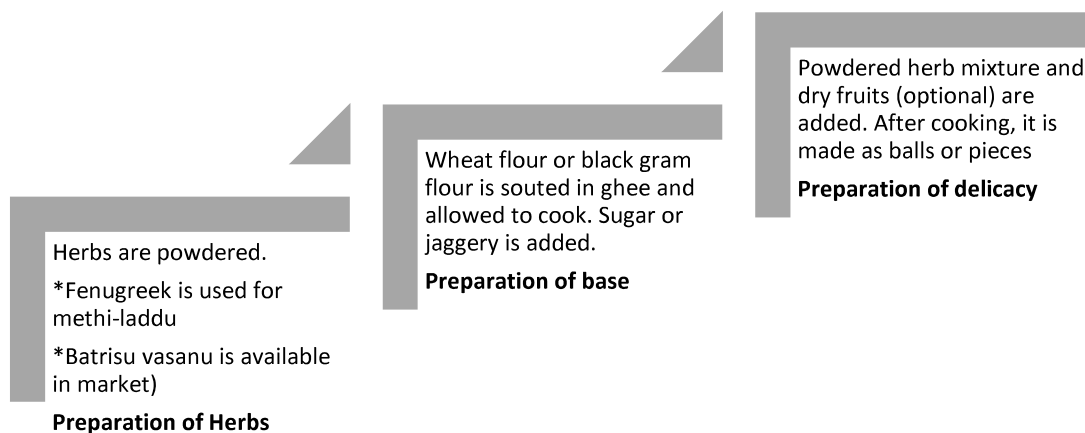


## CLINICAL STUDY ON HERBAL USE

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This part of the study was done to evaluate the clinical relevance of ethnobotanical practices among pregnant women. For the objective, N=38 women were studied throughout the period of prospective study after the elimination of dropouts or women who experienced any clinical complications, as detailed in the methodology.

**FIGURE 4: PREPARATION OF METHI-LADDU AND BATRISU VASANU AS REPORTED.**



Women visiting the clinic in the last trimester of their pregnancy were asked about their herbal medicines usage. Based on that, three cohorts were made. Namely, (1) unexposed

(N=14) – where participants denied using any postpartum herbal drugs, (2) exposed group-1 (N=7) – where participants committed to use Methi-laddu (a delicacy made with fenugreek powder) and (3) exposed group-2 (N=17) – where participants committed to use batrisu vasanu (a delicacy made with batrisu vasanu powder) in postpartum period. As the sample size was low, this study was treated as case-control study. Figure 4 depicts the preparation methods of each delicacy used by exposure groups.

As the preparation of these two herbal products are traditional practices, certain ingredients may vary as per family traditions.

## 6.1 DEMOGRAPHIC CHARACTERS OF THE STUDY POPULATION

Table 9 shows the listed demographic details of the study population. The study population was N=38 women, of which 36.8% were in unexposed group, 18.4% were in exposed group 1 and 44.7% were represented by exposure group 2. The median age of unexposed and exposed group 2, both was 26 years than 24 years for exposed group 1. Further, Unexposed group has 71.4% Hindu participants than in other groups like 57.1% and 52.9%. Exposed group 2 had higher percentage of Muslims (29.4%) than other groups. Also, Table 9 shows that Christian participants were more in the unexposed group. In all cohorts, participants born in Gujarat state were represented more as 88.2%, 71.4% and 64.2%, respectively, for exposed group 2, exposed group 1 and unexposed. Other participants, who were enrolled for the study, belong to either Rajasthan or Maharashtra. It can be noted that only 23.5% participants of exposed group 2 were married but non-cohabiting with their partner. The rest all belonged to the married and cohabiting category.

Participants of unexposed and exposed group 2 were found to be staying majorly in joint family with 64.2% and 47%, respectively. But most of the exposed group 2 women in the extended family (57.1%). Rest details about the types of families are given in the table. Further, mostly all groups of individuals in the study were residing in Gujarat state by birth, as indicated by 64.2%, 71.4% and 64.7% for each group. Domicile of the state for less than five years was only for 21.4% in unexposed and 5.8% in group 2. Most of the unexposed participants belonged to the upper middle or lower middle class (28.5% for both) than the upper and lower middle for group 1 (28.5% for both) and lower middle class (41.1%) for group

2 members. However, all three study groups represent each class of the Kuppuswamy socio-economic scale. Most participants had one or two children in all the study groups. As per this survey, less than 10% of individuals in every group have three or more children.

