

Consumption Pattern of Ghee in Udaipur City

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ABSTRACT A questionnaire based survey of three hundred families from Udaipur city was performed to know their consumption pattern of Ghee- anhydrous milk fat. The respondents were divided into Low income group (LIG), Middle income group (MIG) and High income group (HIG) based on their total family income. It was observed 34.3%, 30.0%, 35.7% of these families were from LIG, MIG, HIG respectively. Out of these families 5 were those which did not consumed ghee at all while 7 families were those consuming hydrogenated fat partially. Monthly consumption analysis revealed that majority of three income groups consumed <3 kg/ month while consumption of ghee was correlated to socio economic status so that >3 kg / month consumption was observed in MIG and HIG families. Where as on basis of per capita per day consumption in majority families from all three income groups it was less than 20 g per day which is the normal range for the ghee consumption as recommended by NNMB. Evaluation of purchasing of practice of ghee showed that most the LIG and MIG families purchased ghee as and when required, while majority of families of HIG purchased ghee on monthly basis. The purchase in bulk i.e. 15 kg was also correlated to the socio economic status and was prevalent in HIG families. Branded ghee was mostly preferred by HIG families where as in LIG families *Homemade* ghee was preferred. It was observed that choice for specified brands was 83.4% where as only 18.9% families were for no specific choice of branded ghee. Awareness related to Agmark certification on ghee was observed in majority of HIG families while awareness was lowest in LIG families. Amongst various food items ghee usage found highest score for chapati (88.7%, 76.7%, 93.5%) followed by sweets (38.8%, 58.9%, and 80.4%) in all three income groups LIG, MIG and HIG respectively.

INTRODUCTION

Fats are an essential part of the diet and are a good source of energy. They insulate the body, act as carrier of fat soluble vitamins and perform various important cellular functions in human body (Kumar et al. 1999). Fat in the diet can be of two kinds, the visible and invisible fat. The visible fats are those derived from animal fats like butter, ghee which are solid fats and those derived from vegetable fats like groundnut, mustard, coconut, safflower, niger seed which are liquid fat (Gopalan et al. 1989). Over the centuries Indians have developed a liking for the aroma and flavor of milk fat- ghee, and a preference for its use over raw vegetable oils and the other traditional cooking medium. Vegetable ghee (*vanaspati*), popular in the northern states, is used in confectionery, bakery, and ready-to-eat foods. Ghee, made from milk in the home or purchased, contributes to the high intake of fat in the urban affluent and middle-income groups (Gopalan 1989). State of Rajasthan produced 13,000 tonnes

of ghee in year 2005 through organized sector alone (CMIE 2006). The market penetration of ghee is about 37 percent in urban areas and about 21 percent in rural areas. Moreover, purchasing power of the household is much lower in rural areas. Fat intake in India is income dependent and highly skewed (Vinodini et al. 1996). As would be expected in our country having extremes of income and living standards, the daily fat intake is expected to vary from very high to very low levels. Actual diet surveys confirming this, and the present ghee intake scenario is not known. Thus the present study was thus planned to know the consumption pattern of ghee in the city of Udaipur

MATERIALS AND METHODS

An interview based survey was conducted in three hundred families from various locations of Udaipur in a purposive manner irrespective of their economic status/ caste/ creed. A questionnaire was developed with the objectives to get information about a) their socio economic state (this information was used to classify these families into Low Income group (LIG) Middle Income Group (MIG) and High Income Group (HIG) as per Urban Improvement Trust, Udaipur

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classification) b) the pattern of monthly ghee consumption within family and on per capita per day basis, c) pattern of ghee purchase, d) preference regarding various ghee types, e) awareness regarding 'Agmark' certification, f) food items for which the families used ghee.

RESULTS

Survey was carried out in 300 random families from Udaipur whose break up in various income groups were 34.3% in LIG, 30.0% in MIG and 35.7% in HIG.

(a) Pattern of Monthly Ghee Consumption within Family and on Per Capita Per Day Basis:

The distribution of families in three income groups for their monthly consumption is given in Table 1. It was observed that majority of families from all the three income categories consumed less than 3 Kg ghee per month (97.0 % in LIG, 84.4 % in MIG and 81.1 % in HIG) while 3.0%, 13.3% and 15.1% of families consumed ghee in the range of 3-5 kg. per month respectively in LIG, MIG and HIG groups. The families consuming more than 5 kg ghee per month was 0.0 % (nil), 2.2% and 3.8% in LIG, MIG and HIG, respectively.

Table 1: Distribution of families in three income groups for monthly ghee consumption.

