



Annexures

ANNEXURE I

General information-

Date- _____

Name- _____

Mobile no: - _____

Age- _____

Area of residence: - _____

Gender- M ☐ F ☐

About your family-

Q1. State the total number of people in your house? _____

Q2. Tick the presence of the following members in your house?

		<18 years	18-30 years	30-59 years	60 and above
1	Father				
2	Mother				
3	Grandfather				
4	Grandmother				
5	Brother 1				
6	Brother 2				
7	Brother 3				
8	Sister 1				
9	Sister 2				
10	Sister 3				
11	Spouse				
12	Children 1				
13	Children 2				
14	Others				

Q3. Who in your family suffers from gastrointestinal symptoms like diarrhoea, bloating, acidity, abdominal pain after milk consumption?

	Family members	Give a tick mark
1	Father	
2	Mother	
3	Grandfather(paternal)	
4	Grandmother(paternal)	
5	Grandfather(maternal)	
6	Grandmother(maternal)	
7	Brother 1	
8	Brother 2	
9	Brother 3	
10	Sister 1	
11	Sister 2	
12	Sister 3	
13	Spouse	
14	Children 1	
15	Children 2	
16	None	

Q4. Marital status- (i) single ☐ (ii) married ☐ (iii) divorced ☐ (iv) widow ☐

Q5. Do you suffer from Diabetes – (i).type 1 ☐ (ii). type 2 ☐ (iii). No ☐

Q6. Do you suffer from High blood pressure – (i) yes ☐ (ii) No ☐

Q7. Are you on any medication? (i) Yes ☐ (ii) No ☐

Q8. If yes, then medication is for what reasons?

Q9. Are you on antibiotics? (i) Yes ☐ (ii) No ☐

Q10. Do you suffer from any of the following symptoms?

	Symptoms	a.Daily	b.Twice a week	c.weekly	d.fortnight	e.monthly	f.rarely	g.occasionally	h.never	i.Remarks
1	Diarrhea									
2	Pain-cramps									
3	Bloating									
4	Gas									
5	Nausea									
6	Headache									
7	Vomiting									
8	Acidity									

Q11. since when are the symptoms present-

1. since Always ☐

2. < 6 months ☐

3. 6-≤1 year ☐

4. >1-5years ☐

5. >5years ☐

Q12). If yes, do you relate it with certain foods?

	Types of food	1.diarrhoea	2.Pain-cramps	3.bloating	4.gas	5.nausea	6.headache	7.vomiting	8. Acidity	9. None
1	Milk									
2	Ice cream									
3	Chaas									
4	Lassi									
5	Kadhi (curd based)									
6	Shrikhand									
7	Yogurt									
8	Cheese									
9	Milk powder									
10	Condensed milk									
11	Fruit custard									
12	Milk based Indian sweets									
13	Milk based chocolates									
14	Wheat and wheat products									
15	Fermented foods									
17	Toor dal									
18	Masoor dal									
19	Chane ki dal									
20	Moog dal									

	Types of food	1.diarrhoea	2.Pain-cramps	3.bloating	4.gas	5.nausea	6.headache	7.vomiting	8. Acidity	9none
21	Apple									
22	Orange									
23	Banana									
24	Guava									
25	Grapes									
26	Chiku									
27	Sitaphal									
28	Jackfruit									
29	Potato									
30	Carrot									
31	Pumpkin									
32	Raddish									
33	Bringjal									
34	Cauliflower									
35	Cucumber									
36	Cabbage									
37	Yam									
38	Others foods _____									

ANNEXURE 2



DEPARTMENT OF FOODS AND NUTRITION
FACULTY OF FAMILY & COMMUNITY SCIENCES
THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
VADODARA 390 002

DATE:

Informed consent

I am Debanjana Bhattacharyya; research scholar working for the doctoral research project entitled “Assessing the presence of lactose intolerance amongst children, adults and elderly of Urban Vadodara and evaluating the impact of supplementing lactose hydrolysed milk on their quality of life and nutritional status” at the department of Foods and Nutrition, Faculty of Family and Community sciences, The Maharaja Sayajirao University of Baroda.

