

Food shopping practices and family health

Amanda L Smith

Faculty of Medicine, Monash University, Clayton, Melbourne, Victoria, Australia.

"The way in which a family selects, obtains and stores food has a major impact on diet. This includes who in the family makes decisions about food and how, who does the shopping and where, whether they stick to a pre-determined plan or buy whatever looks good at the time, and how much influence the shopper's knowledge of the health effects of diet has on shopping practices. Ways in which shopping practices could be changed - with a high likelihood of compliance over the long term - to improve the family's diet were considered as an exercise in medical education."

Christine and Peter, (aged 35 and 37 respectively), are both children of Greek migrants. They are married and live in a suburb of Melbourne with their two children, Sophie (aged 10) and Anthony (aged 6). Both parents work, although Christine is not quite full-time. Through observing and interviewing the family, it has become possible to elucidate their normal dietary and shopping patterns, which appear to be fairly stable.

General shopping practices

To some degree, food purchases are made following a standard pattern. A shopping list is compiled by Christine according to the family's usage of the provisions at home. Certain goods are permanently stocked in their cupboard and refrigerator, while with other foodstuffs there is a degree of fluctuation over time with what is bought. (See Table 1 for a typical list of what would be found on any day in their kitchen stores). Their pantry is well stocked with flour, grains, sugar, pasta, nuts and seeds, condiments, canned goods, cereals and oils as well as herbs and spices (not listed) used in cooking. Refrigerated goods include butter, dairy produce, eggs, beverages, preserves and fresh vegetables.

As is fairly common in many families, Christine, as the mother, makes the bulk of the decisions concerning food - in terms of what is bought and eaten. On a fortnightly basis, she will purchase all of the groceries, meats and delicatessen goods that the family require at a local shopping centre. It is left up to Peter to purchase fruit and vegetables from a market near his workplace, which he does twice per week. However, this is also supplemented by produce from their own garden. An outline of the basic foodstuffs consumed and their sources is shown in Table 2.

Making food choices

It is clear that a wide range of considerations are taken into account when Christine and Peter shop for their goods.

With regards to perishable fruit and vegetables, there are items which are regularly bought, such as potatoes, onions, carrots and the fresh fruit which the family consumes - apples, pears, bananas and oranges or mandarins. Additional purchases are made according to what is in season, the price and requirements for cooking particular dishes. On the mornings before Peter shops for these goods, he and Christine will confer about what is required on that occasion.

In general, when buying groceries, Christine tries to have a large variety of foodstuffs available to give her and the family choice in their meals. When her husband Peter cooks - which he will quite often do, especially on the weekends - he will decide what to make. The same applies to Christine. Although she tries to accommodate everybody's tastes and occasionally asks her husband or children what they feel like for a meal, most of the decisions about what is eaten are left up to her. She is also generally responsible for making her and the children's lunches, although Peter prepares his own.

When purchasing meat and poultry, Christine tends to make similar selections each time she buys, choosing so as to have a variety of beef, lamb, pork and chicken available. Sometimes, she may make a special purchase, (for example buying a leg of lamb if Peter has recently remarked that they have not eaten roast lamb for a while). Otherwise, she bases her selection upon:

- Cuts which are appropriate for the meals which the family likes and normally eats;
- The quality of the cut; balanced with
- The price.

Christine does not usually worry about choosing the cuts with the lowest fat content, although she does buy "diet" mince steak. For other meats which have a "visible" fat content, most of the fat (but not always all) will be removed by family members at the table. Generally speaking, Christine has a preconceived idea of what she will purchase. However, if something looks very nice, and especially if it is a good price, she will buy it.

