A Cross Sectional Study on Analysis of Human Milk as Per *Prakriti* (Psychosomatic Constitution)

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Abstract

Background: *Ayurveda* scholars have given comprehensive descriptions about characteristics of pure and vitiated human milk, measures of its purification, effect of diet, lifestyle on quality of human milk and its effect on growth and development of infant. Recent researches have also shown that the variation in human milk composition is associated with the maternal diet, environment, and potentially with genetic factors. Studies have reported that individual mothers within species often demonstrate variation in milk composition and/or yield affecting infant growth and development. *Prakriti* refers to genetic account of an individual, so there may be variation in human milk composition because of metabolic peculiarity and dietary differences.
Aim and Objectives: To analyze the composition of pure and vitiated Human milk as per *Prakriti.*
Materials and Method: Total 200 healthy lactating Indian mothers, aged between 20 to 35 years were registered after getting informed written consent from OPD of Department of Kaumarbhritya, I.M.S, BHU, Varanasi, India during year 2015-2017. Analysis of milk for fat, SNF, density, protein, lactose, freezing point, conductivity and pH was done through Eco milk Analyzer. The vitiation of milk was assessed by water test mentioned in *Ayurveda* text *viz*. Charak Samhita, Sushruta Samhita, Ashtanghridyam, Kashyap Samhita etc. Assessment of *Prakriti* (Psychosomatic constitution) of mothers was done by validated Performa.
Results: The mean values of different constituents *viz*. Fat(%), SNF(%),Density(g/cm^{3}), Protein (%) and Freezing Point(°C) were more in vitiated milk as compared to pure human milk. The variation in composition of milk was also found as per *Psychosomatic constitution*, the mean values

in milk varied significantly as per *Prakriti* (p=0.0287). On applying Post Hoc Test, the significant pairs were for *Vata* v/s Pitta (<0.05) and *Vata* v/s Kapha (<0.05) *Prakriti.*

Conclusion: Present study suggests that the composition of human milk varies as per *Prakriti* and in vitiated state too. Thus by correction of diet and lifestyle as per *Prakriti*, the quality of breast milk may be improved and better growth of infants may be obtained by using medicines for purification of milk.

Introduction

Human milk (*Stanya*) is an excellent source of nutrition for infants, as it contains essential nutrients in the correct balance and numerous immunological, biochemical, cellular component, probiotic, and stem cells. Human milk has been also considered as live tissue. The milk has a unique composition which is species specific, evolved over millions of years to suit the needs of infants. There is individual variations in human milk composition, which are attributed to the stage of lactation, the degree of breast fullness, infant feeding, the health of the breastfeeding dyad, and other factors.[1,2] Research has shown a close association between milk fat and cell contents that changes with the degree of breast fullness. It may be associated with the maternal diet and environment, and potentially with genetic factors.[3]

Studies have also reported that the lactation strategies along with milk synthesis and its composition vary among individuals within species. In this way infants receive "personalized" milk from their mother.[4,5]

WHO (2019) recommends exclusive breastfeeding for the first six months of life, after which, infants should receive nutritionally adequate and safe complementary food while breastfeeding continues for up to two years of age or beyond.[6] Exclusive breastfeeding for the first six months of life is associated with a decreased prevalence of infections and persistent diseases.[7,8]

Ayurveda is an ancient holistic, traditional health care system of India. The most fundamental principle of *Ayurveda* is "*TriDosha*" or the three vital humours i.e. *Vata*, *Pitta* and *Kapha*. These are the three biological entities that regulate all the biological activities and are responsible for determination of *Prakriti* (psychosomatic constitution) of an individual. The phenotypic expression of genotype differs as per the predominance of *Dosha* resulting in variation in physical, physiological and psychological characteristics in an Individual.[9] *Ayurveda* has categorized human population into seven categories as per *Doshika* dominance and their permutations. The seven types of *Prakriti* are namely *Vatika, Paittika, Kahaja, Vata-Paittika, Pitta-Kaphaja, Vata-Kaphaja*, and S*amaDosha or SamaPrakriti* (Ch. S. Vi. 8/).[10] In every person these three *Dosha* differ in permutations and combinations resulting in metabolic and physiological variations. Since human milk (*Stanya*) is also a product of metabolism that's why there are differences in values of constituents of human milk as per *Doshika* psychosomatic constitution also. The importance of pure or normal mother milk for health, unimpeded growth and development, longevity of body organs, disease free state in infants was well recognized by ancient *Ayurveda* scholars and comprehensive descriptions were made about the characteristics of pure and vitiated mother milk,[10,11,12] measures for purification of vitiated milk, effect of diet and lifestyle on quality of mother milk and its effect on infants.

