CHAPTER IV

RESULTS AND DISCUSSION: SOCIOECONOMIC CHARACTERISTICS OF PARTICIPANTS AND FOCUS GROUP DYNAMICS

Introduction

Research goals were to understand perceptions and motivations of educated, older, Caucasian women relating to dairy food consumption. Results of focus group discussion were described according to important themes derived from analysis of all focus groups collectively. In this chapter, socioeconomic characteristics of participants, group dynamics and results of introductory activities are presented and discussed to provide a description of participants and introduce focus group themes.

Socioeconomic Characteristics of Participants

Result of the demographic questionnaire are presented in Table 2. There was a total of 24 participants in the three focus groups. Warm Hearth Village was the smallest focus group with only five participants; Westminster Canterbury had nine; and Silver Hill had ten. In both of the larger focus groups, one participant left before filling out the questionnaire; therefore, results represent 22 participants.

In all focus groups there were no women under 65 or over 89 years of age. A total of 12 participants were in their 70's, and 9 were in their 80's. Warm Hearth and Westminster Canterbury had a fairly even distribution of women in their 70's and 80's, whereas the majority (77%) of women in the Silver Hill group were less than 80 years old.
All women in the focus groups had at least a high school degree. Only two women at Silver Hill went beyond a high school degree to attend some college, while those from Westminster Canterbury had all attended some college and three received a graduate degree. Warm Hearth fell in between with two women who had received college degrees.

By comparing socioeconomic characteristics of women in this study to national survey results, it is apparent that the group of educated older women in this study represented a unique sub-population. U.S. Bureau of the Census (1995) reported that among the noninstitutionalized population aged 65 and older in 1994, 37.6% received only a high school education. In this study, 41% of women (9 of the 22) had completed a minimum of high school, which is similar though slightly higher than national averages. The 1995 U.S. Bureau of the Census also reported that only 9.4% of non-institutionalized women over 65 years had finished four years of college; 27% of the women in this study had at least a college degree while another 13% had received a graduate degree.

Women were not asked to disclose their income levels in the demographic questionnaire as this was believed to be a sensitive issue for this population; therefore, place of residence was used as an indication of income. The high level of education of women in this study, was desired because it is often used as an indication of income. This difference in educational level is also important because it can play a role in food choices and design of nutrition education programs. Briley (1989) commented that educated individuals may be more likely to use food labels, and these individuals may have broader food choices due to greater lifestyle influences

Table 2- Socioeconomic characteristics of focus group participants[a]

	Focus Group Sites:			
Characteristic	Warm Hearth	Westminster Canterbury	Silver Hill	Total
Age:				
65-69			1	1
70-79	2	4	6	12
80-89	3	4	2	9
Highest level of education				
High School Degree	2	0	7	9
Some College	1	4	2	7
College Degree	2	1	0	3
Grad Degree		3	0	3
Live alone				
yes	5	6	8	19
no	0	2	1	3
Prepare own meals				
Never	0	1	0	1
Sometimes	4	5	2	11
Almost always	1	2	6	9
Always	0	0	1	1
Eat alone				
Never	0	2	1	3
Sometimes	0	6	2	8
Almost always	5	0	6	11
Always	0	0	0	0
Follow prescribed diet				
yes	3	1	6	10
no	2	6	3	11
Low fat	2		2	
Low cholesterol	2		2	
Low salt	2		2	
Low calorie	2		2	
Other			1	

[a] n=22 participants; two participants did not fill out the questionnaire

through travel or reading. In addition, educated women would benefit from more sophisticated nutrition education programs.

Older women represented in NHANES III and the 1987-88 National Food Consumption Survey (NFCS) were of mixed socioeconomic status, and results indicated an inadequate consumption of dairy foods in this population. It is possible that women at a higher socioeconomic level may consume more dairy foods thus have different attitudes and perceptions about these products. For this reason, it would have been beneficial to include a dairy food consumption survey to gain an understanding of where women in this study fall on the continuum of dairy intake. However, women's comments on calcium supplement use led researchers to the conclusion that women might have had an adequate calcium intake, but this was probably not due to consumption of dairy foods.