Income group		< 3 kg	3-5 kg	> 5 kg.
LIG	n= 99	(96) 97.0	(3) 3.0	(0) 0.0
MIG	n= 90	(76) 84.5	(12) 13.3	(2) 2.2
HIG	n= 106	(86) 81.1	(16) 15.1	(4) 3.8
Total	*N = 295	(258) 87.5	(31) 10.5	(6) 2.0

Value in parenthesis is number of families.

*The five families i.e. 4 from LIG, 1 from HIG which did not consume ghee in any form were omitted.

Per capita per day ghee consumption was calculated by dividing the family's monthly ghee consumption with number of family members and 30 days. The data in incremental values of 10 g are given in Table 2. It was observed that majority of the families in all the three income groups consumed ghee in the range 1-10 g or 11-20 g per capita per day.

Further in LIG the number of families

consuming 21-30g or 31-40 g per capita per day were 8.1% or 3.0% respectively. None of the LIG families had daily per capita consumption of more than 40 g. In case of MIG the number of families with per capita consumption of 21-30g, 31-40g, 41-50g and 51-60g were 14.5%, 2.2%, 3.3%, and 1.1% respectively where as the corresponding values in HIG were 22.6%, 5.7%, 1.9% and 0.9% respectively.

(b) Pattern of Ghee Purchases: The purchasing pattern of families in three income groups is given in Table 3. It was observed that majority of families belonging to low income group purchased ghee as and when required i.e. 76.8% and while 21.1% purchased ghee for the entire month along with other house hold ration. The families buying ghee in pack of 15 kg were only 2.1% in LIG. Similarly in MIG and HIG the purchasing practices of ghee as and when required was in 57.1% and 39.6% respectively while 35.1% and 50.0% purchased ghee on monthly basis in MIG and HIG respectively. The results also show that the tendency to purchase 15 kg tin was higher in MIG and HIG families (6.7% and 10.4% respectively). Four families in LIG and thirteen families in MIG were those who did not purchase ghee on cost. These families either made ghee at home or got from their home in village.

The preference of various ghee types evaluated was either for branded or for *Homemade*. Within *Homemade* the frequency of self made and other sources were calculated. The other sources included local manufacturer of ghee and that from villages near by Udaipur city. These results are presented in Figure 1 (A) - 1(C). The data revealed that out of 295 families those consuming branded ghee were 58.6%, while those consuming *Homemade* were 41.4%. The break up in LIG, MIG and HIG for purchase of branded ghee was 42.4%, 51.1% and 79.4% respectively. Thereby indicating that the choice of branded ghee was more in upper socio economic groups. However, this was not in strict adherence as many of these families also consumed *Homemade* ghee. Their percentage break up was 65.7%, 48.9% and 67.3% in LIG, MIG and HIG, respectively.

Table 2: Distribution of families from three income groups for per capita per day consumption (N=295)

Family	1-10 g	11-20 g	21-30 g	31-40 g	41-50 g	51-60 g
LIG n=99	(46) 46.5	(42) 42.4	(8) 8.1	(3) 3.0	-	-
MIG n=90	(31) 34.4	(40) 44.4	(13) 14.4	(2) 2.2	(3) 3.3	(1) 1.1
HIG n=106	(34) 32.1	(39) 36.8	(24) 22.6	(6) 5.7	(2) 1.9	(1) 0.9

Values in parenthesis are in number of families of respective group.

Table 3: Distribution of families from three income groups for purchasing practices of ghee

Income group	15 kg tin purchased	Monthly purchased	As and when required
LIG n = 95	(2) 2.1	(20) 21.1	(73) 76.8
MIG n = 77	(6) 7.8	(27) 35.1	(44) 57.1
HIG n = 106	(11) 10.4	(53) 50.0	(42) 39.6

Values in parenthesis are number of families of respective group.

The *Homemade* category included self-made i.e. made from milk at home, while those categorized from other sources, included that purchased from local ghee manufactures and from village near by (Fig. 1 (A) – 1 (C))

The percentage of families making ghee at home (self made) was 9.2% in LIG, 47.7% in MIG and 51.4% in HIG. The percentage of families purchasing ghee from other sources was 90.8%, 59.1% and 56.9% respectively, thereby indicating that low socio economic group had a higher frequency to purchase ghee from other sources.

This category for purchase of *Home made* ghee from other sources was further divided in two groups a) from local manufacturer and b) from village near by. The consumption of ghee purchased from local manufacturers was 72.9% in LIG, 57.7% in MIG and 43.9% in HIG and ghee purchased from village near by was 27.1%, 42.3% and 56.1% in LIG, MIG and HIG, respectively. Flow Chart 1 (A) – 1 (C).