**TABLE 9: DEMOGRAPHIC CHARACTERISTICS OF THE STUDY POPULATION FOR CLINICAL STUDY.**

<i>Study population variable</i> <i>N= 38</i>	<i>Unexposed</i> <i>N=14 (36.8%)</i>	<i>Exposed group 1</i> <i>N=7 (18.4%)</i>	<i>Exposed group 2</i> <i>N=17 (44.7%)</i>
<b><i>Age, Median (IQR) years</i></b>	26 (22 – 29)	24 (22 – 32)	26 (21 – 34)
<b><i>Religion</i></b>			
<i>Hindu</i>	10 (71.4)	4 (57.1)	9 (52.9)
<i>Muslim</i>	1 (7.1)	1 (14.2)	5 (29.4)
<i>Christian</i>	2 (14.2)	1 (14.2)	1 (5.8)
<i>Sikh</i>	0 (0)	0 (0)	1 (5.8)
<i>Jain</i>	1 (7.1)	1 (14.2)	1 (5.8)
<b><i>Birthplace (state)</i></b>			
<i>Gujarat</i>	9 (64.2)	5 (71.4)	15 (88.2)
<i>Maharashtra</i>	3 (21.4)	1 (14.2)	1 (5.8)
<i>Rajasthan</i>	2 (14.2)	1 (14.2)	0 (0)
<b><i>Marital status</i></b>			
<i>Married and cohabiting</i>	14 (100)	7 (100)	13 (76.4)
<i>Married but not cohabiting</i>	0 (0)	0 (0)	4 (23.5)
<b><i>Size of family</i></b>			
<i>Nuclear</i>	4 (28.5)	1 (14.2)	7 (41.1)
<i>Joint</i>	9 (64.2)	2 (28.5)	8 (47.0)
<i>Extended</i>	1 (7.1)	4 (57.1)	2 (11.7)
<b><i>Time of residence in state</i></b>			
<i>By birth</i>	9 (64.2)	5 (71.4)	11 (64.7)
<i>5 years</i>	3 (21.4)	0 (0)	1 (5.8)
<i>10 years</i>	1 (7.1)	2 (28.5)	3 (17.6)
<i>&gt; 10 years</i>	1 (7.1)	0 (0)	2 (11.7)
<b><i>Kuppuswamy socio-economic status (2021 scale)</i></b> (Saleem & Jan, 2021)			
<i>Upper (I)</i>	2 (14.2)	2 (28.5)	1 (5.8)
<i>Upper middle (II)</i>	4 (28.5)	1 (14.2)	3 (17.6)
<i>Lower middle (III)</i>	4 (28.5)	2 (28.5)	7 (41.1)
<i>Upper lower (IV)</i>	2 (14.2)	1 (14.2)	3 (17.6)
<i>Lower (V)</i>	2 (14.2)	1 (14.2)	3 (17.6)

<b>Parity</b>			
<i>One</i>	6 (42.8)	4 (57.1)	10 (58.8)
<i>Two</i>	7 (50.0)	2 (28.5)	6 (35.2)
<i>≥ Three</i>	1 (7.1)	1 (14.2)	1 (5.8)

The details of group-wise socio-demographic details are presented in the table which shows a slight variation among each group of unexposed, group 1 and group 2.

## 6.2 PRACTICES, KNOWLEDGE, AND SATISFACTION OF THE HERBAL MEDICINES

The participants recruited for the prospective study were asked about their herbal medicines used during the antenatal period at the time of their first visit to the clinic. As shown in Table 10, 64.2% of participants in the unexposed group, 71.4% in group 1 and 64.7% in group 2 were found to have used herbal medicines during gestation.

Participants who denied having used any herbal medicines during gestation (N=15) were asked for the reason behind not practicing any traditional medication. Among groups, herbal drugs were not required by 60%, 50% and 33.3% respective group participants. They were also afraid of using such drugs during the antenatal period, as reported by 20%, 50% and 50% by unexposed, group 1 and group 2, respectively. A few also reported a lack of belief in herbal medicines.