Nineteen (86%) of the women in this study lived alone; one lived with a husband, and two others were sisters who lived together. The three who did not live alone also reported that they "never" ate alone. Overall, half of the total participants reported that they "almost always" ate alone, but this varied considerably between groups. At Warm Hearth, all women reported they "almost always" ate alone, while at Westminster Canterbury most women reported that they only "sometimes" ate alone. At Westminster Canterbury, five women reported that they only "sometimes" prepared their own meals. That facility was different than other facilities because one cafeteria meal a day was automatically included in the residents' rent, though women were not required to consume this meal. This might explain the trends mentioned above.

Since women have a longer life expectancy than men, many older women are widowed; for this reason, only 40% of women over 65 live with their spouses (U.S. Bureau of the Census, 1995). By the age of 75, over 50% of women live alone though this varies by race (U.S. Bureau of the Census, 1995). Widowed African-American and Hispanic women are more likely to live with their families, while white women tend to live alone (Schlenker, 1993). All women in this study were Caucasian which may explain the high percentage of women who lived alone.

Almost half of the women reported following diets prescribed by their doctors, including low fat, cholesterol, salt, and/or calories. Most women who reported following a specific diet were watching not one aspect but a combination of things, such as fat, cholesterol and sodium. At Westminster Canterbury, all but one woman reported that they did not follow a restricted diet prescribed by their doctors, but many still checked choices such as low fat, low cholesterol and low sodium and commented that they followed these diets on their own accord. One woman at Westminster Canterbury omitted this question completely.

Most older people have at least one chronic condition; the three most frequently reported conditions in 1994 were arthritis, hypertension, and heart disease (Administration on Aging, 1996). Recommendations for the treatment of hypertension often include decreasing sodium intake, while dietary treatment for heart disease includes lowering total fat, saturated fat and cholesterol in the diet. With 36% of elderly adults suffering from hypertension and another 32% with heart disease (Administration on Aging, 1996), it is not surprising that almost 50% of the women in this study reported following a prescribed diet.

These socioeconomic data indicate that the focus groups included the population of women that was targeted. Women were free living and capable of preparing their own meals

as all but one woman at least "sometimes" prepared her own meals, and nearly 50% of the women "almost always" prepared her own meals. Women were also educated women, an indicator of a higher income sample. In the case of the two subjects who were sisters, one was dependent on the other and did not truly represent an independent living elderly woman. However, this had little effect on the focus group discussion as this subject was also hearing impaired and contributed very little to the discussion.

Group Dynamics

When interpreting responses to focus group questions, it is necessary to consider more than just the direct verbal responses. The participants' characteristics and group dynamics, such as the size of the group, relationships within the group, and other interactions among group members influence the type of responses that are obtained.

At Warm Hearth, the focus group of five women was conducted in a library/conference room at the facility, which was an appropriate setting for the focus group as it was private and quiet. Women in this group participated in activities such as ceramics, weekly dining out with other women, travel with friends, playing piano and garden club. Women appeared to be acquaintances but not close friends. The smaller size of this group promoted open discussion without confusion. This was the only group to bring up additional topics at the end of the discussion. For example, one women instructed the moderator to turn the tape recorder back on, then made the following comment about cost, *"Okay, that's something we need to discuss, the price of these things..."*. This was the only site where subjects were recruited through flyers which might have made it more likely that participants were interested in health and nutrition. In addition to its small size, the group at Warm Hearth was unique in that it was the first focus group conducted and the researcher's skills as a moderator increased during subsequent groups.

The setting for the Westminster Canterbury group was a conference room where two large rectangular tables had been pushed together to form a square conference table. As with other groups, women in this group participated in a variety of activities including swimming, attending theaters and symphonies, playing golf, playing bridge, socializing and sewing. This was the only group of women that exhibited visible physical handicaps as one woman used a walker and another was in a wheelchair. In addition, this group had more difficulty with the questions than other groups due primarily to poor hearing. The size of the table placed people far apart from one another which further contributed to hearing difficulty. Women at this site were quiet and polite; at times women had to be addressed individually in order to participate. The social director at this site admitted that she tried to select women who were not always as active in events which could partially explain their behavior. Near the end of the focus group women became more animated and contributed information. Finally, women at Westminster Canterbury differed in that they took a longer period of time to complete the questionnaires because they carefully read each question and were reluctant to sign the consent forms before examining them closely.

