Milk Consumption Trends in Singapore

Kalpana Bhaskaran

*Applied Nutrition & Glycemic Index Research Domain, School of Applied Science, Temasek Polytechnic, 21 Tampines Avenue 1, S529757, Singapore

Abstract

Background
Consumption of milk among adults has been steadily declining globally as reported by other countries like USA and Canada. Regular milk consumption as part of the daily diets of adult Singaporeans can contribute to essential nutrients without compromising much of their time and resources. This necessitates the need for the propagation of appropriate nutritional information about milk consumption to the middle-aged and elderly population. With this in mind, a focus group discussion was conducted to better understand the drivers and barriers to milk consumption and what could be done to increase the consumption of milk in Singapore. In order to achieve this, the focus group discussion was conducted among thirty participants, in 3 groups of 10 each. The results proved that majority of participants in our study did not think that milk consumption as part of their daily diet is important. They felt that they can get the essential nutrients which are present in milk from other food sources. Participants also gave various reasons for not consuming milk and most of them are not scientifically proven. Education is needed to better inform people that prevention of osteoporosis needs to start (before 35 years of age). Besides the prevention of osteoporosis, the benefits of milk in the maintenance of general health and the prevention of other diseases should be promoted.

Keywords
Dairy; Milk; Focus Group Discussion; Osteoporosis; Calcium

Introduction
Milk demand is on the rise in Singapore, according to a report from research firm Euromonitor International. In its September 2016 report, “Drinking Milk Products In Singapore: Sales of Drinking Milk Products by Category (Volume 2011-2016)”, the research firm reported that 53,386.6 tonnes was consumed in 2016 compared to 47,042.2 tonnes in 2011, which is equivalent to a 12.0 per cent increase. But this increase in consumption is not specific to milk consumption by adults. Consumption of milk among adults has been steadily declining globally as reported by other countries like USA and Canada [1]. Similar trend is also seen in Korea where only 20% of adults aged 19 to 64 years consume milk more than once a day, and an inverse correlation was noted recently between decreased milk consumption and the increasing age of both men and women [2]. However, the importance of milk consumption is even more important especially with an increasing ageing population. The percentage of aging population in Singapore is increasing steadily and this increase is much more than selected East Asian countries (Hong Kong, Japan and South Korea) and Organisation for Economic
Co-operation and Development (OECD) societies (France, Germany, Sweden and the United States), placing emphasis on the nutritional concerns among the ageing population.

Evidence suggests that the people are aware of the importance of milk and its products, especially for the positive effects of its calcium content on bone metabolism [3-6]. But a sizeable part of the world’s population still does not consume the recommended amount of dairy produce. The results of a recent study conducted among middle-aged and elderly adults in Switzerland indicated that 25% of the participants had reduced their milk or dairy consumption [7]. In addition, data from the last Canadian Community Health Survey showed that just one-third of the adult population met the Canada Food Guide recommended minimum daily servings for the “milk and alternatives” food, i.e. two servings per day for 19 to 50 year olds. Similar findings have been observed in the United States [1, 8].

A similar trend is observed in Singapore. According to the Singapore Health Promotion Board’s (HPB) National Nutrition Survey (2010), 50% of Singaporean residents aged 18 to 69 years of age do not consume any milk. Among those that do, most are not meeting the daily recommended allowance of milk for calcium intake. In addition, one in four have protein intakes below the recommended level. This is a worrying trend especially when the requirements of these nutrients play a crucial role in the health and well-being of adults. Singapore’s societal landscape is changing rapidly, with increasing ageing population and birth rate declining. On a statistical front, Singapore’s elderly, as a percentage of the population, is expected to rise from the current 11% to 20% by 2030. That means one in four Singaporeans will be in that age group, up from one in eight today. Attention to health care and quality of life has become a pressing issue. The average spent on healthcare per person is expected to rise by more than 460%. Steps to prevent and manage disease through non-pharmacological interventions for older adults, such as improvements in diet quality, are now even more urgent.

Regular milk consumption as part of the daily diets of adult Singaporeans can contribute to essential nutrients without compromising much of their time and resources. This necessitates the need for the propagation of appropriate nutritional information about milk consumption to the middle-aged and elderly population. Better knowledge of health and nutritional status, as well as of appropriate nutritional behaviour, might help to improve quality of life in the third and fourth stages of human lifespan [9].