Lactose intolerance occurs when body is unable to digest lactose present in milk due to the lack of enzyme lactase. It leads to symptoms such as bloating, abdominal pain, vomiting etc. Lactose intolerant individuals are often undernourished as they are told to avoid milk which forms a major source of nutrients for their healthy counterparts.

For this, I need to screen you by means of questionnaire for Lactose intolerance. If symptoms are positive then only the subject will be screened further to confirm Lactose intolerance by means of Hydrogen Breath Analyzer test. HBA (hydrogen breath analyzer) is a small, portable device in which individuals have to exhale out after ingesting lactose (25g). If you have lactose intolerance then you will be unable to digest lactose and the device will show positive result.

Dietary intake for three consecutive days will be taken. Your Height, weight will be determined.

On confirmation of lactose intolerance, you would be enrolled for supplementation wherein 250 ml of Lactose-free milk shall be given to you daily for 6 weeks. Lactose free milk provides all the beneficial nutrients of milk except lactose. Thus, supplementation with lactose-free milk might help in reduction of the above-mentioned symptoms and bring about improvement in nutritional status.

Consent:

I have read the above matter carefully and have been explained the entire study very well and agreed to participate in this study. I will not hold the researchers responsible for any kind of discomfort / health issues arising during the study.

I agree to be tested for Lactose Intolerance by means of Hydrogen Breath Analyzer Test.

I also permit to enroll for supplementation with lactose free milk for a period of 6 weeks. I have been informed that in case of any discomfort experienced by me I will inform the researcher and can withdraw from the study.

Thanking you, yours truly
Debanjana Bhattacharyya (PhD scholar)
Contact no.- 9002516154
PhD Guide

Prof (Dr.) Mini Sheth

Department of food and
nutrition
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मैं देबनजाना भट्टाचार्य हूँ: मेरे डॉक्टर का विषय है- "अस्सेसिंग डी प्रजेस ऑफ लाक्टोसे इन्टॉलरेंस अमोस्त चिल्ड्रन, एडल्ट्स एंड एल्डर्ली ऑफ अर्बन वडोदरा एंड ेवलपिंग थे इम्पैक्ट ऑफ सुप्लीमेंटिंग लाक्टोसे हाइड्रोलीसेड मिल्क ों थैर क्वालिटी ऑफ लाइफ एंड न्यूट्रिशनल स्टेटस" मेरा डिपार्टमेंट है फूड एंड न्यूट्रिशन, फैकल्टी है फॅमिली एंड कम्युनिटी साइंसेज, और यूनिवर्सिटी का नाम है दी सयाजीराव यूनिवर्सिटी ऑफ बरोदा, वडोदरा.

लैक्टोज इन्टॉलरेंस तब होती है जब एंजाइम लैक्टोज की कमी के कारण शरीर दूध में मौजूद लैक्टोज को पचाने में असमर्थ होता है। यह सूजन, पेट दर्द, उल्टी आदि जैसे लक्षणों को जन्म देता है। लैक्टोज इन्टॉलरेंट व्यक्ति अक्सर कमजोर होते हैं क्योंकि उन्हें दूध से परहेज करने को कहा जाता है।

इसके लिए, मुझे लाक्टोसे इन्टॉलरेंस पे आधारित प्रश्नावली के माध्यम से आपको स्क्रीन करने की आवश्यकता है। यदि आप में सारे लक्षण मौजूद है तभी हम आप पे हाइड्रोजन ब्रेथ अनलैय्सेर टेस्ट करेंगे। हाइड्रोजन ब्रेथ अनलैय्सेर में एक छोटा, पोर्टेबल डिवाइस है जिसमें व्यक्ति को सांस छोड़ना होगा, और फिर 25 gm लाक्टोसे आप को 250 ml पानी में घोल के पिलाया जाएगा, और फिरसे आप को उस यन्त्र में सांस छोड़ना होगा। आप का हाइट और वेट लिया जाएगा और तीन दिन का खान-पान पूछा जाएगा। यदि जांच से हमें पता चले की आप लैक्टोज इन्टॉलरेंट है, तभी हम आप को 6 हफ्तों के लिए लैक्टोज फ्री मिल्क पिलाएंगे। लैक्टोज फ्री मिल्क लैक्टोज को छोड़कर दूध के सभी फायदेमंद पोषक तत्व प्रदान करता है।