The women at Silver Hill in Virginia Beach were another active group that participated in activities such as painting, square dancing and numerous group trips to see plays and dine out. They were very talkative, and many tried to speak at the same time. This problem was confounded by the fact that this was the largest focus group with ten women and unfortunately took place at a long rectangular table which sometimes resulted in side conversations. Women in this group were very outspoken and adamant in their beliefs and had a greater tendency to

lose the focus of the discussion and include other food related topics. Information relevant to specific questions was often brought up during later questioning. Women in this group did appear to be closer friends than the women in previous groups which is sometimes not ideal for focus group discussions. At this site, the social director who was also a resident wished to recruit subjects herself. She also participated in the discussion and could have affected the desired feeling of equality within the group. It is also likely that she selected friends and other outspoken women who she felt would contribute a lot to the discussion.

Focus Group Activities

Factors Affecting General Food Choices

The initial activity during the focus group (Appendix E) addressed factors that influence general food choices. By rating four factors (good for me, taste good, easy to use, and low cost) in order of importance and sharing their choices with the group, women began to think about food choices. In addition women had the opportunity to speak out in the group. Since this activity was intended to be an ice breaker and the data were not specifically about dairy foods, results are reported separate from major themes of the focus group.

Women in all focus groups most often chose "Good for Me" or "Taste Good". Women who selected "Good for Me" made comments such as, *"...and I want it good for me. I try to pick out what keeps me healthy."* Many women who made this choice mentioned specific health conditions that affected food choices. The following is a woman's justification for selecting "Good for Me", and it is represents a typical response, *"...mainly because I have problems, digestive problems and things like this, and I have high cholesterol, and so I have to be very careful about the kinds of food that I choose and prepare."* In addition to comments such as these, three women were diabetics, so the correct diet was essential.

Women who selected "Tastes Good" usually offered long justifications for their choices. In contrast to other group members who felt their health was a priority, these women commented that they were in good health and ate what tasted good to them as seen in the following quote, *"I haven't had any problems except for lactaid (lactose intolerance). And I feel as long as I'm going to have to eat, I may as well have what tastes good."* In two focus groups, it was mentioned that one's sense of taste and smell declined with age so it was even more important for food to taste good. The following quote illustrates this point:

> *But then, you know, when you get older, your taste buds are not as acute as they used to be and you will sometimes fix something for dinner and you think, oh this is going to taste so good, cause you remember it from 25 years ago, how good it tasted, ... it's because of age related problems with your mouth. Really and truly your taste buds do get dull... and your sense of smell gets dull... and it's the two things together that make food taste good.*

One woman explained that taste changes were due in part to dental work, *"A partial or a plate will decrease the sense of taste thus we are looking at tastiness more than you are."*

Taste acuity has been found to decline with age, particularly the ability to detect salty and sweet tastes though there is no significant loss of taste buds (Ferrini and Ferrini, 1992). Elderly adults who experience a severe loss of taste sensation often have other conditions such as dentures, a history of smoking, and medication side effects (Ferrini and Ferrini, 1992).

Dentures can be uncomfortable, can block taste buds, and can leave a residual taste in the mouth, all of which affect taste sensation. Decreases in saliva production in the elderly can also affect taste by limiting the amount of dissolved substances that reach the taste buds (Martin, 1991).

Kamath (1992) found that taste and smell were among the strongest influences when considering factors that determine food choices in older adults. As found in Kamath's study (1992), women in this study attributed taste changes to dental work and decreases in the acuity of taste and smell. Briley (1989) reported that physiological changes associated with eating pleasure such as vision, hearing, taste and smell, can play an important role in food choices. However in our study, hearing or vision losses were not mentioned in relation to dairy food consumption.

Only one woman in all focus groups selected "Easy to Use" as the most important factor and responded, "*Mine is easy to use because I hate to cook. Cooked all my life.*" Other women did mention this as an important factor but not the most important one. One woman took the opposite view and explained, "*I'm forever in a hurry, always, we're always going someplace..... and so I'm very busy and I don't have time to cook though I love to cook...*" While time and willingness to cook influenced these women, no women mentioned that they found cooking to be physically challenging. In addition, no women in these focus groups chose "Low Cost" as their most important factor. As no women in the groups had a low income, this response was expected.