The same holds in the delicatessen, where Christine generally purchases champagne ham, tyroler (continental Strasbourg), Milano salami, mortadella (sometimes) and "pizza topping" (offcuts of all meats). Occasionally she will also take home fetta or ricotta cheese. The meats are mostly for use in sandwiches, though not all family members show the same propensity to eat them - Anthony would eat them "every day if he could", Peter is partial to them, Sophie won't touch them and Christine herself eats them moderately. However, while meat may predominate as sandwich filling one week the family usually tends to run out of them after that time and so will have different fillings each alternate week (such as cheese and salad

Correspondence address: Ms Amanda L. Smith, c/o Faculty of Medicine, Monash University, Wellington Road, Clayton, Melbourne, Victoria 3168, Australia
Tel: +61-3-9905 4301 Fax: +61-3-9905- 4302

Table 1. Normal stores of food

Cereal and grain products		Milk and milk products		Fruits and vegetables	
Biscuits	Saladas Marie biscuits Vitabits	Cheese	Colby "Light" Philadelphia (spread) Mozzarella Parmesan Processed slices	Fresh	Apples Bananas Broccoli Cabbage Carrots Cauliflower Lettuce Onions Oranges Pears Potatoes
Bread	Fruit buns Pastadura Pizza dough	Whole milk		Canned or preserved	Apricots Asparagus Apricots Bean sprouts Beetroot Cherries Creamed corn Garlic Ginger Okra Olives Peaches Pears Pineapple Tomatoes Apricots Fruit Medley Sultanas
Breakfast cereals	All-Bran Cocoa Puffs Just Right Nutri-grain Weeties	Sweetened condensed milk			
Flour	Corn flour White Wholemeal	Evaporated milk			
Pasta	eg lasagne and macaroni.	Ice cream			
Rice	White Brown	Yoghurt, flavoured			
Rolled oats	Muesli bars	Meat and meat alternatives			
Spaghetti (Canned)	Brown	Beef	Chops Mince		
Sugar	Castor Icing	Chicken	Fillets Legs Mince		
Wheatgerm		Eggs			
Condiments, miscellaneous		Ham			
Chocbits	Cocoa	Lamb	Chops Racks	Dried	Corn Peas
Cooking chocolate	Custard powder	Legumes	Large range Large range		
Honey	Icy-poles	Pork	Chops Fillets		
Jam	Jelly crystals	Salami			
Mustard	Nutella	Salmon	(Canned)		
Peanut butter	Prawn crackers	Tuna	(Canned)		
Vegemite		Fats and oils			
Sauces	Worcestershire Soy Tomato, etc	Butter			
		Copha			
		Margarine			
		Olive oil			
		Sesame oil			
				Beverages	Akta-vite, coffee, tea Orange juice

or salmon for the parents, peanut butter, Nutella or cheese and Vegemite for the children).

Christine and Peter never purchase bread since Christine bakes all that they require. She makes a variety, such as multigrain and white, pastadura French sticks or rye.

Beliefs and principles guiding food selection

There are general principles which quite clearly guide Christine in her selection of foodstuffs for the family. She seeks to obtain a balance in their diet and believes that "everything in moderation is okay". As such, meals will contain a protein source (such as meat), starchy carbohydrate (potatoes, bread or

pasta) and vegetables (green and yellow). While she admits to being unsure of the particular vitamin and mineral content of many foods, she believes that by consuming a large variety and by following simple guidelines (eg having green and yellow/orange vegetables together) the foods are likely to complement each other.

As a family, it is rare that take-away foods are eaten. McDonald's or restaurant food may be eaten perhaps once a month and the children may have lunch orders occasionally. Christine and Peter firmly believe that what you cook for yourself is better than what you buy, so they emphasise preparing meals from "whole foods" in their diet.

Table 2. Food purchases

Foodstuff	Source	Frequency of shopping for these goods	Family member responsible for purchasing
General groceries and non-perishable goods.	Supermarket	Once per fortnight	Mother
Meat (including beef, lamb, pork etc.)	Local butcher	Once per fortnight	Mother
Poultry	Local chicken shop	Once per fortnight	Mother
Assorted small goods (eg: sandwich meat & specialty cheeses)	Local delicatessen	Once per fortnight	Mother
Fruit and vegetables	Market	Twice per week	Father
Fresh fish	Home garden		
	Market	As desired (once per fortnight)	Father

Table 3. Normal daily macro and micronutrient intake.