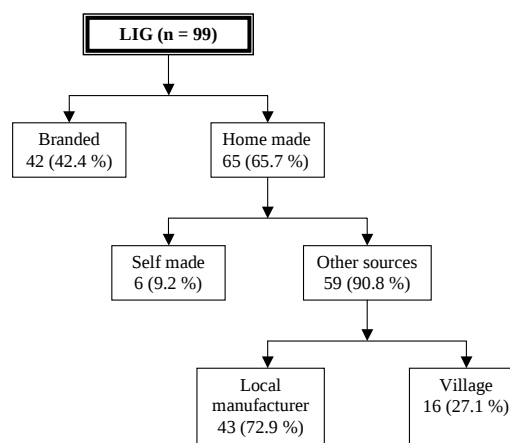
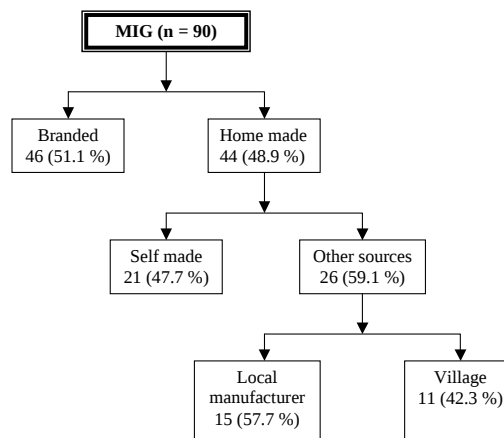
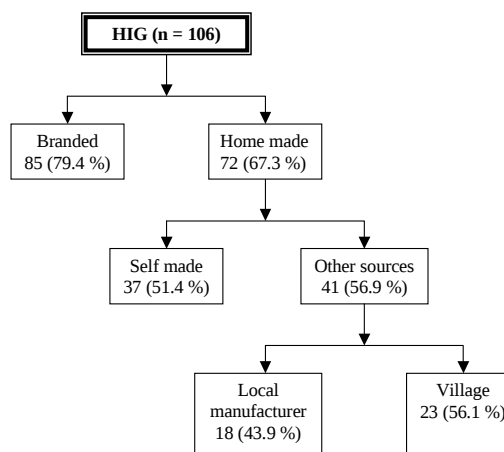
The preference of any specific brand of ghee or otherwise was evaluated in all those families which consumed branded ghee. The results are shown in Table 4. It was observed that out of 173 families purchasing branded ghee majority i.e. 83.4 percent had their specific choice, while 18.9 percent had no specific choice and picked at random any branded packet. The second category of those purchasing loose also belonged to “no specific choice” because these families purchased loose ghee (from open tin) sold by the shop keeper and they exerted no choice.

Table 4: Distribution of families from three income groups for purchase specific or non specific brands (N = 171)

Packaged ghee n = (169) 98.8		
Specific Brands	Non-specific Brands (32) 18.9	
	Packet purchase	*Loose purchase
(141) 83.4	(17) 53.1	(15) 46.9

Values in parenthesis are of number of families.

* Branded but sold loose by shopkeeper.

**Fig. 1.A: LIG****Fig. 1.B: MIG****Fig. 1.C: HIG**

The data also revealed that there were seven families out of these 171 families which also preferred hydrogenated fat either partially or solely.

(d) Awareness Regarding 'Agmark' Certification: Agmark certification which is equivalent to ISI marks has been started to ensure that the food products supplied to the consumer are of good quality. It includes commodities like ghee, butter, oil, wheat flour, spices etc. (Khurana 1998). This task is carried out by 22 regional Agmark laboratories at different places in the country along with Central Agmark laboratory, Nagpur as the Apex Laboratory (<http://agmarknet.nic.in/Agmark1.htm>). Agmark certification is an assurance that the sold product is meeting the quality standards. Consumers these days are becoming more quality conscious and thus the awareness regarding Agmark certification of ghee was evaluated and depicted in Table 5. It was observed that awareness regarding Agmark certificate existed more in HIG 45.8% while it was comparatively less in MIG 28.9% and very low in LIG 4.9%. This can mainly be attributed to their ignorance of the LIG group.

Within these income groups 44.9%, 43.3% and 29.1% in HIG, MIG and LIG families were those who were aware of Agmark certification but never checked the same while purchasing ghee with the assumption that all branded ghee sold are having Agmark certification. There was a vast majority of families in LIG 66.0% who never knew about certification marks while in MIG and HIG 27.1% and 9.4% families had no information regarding Agmark certification.