Further, participants who had used drugs (N=23) were asked about their reason for doing so. It was found that 33.3%, 40% and 54.5% had used it because of their family tradition, respectively. The rest of the groups reported that it was either their belief in herbal drugs or that they are cheaper and readily available. The data shows that they also believed using herbal drugs was safe during pregnancy. Solid-form herbal drugs were used by 88.8%, and the rest 11.1% used liquid form in the unexposed group.

Similarly, 60% of participants had used herbs in solid form and the rest in liquid or other forms in exposed group 1. Group 2 participants also showed similar frequencies of type of herbal drugs used. Most of the parturient had used herbal drugs for more than one trimester, as reported by 77.7%, 80% and 63.6% among the respective groups. Still, the third trimester

appears to be an important period for the usage of drugs, as reported by 22.2% and 18.1% in unexposed and exposed group 2, respectively.

The source of information is an essential aspect of traditional practices. It was found that mostly family was the source, as indicated by 100%, 80% and 72.7% of women in each group. The source of information by friends and media was also reported, as shown in table 9. All informants reported the answer toward any untoward event out of herbal drug usage as either not known or null. Only 11.1% of participants in the unexposed group had reported having adverse events with herbs usage in the antenatal period.

**TABLE 10: DETAILS OF THE HERBAL MEDICINES USE DURING ANTENATAL PERIOD AND ATTITUDE.**

<i>Attitude variable</i> <i>N=38</i>	<i>Unexposed</i> <i>N=14 (36.8%)</i>	<i>Exposed group 1</i> <i>N=7 (18.4%)</i>	<i>Exposed group 2</i> <i>N=17 (44.7%)</i>
<i>Practiced any herbal medicines during gestation N=38</i>			
Yes	9 (64.2)	5 (71.4)	11 (64.7)
No	5 (35.7)	2 (28.5)	6 (35.2)
<i>Reason for not using herbal medicines N=15</i>			
Lack of belief	1 (20)	0 (0)	1 (16.6)
Afraid of side effects	1 (20)	1 (50)	3 (50)
Not required	3 (60)	1 (50)	2 (33.3)
<i>Reason for using herbal medicines N=23</i>			
Family tradition	3 (33.3)	2 (40)	6 (54.5)
Belief in herbal drugs	2 (22.2)	1 (20)	2 (18.1)
Availability and cheap	2 (22.2)	2 (40)	1 (9.0)
To treat medical illness	1 (11.1)	0 (0)	0 (0)
Safe during pregnancy	1 (11.1)	0 (0)	2 (18.1)
<i>Types of herbal medicines used N=23</i>			
Liquid form	1 (11.1)	1 (20)	3 (27.2)
Solid form	8 (88.8)	3 (60)	7 (63.6)
Other forms	0 (0)	1 (20)	1 (9.0)

<b>Antenatal period when herbs were used N=23</b>			
First trimester	0 (0)	0 (0)	1 (9.0)
Second trimester	0 (0)	1 (20)	1 (9.0)
Third trimester	2 (22.2)	0 (0)	2 (18.1)
More than one of the above	7 (77.7)	4 (80)	7 (63.6)
<b>Source of information N=23</b>			
Family and relatives	9 (100)	4 (80)	8 (72.7)
Friends	0 (0)	1 (20)	2 (18.1)
Media	0 (0)	0 (0)	1 (9.0)
<b>Any untoward or adverse experience N=23</b>			
Yes	1 (11.1)	0 (0)	0 (0)
No	0 (0)	0 (0)	9 (81.8)
Not known	8 (88.8)	5 (100)	2 (18.1)
<b>Experience with herbal medicines N=23</b>			
Very satisfied	1 (11.1)	0 (0)	1 (9.0)
somewhat satisfied	7 (77.7)	0 (0)	9 (81.8)
Neither satisfied nor dissatisfied	0 (0)	4 (80)	1 (9.0)
somewhat dissatisfied	0 (0)	1 (20)	0 (0)
Dissatisfied	1 (11.1)	0 (0)	0 (0)
<b>Were you forced to use herbal medicines N=23</b>			
Yes	4 (44.4)	0 (0)	3 (27.2)
No	5 (55.5)	5 (100)	8 (72.7)