Food description	Daily consumption (g)	Energy (kJ)	Protein (g)	Carb (g)	Fibre (g)	Fat (g)	Sat. fat (g)	Vit C (mg)	Calcium (mg)	Iron (mg)
Food, cereals and grains	392.15	3904.2	25.9	171.2	14.4	18.7	7.9	0.857	210.147	7.440
Fruits	299.98	707.9	2.0	37.5	3.0	Trace	0	58.881	33.002	1.015
Vegetables	318.57	898.5	6.0	23.9	7.0	10.9	0	47.984	85.413	2.158
Milk and milk products	179.29	1140.6	13.9	6.7	0.0	21.5	12.6	2.500	407.645	0.301
Meat and meat alternatives	177.12	1462.0	33.5	1.6	0.4	22.4	8.2	0.857	60.893	3.227
Fats and oils	16.64	568.4	0.0	0.0	0.0	15.3	4.8	Trace	1.214	Trace
Spreads	4.43	43.9	0.4	3.3	0.0	0.0	0.0	0.300	1.886	0.060
Beverages	657.1	13.1	0.7	0.0	0.0	0.0	0.0	0.0	Trace	Trace
Total diet		8738.6	82.4	244.2	24.8	88.8	33.5	111.4	800.2	14.2

In general, Christine believes that it is not necessary to use products such as low fat cheese or milk. She feels that whatever is in a food (if it is "natural") is meant to be there, is good for you and needed by your body (such as calcium in milk). Personally, Christine does not like low fat cheese or milk. She is aware of contemporary health promotion which encourages adults to select them, however she is reluctant to introduce such foods, feeling that they would not be healthy for her children. (In her own words - "children need fat").

Christine and Peter are influenced in their dietary choices by what they see or read in the media. If they feel a recommendation made is reasonable and logical, they will alter their habit. For example, they now use much less butter or oil when cooking (other than in cakes or biscuits) and no salt, although Peter continues to add it at the table. They also have replaced butter in their sandwiches with "Light Philly" (a blend of cream cheese and cottage cheese), something which Christine tried after seeing an advertisement for the product. They have also de-emphasised meat and increased their consumption of bread, fruit and vegetables. Christine feels that possibly they may still eat too much meat, however all family members like it. In general she is reluctant to completely exclude any dietary item, believing that "the more you can't have something, the more you want it!"

Christine does an extensive amount of baking at home, such that there is always cake, biscuits or a slice available to be eaten. These items are included in her childrens' lunches, however, she also purchases other items for this purpose, typically cheesesticks (processed cheese), "Le Snaks" (biscuits and dips), peanut and sultana mixes, and snack chocolate bars. If the children are shopping with her (rarely), Christine will allow them one selection each for their lunches (usually a "Milky Way", "Kit Kat" or similar) as a treat. Occasionally, Christine herself is tempted to purchase something which appeals to her - such as "Chocolate Royals".

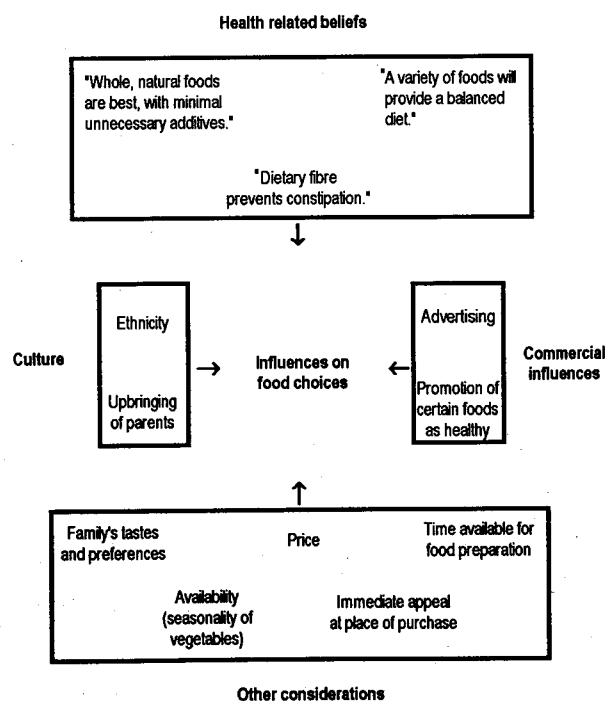
Breakfast cereals are consumed by all family members, however, Christine does not purchase the same varieties each time. The criteria upon which she bases her selection show, perhaps more clearly than in other areas, the range of influences which she is under. In general, she does not "go in for new items" especially ones which are expensive, hence "Weeties" or "Cornflakes" are a regular purchase. "All Bran" is bought, it's high dietary fibre content helping Christine and Anthony to avoid constipation. Christine also buys "Nutri-grain" and "Just Right", "Sustain" or "Komplete" (especially if they are on special). She believes that these have no added sugar and contain many ingredients such as oats, fruit and bran; therefore they are the "really healthy" cereal choices. Christine is likely to have been attracted by the heavy marketing attributed to such products, promoting them as the "healthiest" alternatives.