हम यह आशा करते है की येह दूध पिये से आप को ऊपर लिखत लक्षण नहीं होगा।

Consent:

मैंने ऊपर लिखे गए सूचना को ध्यान से पढ़ा है और इस परीक्षा में भाग लेने के लिए तैयार हूँ। परीक्षा के दौरान हुए गए किसी भी तरह के तकलीफ के लिए मैं रिसर्चर को ज़िम्मेदार नहीं ठेहराऊंगी।

मैं 6 हफ्ते दूध पिये के लिए तैयार हूँ। अगर मुझे किसी भी तरह की तकलीफ हुई तो मैं परीक्षा से हट जाऊंगी।

Thanking you, yours truly
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હું દેબનજાના ભટ્ટાચાર્ય છે મારા ડોક્ટરે નો વિષય છે: એસેસિંગ થઈ પ્રેજન્ટ ઓફ લેક્ટોઝ ઇન્ટોલરન્સ એમોન્યાસ્ટ યીલ્ડ, અદલ્ટસ એન્ડ એલ્ડરલ્ય ઓફ સ્પર્શ વડોદરા એન્ડ ઇવાળ્યોટિંગ થઈ ઇમ્પેક્ટ ઓફ સુપ્લેમેન્ટેડ લેક્ટોઝ લ્યુસોલ્યુસેડ મિલ્ક ઓન ઠેર ક્યુઆલિટી ઓફ લીફ એન્ડ નુટ્રિશનલ સ્ટેટસ |” મારા ડીપાર્ટમેન્ટ છે ક્રડસ એન્ડ નુટ્રિશન કેકલ્ટરી ઓફ કેમિલી એન્ડ કોમ્યુનિટી સાયન્સસ ધ મહારાજા સયાજીરાઓ ઊનીવર્સિટી ઓફ વડોદરા વડોદરા.

લેક્ટોઝ ઇન્ટોલરન્સ તારે થાય છે જ્યારે લેક્ટેસ એન્ડ આઈમ ની કમી થી દૂધ માં રહેલ લેક્ટોઝ શરીરથી પચાવી શકાતું નથી તેનાથી સોજો. પેટનો દબાવો ઉલ્ટી ઝાડા વગેરેના લક્ષણો દેખાય છે લેક્ટોઝ ઇન્ટોલરન્સ વ્યક્તિ ઘણી વખત નબળું હોય છે કારણ કે તેઓને દૂધ એન્ડ દૂધ થી બનેલા પદાર્થો લેવાની પરહેજ હોય છે.

આના લીધે મને લેક્ટોઝ ઇન્ટોલરન્સ પર આધારિત પ્રશ્નાવલોના માધ્યમ થી તમને સ્કીન કરવાની અવશ્યકતા છે જો તમારા માં આ બધા લક્ષણો મોજૂદ છે તો જ અમે તમારા પાર લેક્ટોઝ બેથ એનાલીઝર ટેસ્ટ કરીશું. લેક્ટોઝ બેથ એનાલીઝર માં એક નાનું પોટેબલ ડેવિસ છે જેમાં વ્યક્તિને સ્વાશ છોડવાની રહેશે અને કરી રપ ગ્રામ લેક્ટોઝ તમને રપ૦ પાણી માં ઘોળીને પીવડાવામાં આવશે અને કરીથી તમને એ ચંત્ર માં સ્વાશ યોધવાનો રહેશે.