Recent studies have reported the substantial inter individual variation within populations, which have been associated with maternal characteristics. The human milk synthesis and its composition depends on maternal factors such as diet, parity, and body fat exert greater influence on milk synthesis.[13,14,15]

Keeping these views in mind, this study was carried out with the aim to find out the analysis of normal and vitiated human milk and its composition among lactating mothers of different *Prakriti*.

Material and Methods

Study Design and Participants: For this study a cross sectional analytical study design was followed. 200 lactating Indian mothers (15th to 25th days of delivery) were registered after, getting informed

written consent. Participants were selected by purposive sampling method from OPD of Department of *Kaumarbhritya/Balaroga*.

Study Place
Department of Kryia Sharir, Department of *Kaumarbhritya*, Sir Sunder Lal Hospital, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India.

Study Period
year 2015 to 2017

Ethical Approval
The present study proposal was approved from ethical committee of the institute vide letter number dean/2014-15/EC/1322 dated on 02/09/2015.

Inclusion Criteria
• Age Group 20-35 years.
• Mothers, who were enrolled in OPD of *PrasutiTantra* for the follow up after delivery and no acute or chronic disease was noted by the gynecologist/obstetrician on the OPD slip.
• Mothers were screened also in terms of history like present or past illness, drug history, and routine question related to health[16] (***K.S.Kh.S. 5/6-8***)in addition to mother's discharge slip.

Exclusion Criteria
• Maternal age below 20 years and above 35 years.
• Mother has known gestational diabetes, history of pre-eclampsia.
• Mother with contraindicated breast feeding
• Mother taking any specific drug for any illness or suffering from any disease including moderate (9.97 to 7.00g/dl) to severe (6.94 to 4.00 g/dl) anemia.[17]

Assessment of Psychosomatic Constitution (*Prakriti*) of Mother
It was assessed through a reliable and validated Performa developed by *Tripathi PK et al., 2016*.[18] This Performa was based on the characteristics of *Vata*, *Pitta* and *Kapha Prakriti* individuals as described in various *Ayurvedic texts*. *Eka Dosha*ja *Prakriti* was assigned on the basis of highest

percentage of *Dosha* (more than 40 %) and difference of at least 7 % between two *Dosha*.

Method of Collection of Human Milk Samples
After getting informed consent, under all the recommended precautions, the mothers were asked to wash their hands and breast particularly nipple and areola part with soap water properly and were allowed to dry. Physical examination was done for the absence of cracked nipple, breast abscess etc. The milk sample was collected between 10.00 am to 12.00 noon. Mothers were asked to express their one breast completely (average quantity 50 ml) in a sterile container with the help of human milk pump(*Philip Avent Manual Breast Pump*).[19] After complete emptying of one breast, milk was transferred to another sterile glass container for further instant evaluation. An average time for initiation of test was 1 minute to avoid false report.

Assessment and Analysis of Human Milk
As per *Ayurveda*, Pure milk has certain characteristics *viz*. white in color, natural odor, sweet taste and cold in touch, dissolves uniformly in water, and after digestion provides nourishment, unimpeded growth and development, strength, longevity of body organs and disease free state i.e. healthy state of the child.[10,16]

To assess the quality of mother milk *Jala-pariksha* as an objective parameter was adopted since it is simple method and can be performed in OPD or bed side in natural light with tap water. Use of tap water was taken by considering the effect of *Desha*. In this study, water test (*Jal-pariksha*) of mother milk was done for differentiating non-vitiated mother milk with vitiated mother milk before doing analysis by lactometer for other objective parameters.

