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Demographic Differences in usage and Attitudes to Milk

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Abstract
Declining milk consumption is a potential public health problem because milk provides nutrients that are not abundant in other foods. Identification of the factors that may influence milk consumption may lead to development of interventions to promote more healthful behaviours.

Attitudes and beliefs about food appear to be strong predictors of dietary behaviour. The objective of this study was to survey a random sample of consumers in regard to their milk consumption and attitudes and beliefs about milk. Two telephone surveys were conducted one year apart. The questionnaire included attitude items that reflected the main themes of consumers' interest in milk.

The respondents' attitudes were complex and were related to demographics and milk consumption. In general, people's concerns about milk related to what was important in their lives; what threatened them physically and emotionally. Women held more positive attitudes, but they were concerned about the fat content of milk. Men were less aware of milk's nutritional benefits and, as a result, were less appreciative of its value.

The findings from this investigation provide an opportunity to develop appropriate public health initiatives to promote the consumption of high calcium foods and to address the barriers to drinking milk. Nutrition communications in collaboration with other health agencies and the milk industry could support these initiatives.

Introduction
In New Zealand the per capita consumption of milk has declined since 1976 (Figure 1). This is partly due to environmental influences that have affected the availability, purchase and consumption of milk. These influences include the removal of the government subsidy placed on milk in 1942 which reached a peak in 1973 and was eliminated altogether in 1985, the discontinuation of the school milk scheme in 1967, and the impact of dairy export returns on milk pricing. In addition, there are many factors that can influence the habitual food choices of the individual consumer.

The decline in milk consumption has important consequences for the nutritional health of the population, especially its bone health. Milk is a good source of calcium that is well absorbed, relative to other foods (1). The 1997 National Nutrition Survey showed that New Zealanders over the age of 15 years obtain 37% of their calcium intake from milk (2). The predominance of milk as a source of calcium increased with age amongst women. For men, the percentage of calcium from milk decreased with age until 25 to 44 years and increased in older age groups (Table 1).

The findings from the National Nutrition Survey revealed that 20% of the population had an inadequate intake of calcium. Calcium requirements formulated by the United Kingdom Panel on Dietary Reference Values were used in the probability analysis (3). Inadequate intakes were higher among women (25%) than men (14%); especially in those aged 15 to 18 years, women (37%) and men (33%) (2).

Inadequate calcium intakes may contribute to low bone mass and density, especially during growth. Low bone density is a risk factor for osteoporosis, which can lead to fractures. Osteoporosis is a very debilitating and costly disease. It is estimated that 40% of women and 13% of men will have a fracture because of osteoporosis during their lifetime, and that the cost of osteoporosis in terms of health care is almost $200 million per year (4).

Milk as a drink, both in and out of the home, has endured ruthless competition from soft drinks. Their range of products, packaging and availability has increased and the low material costs enable them to be extensively promoted. The consumption of soft drinks in New Zealand has increased by 44% in the last five years. New Zealanders consumed 81.8 litres of soft drink per capita per year in 1990/91 (Figure 2).
The first real generation of soft drink consumers was the teenagers of post World War Two. These 'baby boomers' are now taking soft drinks with them into middle age and beyond. In the United States, data from the 1984 Continuing Survey of Food Intakes by Individuals was analysed to determine whether children and adolescents who consume more soft drinks consume lower quantities of milk (5). The results showed that intakes of nutrients that may be considered markers for milk consumption (calcium, riboflavin, vitamin A, phosphorus, and the ratio of calcium to phosphorus) were inversely associated with soft drink consumption.

It has been suggested that people of all ages who drink soft drinks, instead of milk or other dairy products, will most likely have a lower calcium intake (6). Consumer awareness about calcium and the importance of milk for bone health is largely unknown. Identification of the factors that may influence milk consumption may lead to development of interventions to promote more healthful behaviours. Food behaviours are a product of the environment in which they exist. There are structures in societies that influence food behaviour and actions. The membership of social categories such as gender, age, education, occupational status and ethnicity may influence food selection behaviours and the attitudes and beliefs on which they depend (7-10). In addition, there may be attitudinal factors underlying declining milk consumption that are in need of change. Therefore, as part of a broader study, usual milk intake and consumer attitudes to milk were investigated.