તમારું વજન એન્ડ લંબાઈ લેવામાં આવશે અને ત્રણ દિવસના ખાવા પીવાની પુચ પરજ કરવામાં આવશે જો પરીક્ષા પછી અમને ખબર પડી કે તમને લેક્ટોઝ ઇન્ટોલરન્સ છે તો જ અમે તમને ૬ અઠવાડિયા સુધી લેક્ટોઝ ફ્રી દૂધ પીવડાવીશું લેક્ટોઝ ફ્રી દૂધ લેક્ટોઝ ને છોડીને બધાજ પૌષ્ટિક તત્વો છે.

અમે આશા કરીએ છે કે ઉપર જણાવેલ લક્ષણો તમને અનુભવ ના કરવું પડે.

સંમતિ -

ઉપર લખેલી વિગતિ મેં વાંચી લીધી છે અને મને બધુજ સરખી રિરના સમજાવવામાં આવ્યું છે અને હું મારી મરજીથી અસ્સ સ્ટડી માં ભાગ લેવા માંગુ યુ. જો આ સ્ટડી વખતે મારી તબિયત ને કોઈ પણ જાતની તકલીફ પોસ્યસે તો રિસેર્ચર ની કોઈપણ જવાબદારી રહેશે નાઈ હું મારી મરજીથી લેક્ટોઝ ઇન્ટોલરન્સ ટેસ્ટ માં ભાગ લાઉ યુ જેમાં લ્યુસોલ્યુસેડ એનાલીઝર ટેસ્ટ કરવામાં આવશે.

હું સ્વેચ્છાએથી આ પ્રોજેક્ટ માં ભાગ લવ ૬ અઠવાડિયા સુધી લેક્ટોઝ ફ્રી મિલ્ક લેવા દાયર યુ મને જાણ છે કે આ પ્રોજેક્ટ માં આગળ મને કઈ પણ પ્રકાર ની તરત થઈ તો મેં આ પ્રોજેક્ટ માં થી બેદખલ થઈ જૈસ.

Thanking you, yours truly
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ANNEXURE 3

Name:

Date:

24 HOUR DIETARY RECALL

DAY 1

Meal	Item	Amount
morning		
Mid-morning		
Lunch		
evening		
Dinner		

Please mention above all that you eat on this day.

Name:

Date:

24 HOUR DIETARY RECALL

DAY 3

Meal	Item	Amount
morning		
Mid-morning		
Lunch		
evening		
Dinner		

Please mention above all that you eat on this day.

Name:

Date:

24 HOUR DIETARY RECALL

DAY 3

Meal	Item	Amount
morning		
Mid-morning		
Lunch		
evening		
Dinner		

Please mention above all that you eat on this day.

ANNEXURE 4

Health related Quality of Life for lactose intolerance

1. During the past 30 days for about how many days did you suffer from any digestion related issues caused due to milk and milk products -
 - a. _____ number of days
 - b. None ☐
 - c. Don't know/ Not sure ☐

2. To what extent do you feel that the milk and milk products induced digestive issue refrains you from eating normal foods?
 - a. Not at al ☐
 - b. A little ☐
 - c. A moderate amount ☐
 - d. Very much ☐
 - e. An extreme amount ☐

3. For how many days during the past 30 days were you stressed because of the above stated milk and milk products induced digestive issues?
 - a. Yes ☐
 - b. No ☐
 - c. Don't know/ Not sure ☐

 - d. If yes, state -
 - a. _____ number of days
 - b. Specify problems:

4. Did you ever visit a doctor for the milk and milk products induced digestive issues?
 - (1) Yes ☐
 - (2) No ☐

5. If yes, then for how many times you had to visit in past 30 days?
_____ Number of visits

6. Does the milk and milk products induced digestive issues disturbs your concentration?
 - (1) Yes
 - (2) No ☐
☐

7. If yes, how much does it affect your concentration?

- (1) Not at all ☐
- (2) A little ☐
- (3) A moderate amount ☐
- (4) Very much ☐
- (5) Extremely ☐

8. Do you have enough energy for everyday work?

- (1) Not at all ☐
- (2) A little ☐
- (3) A moderate amount ☐
- (4) Very much ☐
- (5) Extremely ☐

9. Does this lactose intolerance induced digestive issues disturbs your sleep?

- (1)Yes ☐
- (2)No ☐

10. If yes, how satisfied are you with your sleep?

- (1) Very satisfied ☐
- (2) Dissatisfied ☐
- (3) Neither satisfied nor dissatisfied ☐
- (4) Satisfied ☐
- (5) Very satisfied ☐

ANNEXURE 5

Compliance form of lactose hydrolysed milk supplementation

Name:

Please check the box after drinking milk. If milk is not consumed on a particular day, make it cross.