Human Milk Examinations by Water Test (*Jala Priksha*)
Jala pariksha[10, 12, 16] was carried out to test the characteristics of mother milk.

Method of Water Test (*Jala Pariksha*)
The vitiation / purity of milk was assessed by *Jala pariksha* and categorized accordingly into *Vata*, *Pitta*, *Kapha Dosha* vitiated or pure milk. One drop of milk sample was poured over water surface in a beaker of 500 ml capacity, filled with tap water. Time

was noted when the lowest milk fiber touched first time at the bottom of beaker and the time taken for complete dissolution in stagnant water of beaker was recorded.

Interpretation

- When a drop of human milk is put on the surface of water, it gets mixed uniformly without floating over the surface of water or settles down at the bottom of beaker, was considered pure mother milk.
- When a drop of milk is put on the surface of water, floats in a scattered manner and spreads like an umbrella is suggestive of *Vata* vitiated human milk.
- When a drop of milk submerged in water with yellow color (hue) streaks, was considered *Pitta* vitiated human milk.
- When a drop of human milk is put on the surface of water, it settles down rapidly (<10 second) towards the bottom of beaker and then persists for a long period (>180 second) before dissolution indicates the *Kapha* vitiated human milk.[20]

Method for Human Milk Analysis

Analysis of milk was done through *Eco milk Analyzer* (EON Trading LLC, USA Company) in Department of Animal Husbandry and Dairy, Institute of Agriculture Sciences, BHU. The working principle of analyzer is based on ultra sound technology and does not require any reagent or chemicals for the test.

To analyze the mother milk, the sucker point of the analyzer was washed with the distilled water by allowing the water to be drawn through it. The milk was taken in three different test tubes in equal quantity; one tube was placed in pH electrode, second tube in temperature slot for their finding, while milk of 3rd tube by keeping in given slot, was allowed to be sucked for the assessment of the various parameters *viz.* fat (%) ± 0.1%, solid non-fat (SNF %) ± 0.2%, milk density (g/cm3)± 0.0005 g/cm3, protein (%) ± 0.2%, lactose (%) ± 0.2%, freezing point (°C) ±0.015°C, conductivity (mS/cm) ±1 % (18°C)and pH ±0.02.

Statistical Tools

Statistical analysis was done by using Statistical Package for Social Sciences (SPSS) Software Version 16.1.Data tabulated and appropriate statistical test *viz*. mean, standard deviation, Independent't' -test, One Way ANOVA and Post Hoc test were applied in order to draw meaningful inferences such as difference in composition of milk as per *Prakriti* of mother in case of both vitiated and non-vitiated milk.

Observations and Result
Incidence of *Prakriti* Types in Mothers

In this study population, out of 200 lactating healthy mothers, 26.5 % were of *Pitta Prakriti*, 32 % of *Vata Prakriti* and 43.5 % belonged of *Kapha Prakriti*.

In *Vata*, *Pitta* and *Kapha Prakriti* lactating mothers, on applying One Way ANOVA, the mean values of weight and BMI varied significantly as per *Prakriti* ($p<0.0001$) although all the mothers were in normal range of BMI. The significant groups observed through Post Hoc test were *Vata* v/s *Pitta* ($p=0.0003$) and *Vata* v/s *Kapha* ($p<0.0001$) (Table No.1)

Table 1: Mean height, weight and BMI of lactating mothers as per *Prakriti*

Variables	*Vata Prakriti* (n=64)	*Pitta Prakriti* (n=51)	Mean ± SD *Kapha Prakriti* (n=85)	One Way ANOVA	Post Hoc Test
Height (cm.)	162.12± 3.253	162.43± 3.280	161.57± 3.263	F=1.212 p=0.299	-
Weight (Kg)	54.37±5.629	58.54±5.648	60.54± 5.629	F=22.148 **p<0.0001**	*Vata v/s Pitta* **p**<0.0003 *Vatav/s Kapha* **p**<0.0001 *Pitta v/s Kapha* **p**=0.1138
BMI (Kg/m^2)	20.68 ±1.977	22.17 ± 1.982	23.12 ± 1.988	F=27.714 **p<0.0001**	*Vata v/s Pitta* **p**<0.0003 *Vatav/s Kapha* **p**<0.0001 *Pitta v/s Kapha* **p**=0.0201