Methods

Two random telephone surveys were conducted one year apart. Respondents were questioned about their usual milk intake and their beliefs about milk. There were 27 attitude items in the questionnaire, which reflected the four main themes of consumers' interest in milk:

- Sensory factors
- Cost and usage
- Health and nutrition
- Age and gender requirements

The respondents were asked to give one of five responses depending on their degree of agreement with each attitude statement. The respondents were asked about their daily milk consumption, either as a drink or added to cereals, tea and coffee. Responses were recorded as: less than ¼ litre per day, between ¼ to ½ litre per day, more than ½ litre per day, or none at all.

There were 713 respondents in the baseline survey and 719 respondents in the follow-up survey, equivalent to their proportions in the Auckland population (Table 2). The ages ranged between 16 and 94 years. Detailed information on the sample and questionnaire is available in the thesis 'Changing New Zealanders' Attitudes to Milk?'

Data analysis

Both questionnaires were analysed using the SPSS package (version 7.5); cross tabulations were undertaken to compare the percentage agreement with the attitude statements. The analyses were undertaken using sex, age, education, occupation, and ethnic and milk consumption groups. To avoid overlap dependence on spurious or chance differences in the observed results, a conservative alpha level of 0.01 was used. Comparisons of the mean scores for the attitude items in the baseline and follow-up surveys showed that they were very similar ($r = 0.937$, $p = 0.0001$).

Milk consumption by demographic characteristics and attitudes was predicted using CHAID, which is a programme part of the SPSS. CHAID (Chi-squared Automatic Interaction Detector) performs segmentation modelling in which a sample is divided into two or more distinct groups based on combinations of categories of the “best” predictor(s) of a dependent variable (11). CHAID was also used to predict strategic attitude statements (determined by CHAID analysis) by demographic characteristics and other attitudes.

Results and discussion

The respondents' attitudes were complex and were related to demographics and milk consumption. In general, people's concerns about milk related to what was important in their lives; what threatens them physically and emotionally. Overall, most people had positive views about milk but their attitudes were polarised according to demographic differences. Misconceptions about the health properties of milk were not widespread. However, they may limit the potential to make milk an every-day part of modern life. The narrow focus of the perceived nutritional benefits of milk appears to have inhibited milk's popular appeal.

Milk consumption patterns

At least one third of the respondents in both surveys consumed less than a glass of milk a day. In general, men drank more milk and a higher percentage of women were non-consumers. Younger people (10 to 30 years) tended
either not to consume or were heavy consumers of milk. Non-consumption was higher among young women (15%) and heavy consumption (more than two glasses a day) was higher among young men (>40%).

Milk consumption was highest among Maori and Pacific people, particularly among young Maori and Pacific men. This was broadly similar to the findings of the National Nutrition Survey, which found that male Maori and Pacific participants consumed more milk than NZ Europeans (2).

The strongest attitude predictor of milk consumption was the statement 'milk is expensive compared to fizzy drinks'. In the baseline survey those who agreed (or were unsure) consumed smaller amounts of milk than those who disagreed (45% and 26% respectively) with this statement. This suggests that among low volume milk consumers, cost may be a barrier. They may prefer soft drinks, which are less expensive. The cost of milk has been identified as a problem by other investigators (12). It suggests that the health benefits of milk may not be realised equally by everyone in the community.

A quarter of the respondents considered that there were too many types of milk available. Older people (30%) held this view more than younger people. This is not surprising, as the range of milks has only been extended in the last ten years. Food preferences are linked to familiarity (13). Consumers are reluctant to shift from their own milk type because of beliefs concerning sensory quality, nutritional and health value and suitability for various purposes (14).

Health and nutrition

Inspection of the respondents’ expressed attitudes suggests that milk has become less relevant to people’s lifestyles and the nutritional benefits of milk are not widely understood. Fruit juice was perceived to have greater health value than milk by a third of the respondents. Similarly, more than a quarter of the male respondents, and Pacific islands and Asian people were not persuaded that milk is ‘better for you’ than soft drinks.