On the Likert scale, 11.1% (unexposed) and 9% (group 2) were very satisfied with herbs. 71.7% (unexposed) and 81.8% (group 2) reported somewhat satisfied, 80% (group 1) and 9% (group 2) were neither satisfied nor dissatisfied, and 20% (group 1) was somewhat dissatisfied. Dissatisfaction was reported by only 11.1% of women in the unexposed group alone. To better understand their belief and attitude about herbal usage, they were enquired if anyone forced them to practice. Only 44.4% in the unexposed group and 27.2% in group 2 had reported being forced by family members to practice herbal drugs in the antenatal period. Rest all participants were found using herbs on their own will.

The data suggests that respondents were either satisfied or neutral with herbal drugs usage during their antenatal period. However, this data does not change the outcome of the prospective study as antenatal herbal user of unexposed group had committed to the researcher not to use herbal drugs postpartum. Also, that their antenatal herbal practice was forced on them by their family members, it seems largely affecting their answer to the satisfaction level.

### 6.3 CLINICAL HISTORY AT FIRST VISIT TO CLINIC

As shown in Table 11, clinical history was noted for all study subjects to nullify the confounding factors at the time of outcome. Most of the participants in each group was non-smoker and teetotaler. In unexposed, group 1 and group 2, 78.6%, 85.7% and 53% parturient were vegetarian. Rest was either non-vegetarian or mixed diet consumers. Except for a few participants in group 1 (14.3%) and group 2 (23.5%) with pica appetite or dyspepsia in unexposed (28.6%), all had a normal appetite. In 50%, 28.6% and 70.6% group-wise participants, bowel movement was normal. In 42.9%, 71.4% and 29.4%, respectively, constipation was reported at last trimester. Only 14.3% of unexposed and group 1 each had abnormal bladder condition.

Further, physical activity is an important parameter during the last trimester for the healthy keeping of the mother and newborn. 14.3% of unexposed and 11.8% of group 2 women were found with very low physical activity. The remaining parturient were all found doing physically active either with household activities, occupation-related activities, or physical exercises. Build of all the recruited subjects was evenly distributed among well-built, fairly built, and poorly built categories as inferred from the table. Most subjects were fairly nourished among each group as 64.3% in unexposed, 85.7% in group 1 and 41.2% in group 2 categories. Edema over body parts is a common phenomenon during the last trimester. It can be seen from the table that most of the mothers had reported edema over medial malleolus or tibia.

**TABLE 11: CLINICAL HISTORY FOR THE PARTICIPANTS DURING THEIR FIRST VISIT TO THE CLINIC.**

<b>Attitude variable</b> <b>N=38</b>	<b>Unexposed</b> <b>N=14 (36.8%)</b>	<b>Exposed group 1</b> <b>N=7 (18.4%)</b>	<b>Exposed group 2</b> <b>N=17 (44.7%)</b>
<b>Smoking/chewing tobacco</b>			
Yes	1 (7.1)	0 (0)	2 (11.8)
No	13 (92.9)	7 (100)	15 (88.2)
<b>Alcohol consumption</b>			
Yes	0 (0)	0 (0)	1 (5.9)
No	14 (100)	7 (100)	16 (94.1)
<b>Regular diet</b>			
Vegetarian	11 (78.6)	6 (85.7)	9 (53)
Non-vegetarian or mixed	3 (21.4)	1 (14.3)	8 (47)
<b>Appetite</b>			
Pica	0 (0)	1 (14.3)	4 (23.5)
Dyspepsia	4 (28.6)	0 (0)	0 (0)
None of the above	10 (71.4)	6 (85.7)	13 (76.5)
<b>Bowel movement</b>			
Normal	7 (50)	2 (28.6)	12 (70.6)
Constipation	6 (42.9)	5 (71.4)	5 (29.4)
Diarrhoea	1 (7.1)	0 (0)	0 (0)
<b>Bladder condition</b>			
Normal	12 (85.7)	6 (85.7)	17 (100)
Abnormal or infection	2 (14.3)	1 (14.3)	0 (0)
<b>Physical activity</b>			
No activity or exercise	0 (0)	1 (14.3)	2 (11.8)
Household activity	6 (42.8)	3 (42.8)	5 (29.4)
Occupation related activity	4 (28.6)	2 (28.6)	3 (17.6)
Physical exercise	4 (28.6)	1 (14.3)	7 (41.2)
<b>Build or physique</b>			
Well built	2 (14.3)	1 (14.3)	9 (52.9)
Fairly built	9 (64.3)	4 (57.1)	7 (41.2)
Poorly built	3 (21.4)	2 (28.6)	1 (5.9)
<b>Nutrition status</b>			
Well nourished	5 (35.7)	1 (14.3)	10 (59.8)
Fairly nourished	9 (64.3)	6 (85.7)	7 (41.2)
Malnourished	0 (0)	0 (0)	0 (0)
<b>Edema over body parts</b>			
None	3 (21.4)	1 (14.3)	3 (17.6)
Medial malleolus	7 (50)	2 (28.6)	8 (47.1)
Tibia	4 (28.6)	4 (57.1)	6 (35.3)