Table 2: Composition wise comparison of normal and vitiated milk of *Vata Prakriti* mothers

Composition of milk	*Vata Prakriti* Mothers		Independent 't' Test
	Normal milk (n=28) (Mean±SD)	**Vitiated milk(n=36) (Mean±SD)**	
Fat (%)	3.1±0.604	3.83±1.572	p=0.0230 t=2.3299
SNF (%)	8.90±1.050	9.20±1.071	p=0.2610 t=1.1340
Density(g/cm3)	31.95±4.411	32.73±4.852	p=0.5050 t=0.6705
Protein (%)	1.5±0.284	1.88±0.646	p=0.0050 t=2.9080
Freezing Point(°C)	5.02±0.660	4.81±0.547	p=0.129 t=1.4117
Lactose (%)	53.19±6.006	55.27±9.085	p=0.2964 t=1.0527
Conductivity(mS/cm)	1.86±0.387	1.81±0.468	p=0.6465 t=0.4608
pH	6.40±0.378	6.11±0.566	p=0.219 t=2.3501

Table 3: Composition wise comparison of normal and vitiated milk of *Pitta Prakriti* mothers

Composition of milk	*Pitta Prakriti* Mothers		Independent 't' Test
	Normal milk (n=19) (Mean±SD)	**Vitiated milk(n=32) (Mean±SD)**	
Fat(%)	3.8±1.231	4.32±1.534	p=0.2114 t=1.2657
SNF (%)	8.95±1.158	9.42±1.115	p=0.1527 t=1.4516
Density (g/cm^3)	31.26±4.596	32.80±4.963	p=0.2715 t=1.1116
Protein (%)	1.63±0.668	1.95±0.668	p=0.1006 t=1.6724
Freezing Point(°C)	4.89±0.590	4.84±0.580	p=0.7661 t=0.2991
Lactose (%)	49.57±13.817	53.91±9.248	p=0.1774 t=1.3678
Conductivity (mS/cm)	1.85±0.335	1.72±0.469	p=0.2923 t=1.0640
pH	6.26±0.376	6.14±0.563	p=0.4106 t=0.8296

The mean values of Fat %, SNF %, Density (g/cm³), Protein %, and Freezing Point (°C) were more in vitiated milk of *Vata Prakriti* mothers as compared to pure milk, while the mean values of conductivity(mS/cm)and pH were observed higher in pure milk of *Vata Prakriti* mothers. On applying independent sample t –test to compare the composition of both types of milk, values of only fat and protein percentage varied significantly (p=0.02, p=0.005).(Table No.2)

The mean values of Fat %, SNF %, Density(g/cm³) and Protein % were found higher in vitiated milk of *Pitta Prakriti* mothers as compared to normal (pure) milk while values of Freezing Point(°C)., Lactose (%),Conductivity (mS/cm) and pH were found higher in pure milk of *Pitta Prakriti* mothers. However, on applying independent sample t –test, none of these mean values were found to vary significantly in pure as well as in vitiated milk.(Table No.3)

**Table 4: Composition wise comparison of normal and
vitiated milk of *Kapha Prakriti* mothers**

Composition of milk	*Kapha Prakriti* Mothers		Independent 't' Test
	Normal milk (n=33) (Mean±SD)	Vitiated milk(n=52) (Mean±SD)	
Fat(%)	3.7±0.857	4.64±1.582	p=0.0024 t=3.1299
SNF (%)	9.45±0.592	9.69±1.069	p=0.2420 t=1.1785
Density (g/cm3)	32.72±6.355	33.44±4.829	p=0.5557 t=0.5916
Protein (%)	1.5±0.433	2.11±0.644	p=0.0001 t=4.7921
Freezing Point(°C)	5.13±0.686	4.93±0.545	p=0.1372 t=1.5004
Lactose (%)	54.29±10.149	56.48±9.041	p=0.1707 t=1.3816
Conductivity (mS/cm)	1.75±0.343	1.83±0.467	p=0.3962 t=0.8527
pH	6.28±0.536	6.16±0.528	p=0.3093 t=1.0227