(e) Food Items Requiring Ghee Usage: Table 6 depicts that in LIG families major ghee

consumption was for topping chapatias 88.4%, the next most common use was for preparing sweets 38.8%, while in MIG that was 76.5% and 58.9%, respectively. Where as in case of HIG ghee consumption was reported for all food items viz. chapati 93.5%, sweets 80.4%, rice 60.8%, cooking/ frying 52.3%, special preparations for fasting 51.4% and parantha 42.1% respectively. Non food utilization of ghee in form of Pooja Deepak was reported by 4 LIG, 13 MIG and 49 HIG families for which on an average 250 gm of ghee was used per month. Some families (3) in MIG and (10) in HIG reported ghee purchase for hawan etc. however, this was independent of that purchase for kitchen use and thus was unaccounted. Nagla (2006) stated that in India ghee or clarified milk fat is regularly consumed for variety of food items like chapatti, parantha, halwa and other sweet dishes.

DISCUSSION

Gopalan et al. (1989), Kumar et al. (1999) stated that ghee being an expensive commodity follows a trend according to the socio economic status. They reported a survey by NCAR (1995) which stated that ghee intake in India is income dependent and highly skewed in favour of upper economic strata. Majority of the families had per capita per day consumption of less than 20 g ghee (Table 2). This is in accordance to the reports indicating a range of 3- 20 g/day/capita (ICMR 2004). In the urban high-income group, a daily intake of total visible fat is about 50 g per person would be the upper limit of visible fat (e.g., oil, ghee, *vanaspati*, and butter) (Ghafoorunissa 1989). It was estimated that one third of all the fat in India was consumed by the 5% of the population who constituted the urban rich (Singh and Mulukuntia 1996). This segment of the population, which has a high prevalence of obesity and cardiovascular disease, could lower the consumption of fat and ease the pressure on the supply of edible oil elsewhere in the country. From the results (Table 3) it can be concluded that the purchasing practice of ghee

Table 5: Distribution of families from three income groups regarding awareness for Agmark certification

Income group	Checked	Not checked	Not aware
LIG	(5) 4.9	(30) 29.1	(68) 66.0
MIG	(26) 28.9	(39) 43.3	(25) 27.8
HIG	(49) 45.8	(48) 44.9	(10) 9.4

Values in parenthesis are of number of families

Table 6: Distribution of families from three income group for food items for which the families used ghee

Families	Chapatti	Rice	Parantha	Frying	Sweets	Fasting
LIG	(91) 38.4	(7) 6.8	(4) 3.9	(11) 10.7	(40) 38.87	-
MIG	(68) 76.7	(26) 28.9	(33) 36.7	(23) 25.6	(53) 58.9	(20) 22.2
HIG	(100) 93.5	(65) 60.8	(45) 42.1	(56) 52.3	(86) 20.4	(55) 51.4

Values in parenthesis are of number of families

depends upon the socio economic status (Roy et al. 2002) and that LIG families had meager resources to buy this expensive commodity (Acharya 1984) and that the higher consumption in MIG and HIG is coupled with a tendency to buy 15 kg tin. Which can mainly be contributed to more availability of cash in hand.

It is known that branded ghee sold in small packets attract premium over loose, this may be the main reason why LIG families preferred purchasing loose ghee (Fig 1 A). Further purchase from village near by involved travel expenses thus was found to more prevalent in HIG and that this was coupled with the higher quantum of ghee purchased at a time by the MIG and HIG families (Fig1 A,B). According to Deodhar and Intodia (2001) consumers are willing to pay a premium of about Rs. 24 for a branded ghee over an unbranded ghee sold loose in the market. Moreover, cooperate brands too command a premium. Consumers are willing to pay a premium of about Rs. 20 for a corporate brand of ghee over a cooperative brand. This indicates that brands and the nature of firm contribute to the reputation premium. The notable exceptions to this however are the local milk cooperatives producing ghee. The author's further states that this premium may be reflective of the faith consumers have in the analytical quality attributes of ghee which they are unable to taste for themselves. Flavour has a considerable and significant impact on price. For a unit improvement in the flavour score consumers are willing to spend additional Rs. 9.60. Texture on the other hand does not seem to be influencing the willingness to pay as its coefficient is not statistically significant.

The present study revealed that the awareness of Agmark certification was limited to HIG (Table 5). Bhushan (2003) argued that the level of general public consciousness about food safety and quality standards was poor in Indian population and that awareness should be increased through campaigns in schools and colleges, circulation of pamphlets and literature, and through TV and print media.

It can be concluded from the present study that the monthly ghee purchase depends on the socio economic status and that MIG and HIG families purchased ghee in quantity higher than LIG and that majority of the families in all the three groups had per capita per day consumption of less than 20 g. HIG families purchased ghee on monthly basis and they had better awareness about Agmark certification.

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