Listing Dairy Foods

Following the food choices activity, women were asked to make a list of different types of dairy foods while the assistant moderator recorded the list on a large sheet of poster paper. This activity was designed to focus women on dairy foods, to help clarify which foods constituted dairy foods, and to familiarize women with speaking in the focus group setting. Furthermore, the list of dairy foods served as a reference list throughout the discussion. This helped women consider the broad range of dairy choices and avoided a focus on milk alone. This activity was very effective as it not only resulted in a varied list of dairy foods, but also identified some misconceptions about dairy foods. In two of the focus groups, this activity served as an effective ice breaker prompting additional discussion of topics that were further addressed during subsequent questioning. Examples are advantages and disadvantages of dairy foods such as calcium and fat content. When these topics were later addressed, women often referred back to original comments or ideas. This activity was the least effective in the Silver Hill focus group because this group of outspoken women did not need another activity to initiate discussion, and the open brainstorming actually promoted too much discussion and efforts had to be made to regain control of the group.

Lists from all focus groups were very similar; women often listed dairy foods such as milk, cheeses, yogurt, ice cream, cottage cheese and casseroles containing milk and cheese. In each focus group, one woman wanted to include eggs on the list of dairy foods. It was clear that not all women shared this misconception as they corrected each other when eggs were mentioned. In addition to the basic list, the Warm Hearth group had a detailed discussion of different types of puddings and custards which reminded them of their childhood. Women felt these foods "*must be a southern dish*". Westminster Canterbury mentioned many more rich dishes that used milk and cheese such as milk gravy, quiche, cream sauces, cream soups, and casseroles. Silver Hill's list included a large assortment of gourmet cheeses such as Brie and

Gorgonzola. These types of foods were expected because of the education and income levels of the women that were recruited.

During the listing process, most of the predominant themes of the focus group discussion were initially mentioned. Once mentioned these themes could be easily discussed at the appropriate time in the focus group discussions. Low fat products were emphasized and comments like "*Alpine Lace®, a low fat cheese."* and *"You can get it low fat."* were common. In addition to listing types of products, women in all focus groups listed and discussed specific brands used such as Breyer's®, Healthy Choice®, and Snackwell's®. Listing of some dairy products, specifically cheeses, elicited other health concerns such as high cholesterol and sodium content in these foods. Packaging concerns were also initially mentioned at this time with reference to the lack of availability of small packages of both cottage cheese and reduced-fat ice creams. Even calcium supplementation was mentioned when one woman reported that she drank skim milk for the calcium content and another woman responded, *"Tums® help too."* Further questions were designed to elicit these types of responses and their mention in a simple listing activity demonstrated the predominance of these themes.

Changes Across the Life Cycle

The third activity accompanied the seventh focus group question (See Moderator's Guide, E) and required women to reflect on different stages in their lives and consider times when more or less dairy products were consumed. It was designed to stimulate thought about factors that changed food choices. This activity did not elicit much discussion with this age group. Women had difficulty with the directions and could not specifically remember dairy consumption patterns in the past. Despite the limited amount of discussion, two important points arose from this activity. Many women drank milk as a child because their parents told them to do this, and they drank milk during pregnancy because they knew they should. Women were very vague about why they felt they should drink milk during pregnancy and made comments such as, *".. and pregnancy I just knew I had too."* Some women felt they actually drank more milk now and cited calcium as the reason for this change, *"Then after I retired, sensing a need of calcium, have gone back to it."* For the most part, results of this activity were too general to really address factors that influenced change.

Focus Group Themes

Results obtained from focus group questions are reported thematically. Themes are divided into Perceptions of Dairy Foods and External Influences, Chapters V and VI respectively, outlined in Table 3. Perceptions of dairy foods include both positive and negative health beliefs associated with dairy foods as well as sensory attributes of dairy foods. These themes represent the two predominant factors women initially identified as influencing food choices, "Good for Me" and "Taste Good". These two themes, health perceptions and sensory attributes, are reported in one chapter because they often act together to influence food choices. For example, women will not consume a food if the taste is not acceptable despite perceived health benefits and vice versa. This relationship resembles the food preference model of Randall and Sanjur (1981) where characteristics of the food such as taste and texture interact with individual characteristics, including nutrition knowledge and health attitudes, to influence food preferences. Similarly, in the model by Shepherd (1989), food properties and nutritional content affect the person's perceptions of the food. Health perceptions in relation to sensory attributes noted in this study are discussed at the end of Chapter V.