The mean values of Fat %, SNF %, Density (g/cm³), Protein %, Conductivity and Freezing Point were also observed higher in vitiated milk of *Kapha Prakriti* mothers as compared to pure milk while in case of lactose %, conductivity (mS/cm) and pH the mean values were observed higher in pure milk of *Kapha Prakriti* mothers. On applying independent sample t –test to compare the composition of both types of milk, values of fat percentage(p=<0.0024) and Protein% (p=<0.0001) were found to vary significantly(Table No.5).

On applying One Way ANOVA on the different values of composition of milk among the different *Prakriti*, the mean values of fat percentage in milk varied significantly (p<0.02) as per *Prakriti* and after applying Post Hoc test, the significant pairs were observed for Fat % in *Vata* v/s *Pitta* (<0.02) and *Vata* v/s *Kapha* (<0.02) *Prakriti*, while in SNF significant pairs were *Vata* v/s *Kapha* (p<0.05). No significance was found in other parameters of milk as per *Prakriti*. (Table No. 6)

Table 6: Variations in normal human milk compositions as per *Prakriti*

Composition of milk	*Vata Prakriti* (Mean±SD) (n=28)	*Pitta Prakriti* (Mean±SD) (n=19)	*Kapha Prakriti* (Mean±SD) (n=33)	One Way ANOVA	Post Hoc Test
Fat(%)	3.1±0.6041	3.8±1.231	3.7±0.857	p=0.0113 f=4.7591	*Vata v/s Pitta* **p<0.02** *Vatav/s Kapha* **p<0.0 2** *Pitta v/s Kapha* **p= 0.919**
SNF (%)	8.90±1.050	8.95±1.158	9.45±0.592	p=0.0448 f=3.2339	*Vata v/s Pitta* **p= 0.9817** *Vatav/s Kapha* **p<0.05** *Pitta v/s Kapha* **p= 0.149**
Density (g/cm³)	31.95±4.411	31.26±4.596	32.72±6.355	p=0.6280 f=0.4681	
Protein (%)	1.5±0.284	1.6±0.668	1.5±0.433	p=0.7099 f=0.3441	
Freezing Point(°C)	53.19±6.006	49.57±13.817	54.29±10.149	p=0.2584 f=1.3775	
Lactose (%)	5.02±0.660	4.89±0.590	5.13±0.686	p=0.4448 f=0.8187	
Conductivity	1.86±0.387	1.85±0.335	1.75±0.343	p=0.4284 f=0.8571	
pH	6.40±0.378	6.26±0.376	6.28±0.536	p=0.3145 f=1.1743	

Table 7: Variations in vitiated human milk compositions as per Prakriti

Composition of human milk	*Vata Prakriti* (n=36)	*Pitta Prakriti* (n=32)	*Kapha Prakriti* (n=52)	One Way	Post Hoc Test
Fat(%)	3.83±1.572	4.32±1.534	4.64±1.582	p=0.622 f=2.8447	*Vata v/s Pitta* 0.4050 *Vatav/s Kapha* p=0.04 *Pitta v/s Kapha* p=0.6356
SNF (%)	9.20±1.071	9.42±1.115	9.69±1.069	p=2.2300 f=0.1121	
Density (g/cm³)	32.73±4.852	32.80±4.963	33.44±4.829	p=0.2863 f=0.7515	
Protein (%)	1.88±0.646	1.95±0.668	2.11±0.644	p=1.4478 f=0.2393	
Freezing Point(°C)	55.27±9.085	53.91±9.248	56.48±9.041	p=0.4533 f=0.7965	
Lactose (%)	4.81±0.547	4.84±0.580	4.93±0.545	p=0.5723 f=0.5608	
Conductivity (mS/cm)	1.81±0.468	1.72±0.469	1.83±0.467	p=0.4645 f=0.6296	
pH	6.11±0.566	6.14±0.563	6.16±0.528	p=0.0883 f=0.9156	

On applying One Way ANOVA among the constituents of milk, the mean values of fat percentage in milk varied significantly (p<0.02) as per *Prakriti* and after applying Post Hoc test, the significant pairs were observed for Fat % in *Vata* v/s *Kapha* (<0.05) *Prakriti*. (Table No. 7).