<b><i>Fetal growth</i></b>			
<i>Normal</i>	11 (78.6)	7 (100)	16 (94.1)
<i>Physiologically small fetus</i>	2 (14.3)	0 (0)	1 (5.9)
<i>Small for gestational age fetus (FGA)</i>	1 (7.1)	0 (0)	0 (0)
<b><i>Chief complaints during visit</i></b>			
<i>Nausea</i>	2 (14.3)	2 (28.6)	6 (35.3)
<i>Morning sickness</i>	5 (35.7)	0 (0)	4 (23.5)
<i>Heartburn</i>	2 (14.3)	0 (0)	2 (11.8)
<i>Urinary tract infection</i>	1 (7.1)	0 (0)	0 (0)
<i>Backache</i>	2 (14.3)	4 (57.1)	3 (17.6)
<i>Tiredness</i>	0 (0)	1 (14.3)	1 (5.9)
<i>Others</i>	2 (14.3)	0 (0)	1 (5.9)

Fetal growth in all the recruited subjects during the study was found to be normal except for four participants. These mothers were referred by the researcher to the referral health center. Most of the parturient in the unexposed group had complained about morning sickness (35.7%) followed by Nausea, heartburn, backache or others (14.3%). Group 1 subjects had reported backache (57.1%), tiredness (14.3%) or Nausea (28.6%) during the visit. Exposed group 2 had complained about Nausea (35.3%) followed by morning sickness (23.5%) and rest as listed in the table.

#### 6.4 CLINICAL REPORT OF MOTHER AT PARTURITION

All the mothers under study had reported at the same maternity clinic for delivery. The clinical details and parameters concerning the delivery were recorded for each group, as shown in Table 12. Gestational delivery in all cases was found to be at full-term. Majority of the delivery happened at the gestational age of 39 0/7 in unexposed (50%), exposed group 1 (85.7%) and group 2 (70.6%). Further, for each group, the delivery mode was normal (100%). Additionally, it was singleton birth for the mothers under observation.

As for most cases, the delivery was normal (spontaneous vaginal delivery), and most subjects had intrapartum blood loss of less than 500ml. However, 14.3% (unexposed) and 5.9% (group 2) cases had hemorrhage and blood loss of less than 1000ml.