It is interesting that despite the latter products being quite high in sugar, Christine, in principle, does not like cereals which

are high in sugar. If the children request a new cereal, she will veto their choice after reading the nutritional panel if the product is too high in sugar or artificial colours and flavourings. For example, she will never buy "Fruit Loops" or "Cocoa Pops", but readily acquiesced to "Agro's Bubbles", since they contain less sugar than the former and "Willow Valley" - the company producing the latter variety - is promoted as being health-conscious. "All Bran" is also bought, it's high dietary fibre content helping Christine and Anthony to avoid constipation.

Christine and Peter are second generation Greek Australians, and their ethnicity is reflected in some of their dietary choices. Whilst they do not regularly consume Greek dishes, their oil of choice for cooking is often olive, they believe in eating a variety of fresh fruits and vegetables and quite frequently eat bread with their meals. However, their propensity to include dishes such as stir-fries, lasagne, hamburgers or meat and chips illustrate the "cosmopolitan" nature of their diet.

Figure one summarises the many factors impacting upon this family in their choices of food.

Figure 1. Influences on shopping practice - choices of food

Normal dietary intake

Table 3 includes an abbreviated record and nutritional analysis of the usual daily intake of Christine. Taking her diet as being representative of that for the whole family, one could suggest possible changes in shopping practices which might improve the

family's diet. An appropriate and widely accepted set of criteria by which such an assessment could be made are the current "Dietary Guidelines for Australia" as well as "Goals for National Health" which have been adopted by the Commonwealth Government¹.

The Dietary Guidelines have been developed with the contemporary diet of Australians in mind, which in general provides "more refined fats, sugars and alcohol than are necessary for a nutritious and healthy diet"². Analysis of Christine's diet shows that approximately 38.2% of her overall energy intake is derived from fat (14.5% from saturated fat), 16.3% from protein and 45.5% from carbohydrates. Her dietary fibre intake is roughly 25 grams per day. The guidelines are shown in Table 4, indicating those which seem particularly pertinent for this family of study. In Australia, the general goal of "increasing the proportion of the population who consume a diet consistent with the Australian Dietary Guidelines" has been adopted.² The specific targets for Australia's Health in the Year 2000 and beyond which relate most strongly to this family are also in Table 5.

Table 4. Dietary guidelines for Australians

1. Enjoy a wide variety of nutritious foods.
2. Eat plenty of breads and cereals (preferably whole-grain), vegetables (including legumes) and fruits.*
3. Eat a diet low in fat and, in particular, low in saturated fat.*
4. Maintain a healthy body weight by balancing physical activity and food intake.
5. If you drink alcohol, limit your intake.
6. Eat only a moderate amount of sugars and foods containing added sugars.*
7. Choose low salt foods and use salt sparingly.
8. Encourage and support breastfeeding.

Guidelines on specific nutrients:

1. Eat foods containing calcium. This is particularly important for girls and women.*
2. Eat foods containing iron. This applies particularly to girls, women, vegetarians and athletes.*

*Indicates areas of particular importance to the family of study

According to the analysis of the usual food intake of Christine, appropriate dietary changes would involve:

- Increasing serves of core cereals (particularly wholegrain)
- Reducing the consumption of fat (and particularly saturated fat) as a proportion of total energy intake
- Reducing the intake of refined sugars, and
- Increasing total calcium intake (for some family members).