Furthermore, addressing an individual’s attitude, beliefs and barriers surrounding milk consumption in adults may provide a more complete picture of their decision-making process regarding milk consumption. Previous data (very limited) related to milk and milk product consumption habits have been collected using questionnaires. There is a dearth of milk consumption data in adults. Although use of questionnaires is cost-effective and frequently used, a qualitative approach, such as the use of focus groups, provides an opportunity to elicit thoughtful responses through open-ended questions that may not otherwise be captured in a questionnaire. Focus groups are a key example of formative research, which can be instrumental in developing an effective education campaign or intervention [10].

Objective

With this in mind, a focus group discussion was conducted to better understand the drivers and barriers to milk consumption and what could be done to increase the consumption of milk in Singapore. In order to achieve this, the focus group discussion addressed the following three key question areas as given below

- What attitudes, perceptions and habits do Singaporean adults have towards milk?
- What could be done to support an increase in milk consumption among adults in Singapore?
- What specifically is driving and inhibiting milk consumption among adults in Singapore?

Methodology

Participants and Recruitment

A thoroughly designed screener, taking into account demographics, attitudes and behaviours of participants, was used to recruit the participants for a focus group discussion. The interview recorded in this screener was conducted strictly according to instructions specified in the screener as well as given in the briefing and/or interviewer guide and ICC/ESOMAR International Code. Informed consent was sought from all the participants. Figure 1 presents information about the sample size and participant profile. Figure 2 shows the participant distribution based on the different milk consumption behaviours.
Screening Criteria

- Singapore citizen
- Male and female, aged between 18 to 65 years old
- Low / mid / high income
- Ethnicity: Chinese, Malay, and Indian
- Parents with children (3 to 17 years old) and non-parents
- Exclude those who are lactose intolerant
- (Cow’s) Milk drinker and non-drinker

Among milk drinkers, recruit heavy and light drinkers
- Those who consume milk in different forms: pure, as added to coffee and tea, in cooking, with cereal etc.

Data Collection

A focus group discussion was conducted to gather the necessary information. A focus group is a data collection procedure in the form of a carefully planned group discussion among about 10 people plus a moderator and observer, in order to obtain diverse ideas and perceptions on a topic of interest in a relaxed, permissive environment that fosters the expression of different points of view, with no pressure for consensus [11]. The most widely
recommended size for a group discussion is between 8 and 12 participants [12, 13].

Focus groups were conducted to determine the overarching attitudes, beliefs, and barriers regarding milk and milk consumption based on personal, behavioural, and environmental factors. Each focus group session had 10 participants and lasted for 90 minutes. The main objective was to focus on liquid milk because consumption patterns of milk and milk products has changed over time with less fluid milk being consumed worldwide: a similar trend observed in Singapore.

Using the focus group facilitation techniques of Krueger & Casey [14] an experienced focus group moderator led each group using a standard semi-structured interview guide. The interview guide was pilot-tested prior to the study and fine-tuned accordingly. The pilot study data is not included in the results of the present report. To ensure as broad a range of insights were captured across a spectrum of Singapore society, quotas were applied to the recruitment process. Therefore, any respondent data collected should not be interpreted as a natural fallout of the total population.

For every session, whiteboards were used to write down key points that were discussed and every participant was given a clipboard, pen and post-it notes that were also used as part of the activity in the focus group discussion. For recording purposes, laptops were used by the note takers and both audio and video recording of the sessions was carried out to record the entire discussion for transcription purposes. Video recording captured the participants’ body language and gestures.

**Development of Focus Group Discussion (FGD) Guide**

The focus group discussion guide consisted of a thorough description of the flow of events in a session, starting with the welcoming procedure, to the ground rules, audio and video recording, introduction, FGD questions.

**Focus Group Questions**

The focus group discussion guide contained a list of questions under two main categories. Table 1 presents the sample questions that were developed to explore personal, behavioural, and environmental factors related to milk consumption, based on the key constructs of Bandura’s Social Cognitive Theory (SCT) [15].

Questions reflected personal factors (e.g. health concerns), behavioural factors (e.g. beverages frequently consumed), and environmental factors (e.g. availability of milk). The three interacting domains of SCT (personal, behavioural, and environmental factors) have been recognised in explaining human behaviour, and were a focus of similar research exploring factors associated with calcium and milk, and milk product intake [10].

**Data Coding and Analysis**

All discussions were transcribed for analysis following standard methodology. During the analysis, a copy of the original recordings and field notes was kept available for the purposes of confirmation or traceability [16]. Transcripts were coded line by line by pairs of analysts assisted by computer software, Transcriber v1.4.2.