Nearly a third of all respondents were troubled about the fat and cholesterol content of milk. Women were more anxious about fat and men were troubled about the effect of milk drinking on blood cholesterol levels. Low fat milks were generally not well understood. Targeted messages, which illustrate that low fat milks have negligible cholesterol levels but important nutritional benefits, especially in relation to maintenance of strong bones, may help to increase consumption.

Concerns about perceived allergenic properties of milk among children were evident in over a third of the respondents. The unease was greatest amongst older people (over 63 years) and NZ Maori. There was confusion about lactose intolerance and milk, particularly amongst women.

One in five respondents felt they were more or less obliged to drink milk. These feelings were strongest in men over 63 years (49%). This suggests that certain benefits, possibly nutritional, outweighed their weak preferences for it.

On a positive note, most (90%) of the respondents understood that milk is a good source of calcium and is important for bone growth. However, awareness was lowest amongst Pacific islands and Asian people.

Age and gender differences

There were succinct gender and age related differences in attitudes. Women (94%), compared to men (86%), were more aware that milk is a good source of calcium and women (88%), compared to men (73%), were more of the view that milk is better for you than soft drinks. On the other hand, men were less convinced about milk’s nutritional benefits and men (68%) were less inclined than women (73%) to agree that milk is good value for money.

Women, generally, had more positive nutritional beliefs about milk. They were more concerned about weight control and, therefore, their intake of fat from milk. This feminine interpretation of what is ‘good for the body’ supports findings from the literature, which suggest that women have different views of food, in general (15–19).

Older people were the most pessimistic about milk’s nutritional goodness, and a substantial proportion were not convinced that milk has a good taste. Nearly half of the older people appeared to favour taking calcium supplements instead of milk. Older people had the most concerns about milk allergies and felt more obliged to drink milk than other age groups. The findings suggest that older people recognise that they need to drink more milk than young adults, but they do not appear to enjoy milk as much as they could. Usage ideas and recipes, as well as tips about the health benefits of milk, may encourage greater consumption in this group and help to counteract their negative perceptions.

Younger people had more positive views about milk but, nevertheless, it was not a popular choice for them. They had liked milk during their childhood but seemed to lack knowledge of milk’s inherent benefits. Perhaps, as a result, they agreed the least that milk is good value for money and they had the most positive attitudes to soft drinks. The successful targeting of energy drinks amongst younger consumers suggests that a similar positioning may work for milk-based drinks.

Conclusions

Declining milk consumption is a potential public health problem because milk provides nutrients that are not readily accessible in other foods. The findings from the consumer surveys showed that 9.4% of young people (16 to 30 years) consumed no milk at all.

Young people, especially boys, appear to be more attracted to soft drinks, and lack knowledge about the nutritional value of drinking milk. In America, the consumption of soft drinks is more than two-fold higher than in New Zealand. The American Medical Association has expressed opposition to the sale of soft drinks in schools (19). Therefore, it would be prudent to address the situation in New Zealand before soft drink consumption adversely impacts on nutritional status.
Young women may reject milk on the grounds it is fattening. This perception could be overcome by nutrition education. The milk industry needs to work with health agencies in New Zealand to ensure that the education sector provides positive nutrition messages about milk, both within the school curriculum and in the school environment. The consumer surveys showed that younger people liked milk as children, which suggests that milk is unlikely to be rejected if it was made available in school vending machines. To help to improve nutrient intakes, the milk and cereal industry could continue work with schools to encourage children to eat cereal and milk for breakfast.

Amongst adults, there is an apparent barrier to drinking milk because of inaccurate perceptions about its fat and cholesterol content. This provides an opportunity for the milk industry to collaborate with the weight loss industry and the National Heart Foundation to provide positive communications about the benefits of low fat milk.

As previously noted, calcium deficits have serious implications for adolescents and adults alike. There is an opportunity here for the milk industry to form alliances with health organisations to promote the bone protecting properties of milk.

In summary, there is an urgent need to arrest declining milk consumption, particularly amongst children and teenagers. The milk industry alone cannot be held accountable for this problem. Public health initiatives are needed to encourage greater milk consumption, and to help improve the nutrition status of New Zealanders. This needs to be driven by national health policy in collaboration with relevant health agencies and supported by the milk industry.

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