**TABLE 12: CLINICAL DETAILS OF THE PARTURIENT DURING DELIVERY.**

<i>Attitude variable</i> <i>N=38</i>	<i>Unexposed</i> <i>N=14 (36.8%)</i>	<i>Exposed group 1</i> <i>N=7 (18.4%)</i>	<i>Exposed group 2</i> <i>N=17 (44.7%)</i>
<b><i>Gestational age at delivery</i></b>			
40 weeks	2 (14.3)	0 (0)	2 (11.8)
39 weeks	7 (50)	6 (85.7)	12 (70.6)
38 weeks	4 (28.6)	0 (0)	2 (11.8)
37 weeks	1 (7.1)	1 (14.3)	1 (5.8)
<b><i>Mode of delivery</i></b>			
Normal (Spontaneous vaginal delivery)	14 (100)	7 (100)	17 (100)
Caesarean section	0 (0)	0 (0)	0 (0)
Instrumental and destructive delivery	0 (0)	0 (0)	0 (0)
<b><i>Intrapartum blood loss</i></b>			
≤500ml	12 (85.7)	7 (100)	16 (94.1)
≤1000ml	2 (14.3)	0 (0)	1 (5.9)
>1000ml	0 (0)	0 (0)	0 (0)
<b><i>Colostrum</i></b>			
Present	11 (78.6)	5 (71.4)	12 (70.6)
Absent	3 (21.4)	2 (28.6)	5 (29.4)
<b><i>APGAR score for new-born</i></b>			
Less than 7	5 (35.6)	2 (28.6)	3 (17.6)
Greater than 7	9 (64.4)	5 (71.4)	14 (82.4)
<b><i>Birth weight of new-born</i></b>			
Median (IQR) kg	2.9 (2.4 – 3.0)	2.8 (2.1 – 3.1)	2.7 (2.1 – 3.3)
<b><i>Sex of the new-born</i></b>			
Male (N=20, 52.6%)	9 (64.4)	5 (71.4)	6 (35.3)
Female (N=18, 47.4%)	5 (35.6)	2 (28.6)	11 (64.7)

For mothers in the unexposed group, 78.6%, in group 1, 71.4% and in group 2, 70.6% had normal colostrum. However, 21.4%, 28.6% and 29.4% of mothers in respective groups had an absence of colostrum and were advised for galactagogue supplements. Studying the health of neonates, APGAR scores for most babies were greater than 7. 64.4% of unexposed, 71.4% of group 1 and 82.4% of group 2 babies had a score of greater than 7. Babies with an APGAR

score of less than 7 were less common, as seen in the table. The birth weight of the infant was recorded as 2.9 kg with a range of 2.4kg to 3.0kg in the unexposed group. In group 1, the median weight was 2.8kg, ranging from 2.1kg to 3.1kg. Similarly, group 2 infants also weighed 2.7kg, ranging from 2.1kg to 3.3kg. The sex of the infants was normally distributed among different groups. Among the unexposed group, 35.6% were female, and 64.4% were male babies. In exposed group 1, 28.6% were female, and 71.4% were male babies. And in unexposed group 2, 64.7% of babies were female, while 35.3% were male.

## 6.5 CLINICAL DETAILS OF THE MOTHERS AT POSTPARTUM VISIT

The new mothers were asked by the medical practitioner to visit the clinic during the second to the third month of delivery for four routine check-ups. At the time of the visit, their postpartum day and other clinical details of the mother and child were recorded, as shown in Table 13. The median day of visit for each group of study was 50<sup>th</sup> (range 41 to 71) in unexposed, 63<sup>rd</sup> (range 59 to 70) in group 1 and 52<sup>nd</sup> (range 40 to 69) in group 2.

Bowel movement for most mothers was normal, as reported by 35.7%, 57.1% and 76.5%, respectively. The unexposed group had the highest rate of constipation, as indicated by 64.3% of mothers, followed by 42.9% of group 1. Bladder conditions for all participants, in general, were normal.

The data for physical activity was different from the antenatal case, as presented in the table. Although many mothers were physically active, there were still 28.6%, 28.6% and 35.3% inactive mothers in the respective group. Further, the examination of episiotomy stitches was normal in most cases. Still, a few had edema, induration, or discharge in groups. With 7.1% of unexposed and 5.9% of group 2 cases of abnormal breast reports, all others were found normal.

Except for 14.3% of unexposed cases, all other women had normal colostrum and could adequately feed the baby. As per advisories, all mothers were given hematinic supplements of Folic acid and Iron postpartum (100%). However, 14.3% of mothers of the unexposed group also reported consuming galactagogue supplement tablets due to the absence of

colostrum in the first week of parturition. Two subjects under observation were also prescribed lactation inhibition drugs in unexposed (7.1%) and group 1 (14.3%).