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### Table 1: List of Sample Questions used as prompts during Focus Group Discussion

<table>
<thead>
<tr>
<th>Areas of focus</th>
<th>List of Sample Questions</th>
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<tbody>
<tr>
<td>Attitudes &amp; Habits Towards Milk Consumption</td>
<td>• What beverages do you drink most often?</td>
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<tr>
<td></td>
<td>• When do you typically drink milk?</td>
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<tr>
<td></td>
<td>• Do you use milk in other ways in addition to drinking it by itself?</td>
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<td></td>
<td>• In your view, what are the advantages/disadvantages of consuming fluid milk?</td>
</tr>
<tr>
<td>Understand The Drivers / Barriers Of Milk Consumption</td>
<td>• Why do you drink milk?</td>
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<tr>
<td></td>
<td>• Is there anything that ever prevents you from drinking milk?</td>
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<td></td>
<td>• Is there anything that would enable you to consume milk?</td>
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<tr>
<td></td>
<td>• Do you have any specific health concerns related to drinking milk?</td>
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<tr>
<td></td>
<td>• Do your friends or family drink milk?</td>
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<tr>
<td></td>
<td>• Do you have any problems with milk spoiling?</td>
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</tbody>
</table>
Limitations
As with all qualitative research, the findings of this are limited to a snapshot of the target population. Because of the limitations of qualitative research, any “numbers” presented in this report lack statistical rigour. Consequently, they may be used for directional insights but may not be conclusive in nature.

Results and Discussion
The key findings of the focus group discussion will be detailed under the following headings.

The findings of this research are based on participant comments that occurred to some degree throughout the focus group discussions, discounting isolated comments.

Attitudes, Perceptions and Habits towards Milk Consumption
When participants were asked about words that were associated with “Milk”, the strongest associations are with its calcium nutrition; its source animal; its colour; and a strong linkage towards health. It is interesting to note that the participants were aware that milk is a rich source of calcium and is important for bone health. However, 50% of Singaporean residents aged 18 to 69 years of age do not consume any milk. The dietary guidelines on the recommended dairy intake are due to the fact that dairy products are a good source of calcium.

Advantages and Disadvantages of Drinking Milk
Milk is not just about calcium; its nutritional richness is unquestionable. The protein in cow’s milk is of high quality (defined as protein that supports maximal growth), containing a good balance of all the essential amino acids.

On the other hand, the most frequently cited disadvantages of milk consumption were milk’s contribution to weight gain; gastro-intestinal problems, for e.g. diarrhoea; and unpleasantness of the taste of milk in general. Similar reasons were cited in a study conducted in Canada by Lacriox et al., 2016 and in Switzerland by Chollet et al., 2014.

Dairy consumption and its conceivable role in body weight regulation has been explored and contemplated extensively. There is also additional proof to suggest that consumption of dairy products reduces body fat with no effect on total body weight, due to conservation of lean body mass [17-19]; and recent evidence from prospective cohort studies suggests a protective effect of dairy consumption on risk of overweight and obesity [20]. In fact studies have shown that even high-fat dairy consumption within typical dietary patterns has been inversely associated with risk of obesity. Consumption of dairy products has been associated with decreased prevalence of metabolic-related disorders [21, 22].

Low calcium intake as a risk factor for overweight and obesity has been observed in epidemiological studies. Zemel, Thompson, Milstead, Morris, & Campbell [23] and Zemel, Richards, Milstead, & Campbell [24] affirmed the clinical implications of this relationship in weight loss studies performed in low-calcium consumers in whom calcium or dairy supplementation accentuated body weight and fat loss. One of the possible reasons for this association between dairy consumption and healthier body weight might be the role of milk proteins [25].

Importance of Milk Consumption
There is a clear difference between the participants’ perception with regards to perceived importance of regular milk consumption among the adults and the elderly/children. Many participants do not feel they need to drink milk regularly but recognise its importance for children and the elderly. This is a misconception and bone health is taken for granted.

Most of the adults don’t realise that bone is an active living tissue which needs a continuous supply of nutrients. Building bones and maintaining it is a lifetime proposition. It has been noted that the interactions between calcium, inorganic phosphate, protein and vitamin d result in the reduction of bone resorption, reducing bone loss linked to ageing [26]. This has a positive impact on bone maintenance and osteoporosis management.

Drivers and Barriers of Milk Consumption
Participants massively overestimated the percentage of fat content within full fat milk category. Participants perceived milk as a high fat food with fat content ranging 15 to 46%, when the actual fat content is less than 4%. Given that fat content and weight gain were cited as key concerns and barriers to milk consumption, this is clear issue that needs to be solved to dispel such misunderstanding.