Changing nutrition - related behaviour

What people choose to eat has been described as "the result of the interplay of ideology with personal and family preferences, within the constraints posed by financial and culinary resources, and the inertia of habituation"³ This "food ideology" is shaped by a number of value systems, not just nutritional quality, but also trustworthiness, price and prestige and degree of liking. This has implications for effective nutrition education, since a major obstacle in the past has been a general lack of understanding of the motives and processes involved in food selection behaviours⁴. Knowledge, habits and prejudices must be considered when recommending dietary change⁵.

With regards to changing specifically nutrition - related behaviour, Thomas⁴ has identified Social learning theory as being appropriate, emphasising the consequences of behaviour. As such, individuals will alter their behaviour if they perceive outcomes of current eating to be undesirable, if changes will

have positive results and if they feel capable of making them (allowing for potential constraints).

Table 5. Goals and targets for Australia's health in the year 2000 and beyond (food and nutrition) (Note: only those of particular relevance to this family of study have been included). Targets: for the year 2000.

Priority population	Target	Level
Adults (25 - 64)	To increase the average no. of serves or core cereal food in the diet (Baseline: males 7.5, females 7)	+20% (m) +27% (f)
Young people (10 - 15)	To increase the average no. of serves or core cereal food in the diet (Baseline: males 7.5, females 7)	+20% (m) +18% (f)
All Adults (18+)	To reduce the average consumption of dietary fat as a proportion of total energy intake (Baseline: 33.7%)	30%
Adults (25 - 64)	To reduce the percentage of saturated fat in total energy intake (including alcohol). (Baseline: 16%)	13%
Young people (13 - 15)	To reduce the percentage of saturated fat in total energy intake (including alcohol). (Baseline: 17%)	14%
Entire population	To reduce the average consumption of refined sugars (sucrose syrups, honey) (Baseline: 15.3%)	-13%
Young people (10 - 15)	To reduce the percentage eating >15% of energy as refined sugars (Baseline: 30%)	20%
Entire population	To increase up 1000 mg per day the total calcium intake excluding supplementation in the Australian diet (Baseline: 904 mg/person/day)	+10%

Christine and Peter exhibit a high degree of interest in providing a sound diet for their family. Whilst constraints of time and money exist, they should be no barrier to potential improvements in their eating. It seems clear that some of the health related beliefs of Christine (who is primarily responsible for food choices) are more culturally rather than scientifically based, however both she and her husband appear willing to adopt health-promoting measures to some degree, once they become aware of them. Some education related to the nutritional values of foods would probably be of value to them, especially since they are continually being exposed to commercial information which promotes food more on the basis of enjoyment and lifestyle, rather than nutritional value.

Such simple measures would enable Christine, for example, to understand more accurately the nutritional panels on breakfast cereals and choose those which are lower in sugars, fat and salt. It is interesting that whilst food additives have been shown to be extremely safe, Christine is not alone in her concern about such components. Studies indicate that many consumers feel that they are unhealthy and unnecessary⁶.

Recommendations for change

While Christine has exhibited an unwillingness to eliminate or overly restrict any component of the family's diet, it would be worthwhile if she were able to implement a change in the overall balance, emphasising lower fat, high fibre foods rather than less healthy alternatives. She has indicated that it probably would not present a problem to alter sandwich fillings (for example, including less sandwich meat), since a fairly wide variety of suitable foods are deemed acceptable or appealing by her family. Since most meals, biscuits and cakes are home-baked, it would be valuable for Christine to consider ways in which she could

make these more nutritious. Many low fat, low sugar recipe alternatives for the traditional baked goods are readily available.