**TABLE 13: POSTPARTUM CLINICAL EXAMINATION FOR THE PARTICIPANTS.**

<b>Attitude variable</b> <b>N=38</b>	<b>Unexposed</b> <b>N=14 (36.8%)</b>	<b>Exposed group 1</b> <b>N=7 (18.4%)</b>	<b>Exposed group 2</b> <b>N=17 (44.7%)</b>
<b>Day of postpartum visit</b>			
Median (IQR) days	50 (41 – 71)	63 (59 – 70)	52 (40 – 69)
<b>Bowel movement</b>			
Normal	5 (35.7)	4 (57.1)	13 (76.5)
Constipation	9 (64.3)	3 (42.9)	1 (5.9)
Diarrhoea	0 (0)	0 (0)	3 (17.6)
<b>Bladder condition</b>			
Normal	13 (92.9)	7 (100)	17 (100)
Abnormal or infection	1 (7.1)	0 (0)	0 (0)
<b>Physical activity</b>			
No activity or exercise	4 (28.6)	2 (28.6)	6 (35.3)
Household activity	7 (50)	1 (14.3)	5 (29.4)
Occupation related activity	1 (7.1)	0 (0)	2 (11.8)
Physical exercise	2 (14.3)	4 (57.1)	4 (53.5)
<b>Episiotomy stitches</b>			
Normal	12 (85.7)	6 (85.7)	10 (58.8)
Edema	2 (14.3)	1 (14.3)	6 (35.3)
Induration or discharge	0 (0)	0 (0)	1 (5.9)
<b>Breast examination</b>			
Normal	11 (92.9)	7 (100)	16 (94.1)
Abnormal	1 (7.1)	0 (0)	1 (5.9)
<b>Colostrum</b>			
Present	12 (85.7)	7 (100)	17 (100)
Absent	2 (14.3)	0 (0)	0 (0)
<b>Hematinic supplements</b>			
Yes	14 (100)	7 (100)	17 (100)
No	0 (0)	0 (0)	0 (0)
<b>Galactagogue prescribed</b>			
Yes	3 (21.4)	1 (14.3)	0 (0)
No	11 (78.6)	6 (85.7)	17 (100)

<b>Lactation inhibition drugs prescribed</b>			
Yes	1 (7.1)	1 (14.3)	0 (0)
No	13 (92.9)	6 (85.7)	17 (100)
<b>Child health</b>			
Normal	8 (57.1)	4 (57.1)	13 (76.5)
Skin related problems	2 (14.3)	1 (14.3)	2 (11.8)
Constipation or diarrhoea	2 (14.3)	1 (14.3)	1 (5.9)
Physiological jaundice	0 (0)	1 (14.3)	0 (0)
Excessive crying or sleeping	2 (14.3)	0 (0)	1 (5.9)
<b>Weight of the child</b>			
Median (IQR) kg	4.8 (3.9 – 6.1)	5.1 (4.6 – 6.2)	4.7 (4.3 – 6.5)

The child health parameters were also studied, and the key features are presented in the table. 57.1% of unexposed, 57.1% of group 1 and 76.5% of group 2 neonates were found doing clinically normal. A few children in each group had skin-related problems, constipation, or diarrhoea, as indicated by frequency in table 13. Only one baby had physiological jaundice in group 1 mother during the study period. 14.3% of unexposed and 5.9% of group 2 had also reported excessive crying or sleeping-related problems to the health practitioner.

At the time of the postpartum visit, the weight of the child was also documented. Median weight was reported as 4.8kg (3.9 - 6.1) for the unexposed group, 5.1kg (4.6 - 6.2) for exposed group 1 and 4.7kg (4.3 - 6.5) for exposed group 2.

## 6.6 GROWTH PARAMETERS OF THE NEWBORN

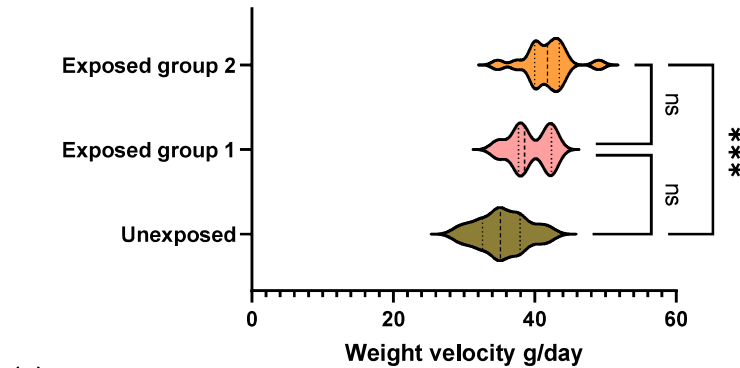
A child's growth is measured by growth velocity and weight velocity, as presented in Table 14. Parameters of the weight at birth and postpartum visits to the clinic were noted. Weight velocity in the unexposed group was found to be 35.1 g/day with a range of 29.2 to 41.9 g/day. However, it was 38.5 g/day (range 34.9 – 42.6) in exposed group 1. Further, in exposed group 2, weight velocity was 41.8 g/day (range 34.8 – 49.0), as reported in the table. The growth velocity by the exponential method was calculated as well. It was reported to be 9.3 g/kg/day in the unexposed group compared to 10.1 g/kg/day in the exposed group and 11.1 g/kg/day