While participants are aware of nutritional benefits of milk to bone health, they remain largely ignorant of other health and nutritional benefits of milk. Dairy items may represent an important dietary wellspring of calcium...
There is a growing body of evidence that reduced consumption or avoidance of milk: ‘pairings’ may help to drive greater consumption. Surprisingly taste was a driver for milk consumption as well as a barrier. This is similar to other foods, as preference towards certain foods is very personal. When individuals realise the importance of milk consumption towards their health, then they might consider consuming milk even if they do not have a personal preference for the taste of milk.

Drinking milk is considered less of a cultural norm compared to many other Western countries where it is used more in cooking, as part of the breakfast routine or consumed on its own with a meal. Singapore’s fast-paced society (where people have less time at home for family meals) is also believed to be a key reason for low milk consumption in Singapore. Inadequate milk and milk product consumption may also be related to barriers stemming from one’s culture and community [28].

Milk drinkers within the focus group mostly choose to drink fresh milk over UHT even though fresh milk is considered inconvenient due to its storage requirements and short shelf span, which may stifle greater milk consumption. More needs to be done to better educate consumers on the similarities, benefits and convenience of UHT. The nutritive value of UHT milk changes little by the heat treatment and during storage. There is a slight loss of nutritive value especially in terms of B vitamins namely - folacin, B12, riboflavin, and thiamine. Of special importance is the decrease of available lysine. Lysine losses in UHT processed milk is about 4% as compared to losses during fresh milk pasteurization of 1 to 2%. The loss of lysine is not serious in itself because in milk protein, lysine is in excess [29].

Milk consumption covers numerous occasions. The consumption of milk, when combined with food or beverage options, is driven less by health and nutritional benefit and more by flavor and enjoyment. Educating consumers on the different consumption occasions / ‘pairings’ may help to drive greater consumption.

Reduced consumption or Avoidance of Milk: Implications for Nutrient Adequacy and Health

There is a growing body of evidence that demonstrates the link between dairy intake and a decreased risk of developing several conditions, including hypertension and type 2 diabetes. Unfortunately, many individuals avoid dairy due to the often mistaken belief that they are lactose intolerant. Dairy exclusion dietary regimens may fuel the danger of osteoporosis and contrarily affect other negative health outcomes such as blood pressure control and colon cancer risk [30].

Averting dairy products means missing out on several key nutrients and potential health benefits (e.g. reduced risk of hypertension and type 2 diabetes). It is not recommended to avoid dairy products even if you have lactose intolerance.

There are several recommended strategies to manage lactose intolerance and there is evidence that gradually increasing lactose intake over time can result in colonic adaptation.

Self-Perceived Lactose Intolerance and Dairy Avoidance

In a recent cross-sectional study, individuals who believed they were lactose-intolerant had significantly lower average daily calcium intakes from dairy foods than did those without self-perceived lactose intolerance. A significantly higher percentage of participants with self-perceived lactose intolerance, compared to participants without self-perceived lactose intolerance, also reported having physician-diagnosed diabetes or hypertension. The odds of self-reported, physician-diagnosed diabetes or hypertension decreased by 30% and 40%, respectively, for every 1,000-mg increase in calcium intake from dairy foods per day [31].

Strategies to Increase Milk Consumption

Messages to increase milk consumption should target consumers’ beliefs about the benefits of milk products, dispelling some of the ingrained myths and provide strategies for increasing consumption. In our study, we noticed that the participants massively overestimated the percentage of fat content within full fat milk. The reason could be the product name “Full Fat/Full Cream Milk” resonates with “Fat” giving consumers the impression that milk is nothing but a fattening food product.

Given that fat content and weight gain were cited as key concerns and barriers to milk consumption, this clear issue needs to be resolved in order to dispel such misunderstanding. Messages comparing fat content in
one serving of milk with the fat content of a commonly consumed local food could be better strategy to dispel this myth. Consumers can be encouraged to consume low fat/reduced fat or skim milk varieties if they still feel milk contains too much fat.

This observation is similar to other qualitative studies that were conducted in adult men and women. Lack of knowledge about the benefits of milk and milk products specific to adults appeared to be the most common barrier to consumption. Men preferred messages with factual information and from reputable sources. Women preferred health and well-being messages and disapproved of aesthetic appeals [32].

Conclusion

The majority of participants in our study did not think that milk consumption, as part of their daily diet is important. They felt that they can get the essential nutrients which are present in milk from other food sources. Participants also gave various reasons for not consuming milk and most of them are not scientifically proven. Education is needed to better inform people that prevention of osteoporosis needs to start (before 35 years of age). Besides the prevention of osteoporosis, the benefits of milk in the maintenance of general health and the prevention of other diseases should be promoted.

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References