Discussion

In *Ayurveda*, emphasis has been given on quality of human milk and mentioned that this ideal food may get vitiated with different factors like indigestion, excessive intake of food or excessive salty, sour, pungent, decomposed food as well as physical stress, night awakening, excessive mental work, suppression of natural urges in lactating mothers.[9, 12, 16] These etiological factors result in clinical manifestation in children dependent on vitiated milk of mothers in addition to change in features of pure milk.[10,11] Recent studies[21, 22, 23] have shown that phase of lactation and preterm delivery are well known factors to affect the composition of human milk. Other factors are diet, age, smoking, residential area, overweight, mother's parity and life style.

Diet is considered as an important factor to keep the normal or pure milk of the mother. A person likes a specific type of food as per their *Prakriti* and his diet has dominancy of such food. *Stanya* (human milk) is produced from *Rasa-Prasada Bhaga* (nutrients fluid)[9, 10] and RaktaDhatu. Under this study, controlled diet was not considered and mothers were left to take the diet in accordance to their desire in view of the fact that each person has fond of specific diet and mode of intake (cold/hot) as per their *Prakriti*. However, the diet was recorded for last 48 hours with a reason that a conversion of *Anna* (food) to *Rasa-Dhatu* usually takes place in *Ahoratri* (48 hours). During this conversion Updhatu *Stanya*(human milk) is formed as a by-product of *Ras Dhatu* when its conversion takes place into *Rakta Dhatu* (blood).

Milk assessment was done as per the subjective and objective parameters. The objective parameters used in the study showed different constituents of milk which include Fat, SNF, density, protein, lactose, freezing point, conductivity, and pH, which were evaluated through Eko Milk Analyzer. The other parameter, water test comprised the assessment of *Shuddha* (pure or normal) and *Doshika* vitiation of mother milk. In this study, mother milk (n=200) when assessed for its purity and vitiation, was found 40 % and 60 % respectively at the time of registration by water test.

Difference in Composition of Mother Milk as Per *Prakriti*

The present study suggests variation in composition of milk as per *Prakriti* in healthy mothers, but all these were not found statistically significant. These observed variations are inconsistent as mothers have different dietary choices because of their psychosomatic makeup. As per *Ayurveda*, since, the human milk (*Stanya*) is subsidiary (*Updhatu*) of plasma (*Rasa Dhatu*) so its quality depends on the quality of absorbed nutrient part of food (*Aahar Rasa*).

Composition of Pure and Vitiated Human Milk

The incidence of pure and vitiated milk among *Vata Prakriti* mothers was 43.75 % (n=28) and 56.25 % (n=36) respectively. When the compositions of pure and vitiated milk among *Vata Prakriti* mothers were assessed, it was found that the mean values of Fat %, SNF %, Protein %, density(g/cm³) and freezing point(°C) were higher in vitiated milk in *Vata Prakriti* mothers and the difference in mean values of fat percentage varied significantly. (p=0.021)

The mean values of SNF %, density, freezing point and lactose were higher among *Kapha Prakriti* mothers and lower in *Vata Prakriti* mothers, while mean values of fat percentage and protein were higher in *Pitta Prakriti* mothers whereas pH was more acidic and conductivity was also high among milk of *Vata Prakriti* mothers. The difference in mean values of fat percentage varied significantly (p=0.0230) and Protein percentage is also highly significant (p=0.0050) while other parameters did not vary as per *Prakriti*.

The incidence of pure and vitiated milk among *Pitta Prakriti* mothers was 37.25 % and 62.75 % respectively. On comparing the composition of milk in pure and vitiated milk among *Pitta Prakriti* mothers, it was found that mean values of Fat %, SNF %, Density (g/cm3), Protein % and Freezing Point(°C) were more in vitiated milk as compared to pure milk while in case of lactose %, conductivity and pH the mean values were observed higher in pure milk samples but none of these mean values

of *Pitta Prakriti* mother's milk varied significantly in pure as well as in vitiated milk.