Calcium supplements, such as Tums®, are also discussed in Chapter V because they represent an alternative to obtaining calcium from dairy foods and may be associated with health perceptions of dairy foods. Based on women's comments, it is clear that women perceived some dairy foods as high in fat which may have contributed to the use of calcium supplements.

External Influences, discussed in Chapter VI, included subjective norms, media and environmental factors such as packaging concerns and cost. The term, subjective norm, borrowed from Ajzen and Fishbein's theory of reasoned action (1980), refers to a person's perceptions that important others desire the performance or nonperformance of a specific behavior such as the consumption of dairy foods, in this case. The themes, subjective norms and media influences, are not perceptions about dairy foods but represent factors that influence the development of such perceptions. Environmental influences such as packaging size, difficulty opening, and cost of dairy food represent factors outside the women's control. These factors do not represent perceptions about dairy foods, but are motivational factors affecting purchasing and consumption of particular commercial products.

Table 3- Focus Group Themes

Perceptions of Dairy Foods
Positive Health Perceptions
Calcium
Other Perceived Health Benefits
Negative Health Perceptions
Fat content
Cholesterol
Sodium
Calories
Lactose Intolerance
Others
Calcium Supplementation
Sensory Attributes
Health Preferences and Sensory Attributes
External Influences
Subjective Norms
Media
Environmental
Availability of small sizes
Difficulty opening packages
Expiration Dates
Cost

CHAPTER V

RESULTS AND DISCUSSION: PERCEPTIONS OF DAIRY FOODS

One justification for this research was the important role calcium containing dairy foods play in preventing chronic diseases such as osteoporosis. With this in mind, one objective was to understand older women's perceptions of dairy foods. In this section, major themes relating to perceptions of both positive and negative health perceptions of dairy foods are discussed. These health perceptions as well as sensory attributes act as motivating factors in consuming or not consuming dairy foods. Calcium supplementation also is discussed as it was widespread in this sample of older women and appeared to be associated with osteoporosis. Following discussion of the themes, the combined influences of health perceptions and sensory attributes are discussed.

Positive Health Perceptions

Calcium

Women in this study were aware of the high calcium content of dairy foods and considered this to be a positive health benefit. When participants were asked to list dairy foods they consumed regularly with reasons for these choices, calcium was often offered as an explanation. Furthermore, calcium found in dairy foods was associated with bone strength. This belief was demonstrated in quotes about dairy foods such as: "*Supposed to be good for bones, building bones and for calcium*." When one woman admitted she was not much of a milk drinker, a fellow group member responded, "*You're not going to get strong bones!"* Even before participants were directly asked about advantages of dairy foods, women in all focus groups mentioned the calcium content of dairy foods and several women deliberately drank milk or consumed other dairy foods with this benefit specifically in mind as illustrated by the following quotes," *I drink big glasses of 1% milk all the time because I need the calcium."* and "*Then after I retired, sensing a need of calcium, have gone back to it (drinking milk) ...and like her, I found I am shrinking."*

Women perceived calcium as an important nutrient and discussed it in relation to osteoporosis. Later in the discussion, when asked what osteoporosis meant to them, women responded, *"Lack of calcium."* Other associations included, "*Humpback", "The reason I'm shrinking.", "Brittle bones", "Curvature of the spine",* and *"Soft bones, you fall down and your bones break."* Women in all focus groups felt it was a realistic threat for them, *"We're all threatened with it, everybody's threatened with it. ... after age 50, I think, you're threatened with it* ." Following the discussion of osteoporosis, women in two groups initiated discussion about calcium supplements, particularly Tums®, which suggested to the researcher that an association exists between osteoporosis and supplements. This is discussed in detail later in this chapter.

