECV?** If ECV couldn't be perform or there is delay in turning the baby back to vertex, Doctors suggests C- sections without performing or looking into other alternatives such as Chiropractic Care: The late Larry Webster, D.C., of the International Chiropractic Pediatric Association, developed a technique

that enabled chiropractors to reduce stress on the pregnant woman's pelvis leading to the relaxation of the uterus and surrounding ligaments." A more relaxed uterus makes it easier for a breech baby to turn naturally. His technique is known as the Webster Breech Technique. The July/August issue of the Journal of Manipulative and Physiological Therapeutics it was reported about 82% success rate for the *Webster Technique*. Other techniques such as, "*The Breech Tilt*: Using large, firm pillows, raise the hips 8"- 12" or 30cm off the floor for 10-15 minutes, two times a day. It is best to do this on an empty stomach when your baby is active. In this technique, try to concentrate on the baby without tensing your body, especially in the abdominal area."

**Analysis:** Such techniques are performed internationally by assist of midwives at home who guide mother and help in making decision however they lack in Pakistan because lack of awareness and lack of tangible product platforms for mother to help them make their decision for healthy baby.

### **PROBLEM DEFINITION:**

*"To help prevent child death at birth by doctors in urbanized areas of Pakistan where middle class expecting mothers can make a healthy decision."*

The main problem that is distinguished is that there is severe lack of expertise to cope with child birth amongst health care professionals across the urban and less urbanized areas of Pakistan. This lack of expertise leads to late recognition of 'breech babies' resulting in the loss of that life or increasing the fatigue of post-natal care for mothers.

**How to solve:** Educating our society and providing them with knowledge and awareness through such products- that is convincing. It does have to be a tech-savvy product which couldn't be used by many other sectors like rural areas who don't yet have knowledge about different position of babies. However, there is different positioning exercise that are followed by pregnant women on routinely bases to keep them active and helps in balancing their hormonal levels. Moreover, adding to eco-friendly solution such activities likes,

walking, crawling, swimming, sleeping and floor position exercise adds to a sustainable direction of approach to the design around which would help in providing with different solutions and acts as an extension to the intangible experiences a pregnant woman goes through. The process of activity that could add to comfort and could be a part of pregnant women behavioral patterns on which they dependent as a primarily concern during their monthly sectionals to advisers.

**Challenges:** Limitations to design such a product is that no one wants to test with unborn hence;

- The product needs to be transparent and more precisely recommended by your advisers
- It needs to be well communicating and enhance the experience of mother while interacting with it
- Innovating an idea to optimize the use of ECV and shifting to something new that is sustainable and keeps you well-informed.
- How dependent or independent stake holders could be with such an activity.
- Uplifting the midwife's business, internationally.

## **LITERATURE RESEARCH:**

*Why to target pregnant women:* During this certain months, they are over possessive about themselves with different hormonal regulation and emotional imbalance. Secondly, lack of confidence and decision making as no one wants to test with unborn.

**Objective:** We have yet to come up in any way to say exactly which method of delivery of babies is the most efficient and shall cause the least distress to the mother and the baby. In my point of view what should be important is that there is safe delivery of the baby and the child mortality rate is reduced.



(Kotaskar) discusses both the cesarean section with vaginal deliveries it is one of the first studies to take such large amount of data from *1981-90 studying 1645 breech deliveries* and despite high amount of abnormalities in the vaginal delivery babies there was no linkage found that cesarean section babies would not have such similar symptoms as well due to other challenges brought about in those deliveries.

(Hannah) on the other hand, conducted her study on a sample of 2083 women and randomly distributed them amongst cesarean section and planned vaginal birth. Of the ones assigned cesarean 90.4 % were able to get it and have healthy babies mostly but out of the ones assigned planned vaginal birth only 56.7% delivered that way because of symptoms including failure to progress in labor, the abnormal heart rate of the baby, or other medical complications.

(Kotaska) discusses various ways how breech babies can be properly delivered. In labor management clinical pelvic examination is of utmost importance beforehand along with continuous electronic fetal heart monitoring is preferable, the delivery technique and there should always be continuous observation and if a c section is required it should be performed immediately.

#### *Analysis:*

During our review of literature, we have come across some common points that are necessary precautions while attempting planned vaginal birth of a breech baby, which include having a checkup of the mother in weeks prior to the delivery where the concerned medical supervisor is expected to check mother for breech babies. Also a close look out is expected if the delivery may go amiss and the mother could be put to a C section in case of a number of discrepancies that may arise.

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## **STAKEHOLDERS:**



Figure 2

## **ETHNOGRAPHIC RESEARCH:**

*Conducted 11 interviews from gynecologists of Islamabad, Lahore, Peshawar, 02 breech delivered mothers, 03 nurses, and 02 health advisers.*

### **Questionnaires: Doctors, Nurses and Health Adviser:**

- How a breech baby is commonly assessed in Pakistan?
- What type of audience do you cater to at your department?
- What is the commonly practiced method of treating breech babies in Pakistan other than a C-section?
- What are the reasons people are forced to have a cesarean baby rather than opting for an External Cephalic Version and having a normal delivery?
- What do you think could be an effective alternative to tackling this problem?
- what are the after effects of C-section vs vaginal birth?