It is not appropriate to apply all adult guidelines to children and indeed international bodies vary in their recommendations as per the ideal fat content of their diet. Since adequate energy is essential for growth and normal development some have warned that decreasing fat intake excessively is wrong⁶. With this in mind, there is probably nothing wrong with Sophie and Anthony having a moderate intake of certain higher fat products (such as ice cream and certain cheeses) even if their parents choose to limit their intake of these. However, since early education in healthy eating behaviour may help to establish more appropriate eating patterns for later life, the parents should not underestimate the value they play as role models.

Rather than describe many possible changes in shopping practices which could be of benefit here, these have been outlined in Table 6. In summary, they are relatively simple, involving choosing meats which are lean, having more fish, less processed meats, increasing intake of cheeses which are naturally low in fat (such as ricotta) and liked by the family, selecting wholemeal flours, rice and pasta and possibly buying more fruit and vegetables. Of course, these measures need to be accompanied by appropriate cooking practices and meal planning in the home environment.

Table 6. Some recommendations for more health-promoting shopping practices

1. At the supermarket:

- Choose wholemeal and wholegrain products (flour, pasta, etc) whenever possible.
- Read nutritional panels on breakfast cereals to choose low fat, low sugar and low salt alternatives (or alternatively carry a list of appropriate choices).
- Try to avoid buying high fat, high sugar foods such as muesli bars or chocolate bars and opt for alternatives such as

popcorn, low fat yoghurt, dry biscuits and low fat spreads etc.

- Carry a list detailing those cheeses which are high and low in fat and try to minimise purchases of higher fat choices.
 - Choose fish canned in water or brine, or at least in fish oil (which provides omega - 3 fatty acids).
2. At the delicatessen:
- Purchase more low fat cheeses (such as cottage or ricotta) which the family like.
 - Try to limit purchases of luncheon meats (such as ham, salami etc).
3. At the butcher:
- Try to choose cuts of meats which are lean (or alternatively remove all visible fat prior to cooking).
 - Avoid purchasing products such as sausages which are high in fat.
4. At the market:
- Quantity and variety of fruits and vegetables purchased could readily be increased.
 - Fresh fish could be bought more frequently as an alternative to meat.

References: 1,8,9,10,11

In Conclusion

In our commercial society, shopping practices should not be underestimated in their effect upon the overall nutritional status of an individual. It can be seen that in the particular family which has been considered here, their overall approach to their diet seems to be a healthy one, since it includes a good variety of foods. Nevertheless, there are some relatively straightforward, simple changes which may be made in the interests of better health and, given the attitudes of the parents, it is likely that they might be willing to implement at least some of these.

References

1. National Health and Medical Research Council Dietary Guidelines for Australians. Australian Govt Printing Service, Canberra, 1992.
2. Nutbean D, Wise M, Bauman A, Harris E, Leeder S. Goals and Targets for Australia's Health in the Year 2000 and Beyond. University of Sydney, 1993.
3. Santich B. Good for you: beliefs about food and their relation to eating habits. *Australian J Nutr and Dietet.* 1994; 51 (2): 68-73.
4. Hehir A. Nutrition education. *Australian J Nutr and Dietet.* 1993; 50 (2): 75-77.
5. Arney WK & Teddy J. The importance of food preferences in menu planning *Australian J Nutr and Dietet.* 1992; 49 (4): 132-135.
6. Crowe M, Harris S, Maggiore P & Binns C. Consumer understanding of food - additive labels. *Australian J Nutr and Dietet.* 1992; 49 (1): 19-22.
7. Magarey A, Daniels L & Boulton J. Reducing the fat content off children's diet: nutritional implications and practical recommendations. *Australian J Nutr and Dietet.* 1993; 50 (2): 69-73.
8. Wahlqvist M. and Strauss B. Clinical nutrition in primary health care. *Australian Family Physician.* 1992; 21: 1485-1492.
9. National Health and Medical Research Council. Implementing the Dietary Guidelines for Australians. Australian Government Publishing Service, Canberra. 1989
10. Briggs D. and Wahlqvist M. *Food Facts.* Penguin, Melbourne. 1984
11. Wahlqvist M. *Food and Nutrition in Australia.* 3rd Ed. Nelson, Melbourne, 1988.