In *Kapha Prakriti* mothers, the incidence of pure and vitiated milk was 38.82 % and 61.17 % respectively. On comparing the composition of milk in pure and vitiated milk, it was found that mean values of Fat %, SNF %, Density(g/cm^3),Protein % and Freezing Point (°C) were more in vitiated milk as compared to pure milk. The mean values of Fat % (p=0.0024) and Protein % (p=0.0001) varied significantly.

In *Vata* vitiated milk, the mean values of fat was lower while in *Kapha* vitiated milk mean values of fat and protein were higher which signifies *Laghuta* and *Guruta* of the *Vata* and *Kapha* vitiated milk, respectively.

Based on the findings observed in our study, it can be inferred that the composition of human milk is not same in the entire mother's, it varies as per psychosomatic constitution. There are other factors which are also responsible for variations in composition of mother milk like diet,[16] mother's parity[17]; life style[18] should be also considered. Incidence of vitiated milk was found higher (60 % mothers) than non-vitiated milk (40 % mothers). In vitiation of milk major contributory factor is maternal diet among respective *Prakriti* of mother. Changes as per pure (non-vitiated) and vitiated mother milk are significant for Fat % in *Vata* and *Kapha Prakriti* mothers only. Relatively, higher values of Fat % and Protein % in milk of *Kapha* and *Pitta Prakriti* as compared to *Vata Prakriti* mothers validate the property of Sneha and Ati-snigdha properties of *Pitta* and *Kapha Dosha*, respectively. Maternal *Prakriti* wise variation in fat contents of pure milk was also found. Higher fat content in pure milk was seen in *Pitta* and *Kapha Prakriti* mothers than *Vata Prakriti* mothers.

Basically human milk is a nutrient delivery system, transferring all essential nutrients in appropriate amounts from maternal diet and body stores via milk to a infant. The studies have shown that the composition of mother's milk is influenced by certain factors associated with mother *viz*. parity, period of lactation, diet and nutritional reserve of mother during pregnancy. Fundamentally *Prakriti* refers to Phenotype of an individual. It refers to genetic makeup of mother which produces the physiological and metabolic peculiarity. The dietary intake of mother varies as per their *Prakriti*, leading to variation in human milk composition. The lipid composition reflects maternal dietary intakes both during lactation and in the months and even years prior to lactation. Study has also reported that intake of high calorie diet the sugar and fat content of human milk were unchanged whereas protein content was increased.[24]

It is suggested by the studies that the food preferences of a baby may be established and learned via human milk by adopting healthy food during early phase of lactation as the neural circuitry of appetite is established in part by food consumed during early development.[25,26,27,28]

Therefore the period of breast feeding, by shaping healthy food preferences is a potentially critical period for combating future obesity and dealing with our changing environments.

Conclusion
There are many reported factors for variation in composition of mother milk including genetic factor. Present study suggests that the composition of mother's milk is not same in all the individuals; it varies as per *Prakriti* and in vitiated state too. *Prakriti* refers to genetic account of an individual. Thus by correcting diet and lifestyle according to *Prakriti*, the quality of mother milk may be improved and better growth of infants may be obtained by using medicines for purification of milk as suggested in *Ayurveda*.

Implications of the Study
Outcome of this study can be used for the dietary and life style modifications of lactating mothers for optimizing in composition of milk as per *Prakriti*. As human milk is the exclusive source of nutrition in first six months of life, human milk composition might have effect on growth and development of infants. Thus their effect can be observed on infants and suitable measures may be adopted in case of lagging of growth and development in its initial phase itself.

Limitation of the Study

- Sample size was small and the parity of mother was not considered.
- Dietary intake of mother was not under the control of investigator as it was left as per the wish of mother assuming that it was in accordance to her *Prakriti*.

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Conflict of Interest

The authors do not have any conflict of interest.

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