- What are the postural exercises as a doctors you prefer to pregnant mother to have a healthy baby or if they have breech baby?
- What is the possibility of having a vaginal breech baby birth in our context?
- How often pregnant mother have their routine checkups?
- What are the postural exercises as a doctors you prefer to pregnant mother to have a healthy baby?
- How as a doctor you can create a bridge between a midwife?
- Explain your any specific experience catering to mother with breech baby? And how you cater it with your results?

***Pregnant women: (Breech Baby)***

- *How did you figure about your breech baby? And how was your experience?*
  - *What did doctors suggested you when they found out about breech baby?*
  - *Why would you opt out for C section? (if)*
  - *How well informed was your midwife about the decisions to make?*
  - *How did the doctor reacted to your decision of having a vaginal birth process? (if)*
  - *What post pregnancy challenges you faced after going through C section?*
  - *What were the postural exercise/diets you went through for having a healthy baby?*
  - *How can technology add to awareness to such problem identified where the decision power is less?*
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## DOCUMENTATION:



Figure 3

## OBSERVATIONS:

*Governmental and private sectors contain vaginal beds, with adjustable legs postures and height while delivering baby, providing an area for nurses to interaction around, however there are portable machines, ultrasound machines and CTG machines that helps in observing the baby. There are no specific platforms for mother to encourage breech tilt postures activities, however international, under the assist of midwives the postural activities are carried at home.*

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## ***INTERVIEWS :***

### ***Interview: 04 Highlights***

*Name: Dr. Bushra Ishtaiq*

*Occupation: Senior Gynecologist*

*Location: KRL, Islamabad*

### **What are the reasons people are forced to have a cesarean baby rather than opting for an External Cephalic Version and having a normal delivery?**

Reply: They are not forced it's the mother will, in whatever way they are comfortable. Other reasons are when there's less fluid around baby, or when there is chances of cord getting stuck around baby's head or the size of baby is bigger, hence on such limitations C-section is required. Secondly, C-section takes 30 minutes without pain but more after effects to the mother whereas natural birth takes more time from 7-20 hours of labor pains and with less after affects.

### **What are the after effects of C-section?**

The B.p rate increased, more fat around your body, more anemic as after care is 6 weeks but in our society mothers don't maintain themselves.

### **What are the postural exercises as a doctors you prefer to pregnant mother to have a heathy baby?**

Longer Sajdah, Cross legs position to avoid pressure on baby and mother both. Heathy vegetables, more meat elements are required to the mother, less protein intake as it create more fats.

### **As a doctor how can you create bridge between Doctors and midwives?**

We do have training programs for Nurses to assist breech delivery hence in such classes midwives could be the part of it as they have knowledge about it.

### ***Interview: 13 Highlights***

*Name: Rahmeen Hammad*

*Location: Phase Two, DHA, Islamabad.*

#### **How can technology add to awareness to such problem identified where the decision power is less?**

Well in my case I don't believe that the decision power was less. But yes in our country many people are not fully well informed about what they are going through. I believe people should know that at what week in pregnancy what happens so they do ultrasound as per required. Here people do more ultrasounds than required or at extreme cases they don't visit hospitals till there's a problem they feel. Which is not healthy for the fetus? There should be proper awareness programs which can guide ladies throughout pregnancy. I believe the adds should be more illustrative than written as many ladies cannot even read. There should be step by step guide to follow about the checkups throughout pregnancy as many people do not even visit hospitals but just treat themselves at home.

#### **Is there a need for equipment which could reduce the percentage of C-section and increase the efficiency of ECV?**

Yes, but ECV was not possible in my case as the baby was extended breech and the amniotic fluid was very less than what was required. Not in my case but yes for mostly the parts of area where people carry out their cases at home. The midwives try to do normal delivery at home and try ECV where sometimes the mother die or the child

### ***Interview: 16 Highlights***

*Name: Dr. Hira Ammar*

*Occupation: Health Education*

*Location: Lahore*

**What do you think could be an effective alternative to tackling this problem?**

A portable ultrasound equipment that transmits the results to allow for experienced gynecologists to monitor and view the ultrasound results on their screens and they can then better guide the midwives for the delivery of the baby from a far off location.

**What are the postural exercises as a doctors you prefer to pregnant mother to have a heathy baby?**

No heavy exercises are recommended in pregnancy. Kegel exercises and mild stretching can be performed to strengthen the perineal muscles.

***Analysis:***

Lack of practices and tools at hospitals rather advising mothers with alternative solution they make a statement for having a C section. Moreover, the midwives still exist in our society who prefer their business as secondary work now a days as educated women won't believe in their acts due to lack of satisfaction. And acceptability rate of midwife involvement with the adviser i.e.: doctors don't have a good repute to our society considering the facts that they go through old traditional and healthy ways to solve the problem. However internationally the say of midwives is far more as compared to our national context, who are the adviser to the pregnant mother and also advisers for the doctors in private hospitals, they always stand next by while a pregnant mother is being monitored through ultrasound and are there for suggestions.

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## **USE CASE SCENARIO :**

*Targeting middle class pregnant women who lack in awareness to such condition, considering 3-4% of expecting mothers face the change of baby's position in late stage, however how might a product help them to stay active with less fatigue, keep them independent and provide them their own privacy in their comfort zone and most importantly keep them informed about the change of position of baby which leads them to hospital for antenatal care by doctors.*

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## **SOLUTION STATEMENT :**

***"Helping to turn breech baby to vertex presentation by informing the position of baby through assist of postural activity equipment for expecting mothers."***

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**Keywords:** *postural activities    sustainable processes    well-informed decision-making*



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