Weeks	M	T	W	T	F	S	S
Week 1							
Week 2							
Week 3							
Week 4							
Week 5							
Week 6							

ANNEXURE 6

Feedback upon acceptability of lactose hydrolysed milk

Parameters	Tick or cross
Smell- like	
Smell- dislike	
Sight	
Taste	
Texture	
Desire to purchase	

ANNEXURE 7 (i)

THRESHOLD TEST

Procedure for preparation of solution required for threshold test

Solution No.	Molarity	Salty (Stock solution 5.845 g of sodium chloride/L) ml of stock solution to be diluted to 1 L	Sweet (Stock solution 34.23 g of sucrose/L) ml of stock solution to be diluted to 1 L	Molarity	Sour (Stock solution 21.015 g of citric acid/L) ml of stock solution to be diluted to 1 L	Bitter (Stock solution 19.41 g of caffeine/L) ml of stock solution to be diluted to 1 L
1	0.0002	2	2	0.0005	0.5	0.5
2	0.0004	4	4	0.0001	1	1
3-	0.0008/	8	8	0.0002	2	2
4	0.0016	16	16	0.0004	4	4
5/	0.0032'	32	32	0.0006	6	6
6	0.0064	64	64	0.0008	8	8
7-	0.0128	128	128	0.0010	10	10
8	0.0256.	256	256	0.0012	12	12
9'	0.0512	2.994 g/L	17.526 g/L	0.0014	14	14
10	0.1024	5.988 g/L	35.052 g/L	0.0016	16	16
11'	0.2048	11.976 g/L	70.103 g/L	0.0032	32	32
12	0.4096	23.953 g/L	140.206 g/L	0.0064	64	64

Source : Jellinek, G. (1964). J. Nutri. Diet. 1:219

ANNEXURE 7 (ii)

THRESHOLD TEST

Sensitivity- Threshold Test

Name: _____

Date : _____

You are provided with a series of containers having solutions with increasing concentration of one of the taste qualities (sweet, salty etc). Please start with Sr. No. 1 and continue with the rest. The samples are not allowed to be retested. Please describe the taste or give intensity scores using the scoring pattern shown separately here below.

Intensity Score

Set No.	Description of taste and feeling factors			
	A. SWEET	B. SALTY	C. BITTER	D. SOUR
1				
2				
3				
4				
5				
6				

Scale:

While awarding the intensity scores, take the following basis into account:

0 – none or taste of pure water

?- different from water but taste quality not identifiable

X- threshold very weak (taste identifiable)

- 1 Weak taste
- 2 Medium
- 3 Strong
- 4 Very strong
- 5 Extremely strong

ANNEXURE 8

SCORE CARD FOR PRODUCT EVALUATION

Panelist No :

Name :

Product :

Date :

Time :

Given are the samples of trial to develop products at household level from both standard milk and lactose-free milk.

Please grade the samples according to the instructions. Kindly follow the instructions mentioned on the questionnaire.

Instructions:

Kindly do not have any food 30 mins prior to sensory evaluation.

Each panellist will get 3-4 chance to analyse the food products.

Signature

9-Point Hedonic Scale	
9	Like Extremely
8	Like Very Much
7	Like Moderately
6	Like Slightly
5	Neither Like nor Dislike
4	Dislike Slightly
3	Dislike Moderately
2	Dislike Very Much
1	Dislike Extremely

Product name	Colour and appearance	Aroma	Texture	After taste	Taste	Mouth feel	Overall acceptability
Cold cocoa							
Rose milk							
White sauce pasta							
Veg au gratin							
Sandesh							
Kheer							