in exposed group 2. It can be noted that both parameters, weight velocity and growth velocity, are found to be higher in exposed group 2 compared to others.

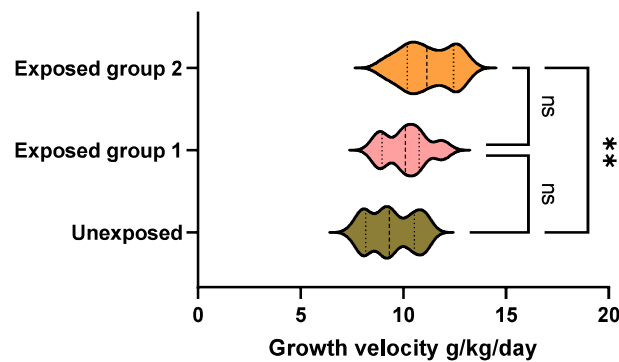
**TABLE 14: GROWTH CHARACTERS OF THE CHILDREN.**

<i>Attitude variable</i> <i>N=38</i>	<i>Unexposed</i> <i>N=14 (36.8%)</i>	<i>Exposed group 1</i> <i>N=7 (18.4%)</i>	<i>Exposed group 2</i> <i>N=17 (44.7%)</i>
<i>Birth weight of new-born</i> <i>Median (IQR) kg</i>	2.9 (2.4 – 3.0)	2.8 (2.1 – 3.1)	2.7 (2.1 – 3.3)
<i>Weight of the child at postnatal visit</i> <i>Median (IQR) kg</i>	4.8 (3.9 – 6.1)	5.1 (4.6 – 6.2)	4.7 (4.3 – 6.5)
<i>Weight velocity</i> <i>Median (IQR) g/day</i>	35.1 (29.2 – 41.9)	38.5 (34.9 – 42.6)	41.8 (34.8 – 49.0)
<i>Growth velocity</i> <i>Median (IQR) g/kg/day</i>	9.3 (7.7 – 11.1)	10.1 (8.7 – 11.8)	11.1 (8.9 – 13.1)

Using a non-parametric test for the weight velocity, the parameter was compared among all the cohorts. The results are presented in Figure 5. The Kruskal-Wallis test was executed to test the median across all the cohort combinations. A p-value less than 0.05 was considered significant. As shown in Figure 5 (a), weight velocity was not significant between unexposed and exposed group 1, and between exposed group 1 and group 2. However, weight velocity was significantly changed between unexposed and exposed group 2. This suggests that children of mothers who are users of batrisu vasanu had significantly higher (p-value  $\leq 0.001$ ) weight velocity than non-users.



(a)



(b)

**FIGURE 5. VIOLIN PLOT SHOWING MEDIAN AND RANGE OF (A) WEIGHT VELOCITY OF CHILDREN (\*\*\*) AND (B) GROWTH VELOCITY OF CHILDREN (\*\*)**

Further, growth velocity was calculated and was compared among the groups using the non-parametric Kruskal-Wallis test. Median growth velocity was compared within all groups, and the  $p\text{-value} \leq 0.05$  was considered significant. As shown in figure 5 (b), the violin plot indicates that the median growth velocity for exposed group 1 and group 2 was higher than the unexposed group. However, the median growth velocity between unexposed and exposed group 1, and between exposed group 1 and exposed group 2 was non-significant. The growth velocity median was significantly higher ( $p\text{-value} \leq 0.01$ ) between unexposed and exposed group 2 children. It suggests that women using Batrisu vasanu had children with significantly higher growth velocities than women not using it.