Other Perceived Health Benefits

In addition to the calcium content, a member of each group mentioned that dairy foods contain vitamins and other nutrients, although references were brief and did not represent a predominant perception about dairy foods' health benefits. Furthermore, no specific nutrients were identified by the women which led researchers to conclude that women were unsure of

what the other nutrients actually were. The following quotes are representative. When discussing the relative importance of dairy foods, one women replied, "*Well it (dairy foods) has a lot of other nutrients other than calcium*.." During a discussion of the advantages of dairy foods, a member of a different group replied," *Well I figure it (dairy foods) has a vitamin in there that we oughta eat*." The previous quotes demonstrate the ambiguity surrounding additional nutrients in dairy foods. In addition to these nutrients, one women considered cheese to be a good energy food and responded, "*I think it (dairy foods) gives you energy. Cheese specially*." Throughout the focus groups, no specific mention of protein, vitamin D, vitamin A, or phosphorus was made. Despite the educational level of this sample of women, future educational efforts should focus on the different specific nutrients found in dairy foods and the importance of those nutrients to health.

Negative Health Perceptions

High Fat

A predominant theme throughout the focus groups was that many dairy foods are high in fat, particularly cheese and ice cream. Women frequently discussed the need to lower fat in all aspects of their diets, including the dairy group. Women felt that lowering fat was important for weight control and good health. This theme was evident throughout the discussions, starting with the introductory activities and carrying through to the final question about product improvements. From the women's emphasis on fat, in might be concluded that this negative perception outweighed the positive health benefits of dairy foods for these women. Women often used reduced-fat or fat-free products to limit fat intake but did not always find them to be satisfactory. Skim milk, 1/2%, and 1% milk were frequently mentioned as alternatives to whole milk. It was clear from the discussions, that the message to lower fat intake had reached these women.

The emphasis on fat content of foods in general is illustrated by the following quotes: *"Right, everything has to have no fat." , "I think overall, becoming more conscious of fat and everything, we're trying…We're trying to eat healthy is what we're really trying to do. "* and *"... so everybody should be trying to cut out the fat. "* Emphasis on lowering fat in the overall diet, related specifically to dairy foods is seen in this quote: *"I don't eat ice cream. I had heart surgery and I'm supposed to stay away from fat, I mean the real ice cream. I don't eat the real ice cream..." and " In cheese of course, the less fat involved, the better for us. I'm just talking about us older people, the less fat, the better for us."*

When the topic of low-fat foods was mentioned within each group, it often instigated further discussion about ways to lower fat or avoid fat in the diet. Women offered each other suggestions such as these: *"...the vanilla yogurt is good mixed in with just a little bit of mayonnaise if you're having fruit salads. Instead of using a lot of mayonnaise, just use more yogurt, of the vanilla."* and *" Well, I use yogurt, plain yogurt, for, instead of sour cream."* Women frequently discussed the low-fat dairy foods they chose such as skim milk, frozen yogurt and low fat ice cream, reduced fat cottage and cream cheese, and reduced fat solid cheeses. *"Alpine Lace ®(reduced-fat Swiss cheese), I buy that because of the low fat content." "Guilt Free® ice cream. No sugar, no fat and it taste wonderful." "Sour cream. I eat light sour cream."* Skim milk was recognized by many of the older women as an alternative to high fat dairy foods. "*Nobody drinks whole milk anymore except for the children."*, and *"I have cereal with non-fat milk in it." "I never have 2% or 1%, I always have either 1/2% or skim*." Some women chose to eat the high fat products, but they were still aware of the fat content. *"I eat it (real ice cream) fairly regularly, but I feel like it's rather fattening*."

The emphasis on fat could be due to many factors. As previously mentioned, heart disease is one of the most prevalent chronic conditions affecting elderly adults. Nutrition therapy for such conditions includes lowering total fat and saturated fat in the diet. Physicians often emphasize the importance of lowering fat in the diet as illustrated by the following quote, *"None of my doctors... they don't want you to eat fat."* In addition, women's concerns about fat content could be related to a desire to lose weight and could be influenced by the overwhelming amount of media promoting fat reduction as a means of weight loss. Reduced-fat and fat-free products have dominated the food industry and flooded the market in recent years. It is inevitable that independent living women, responsible for shopping, would encounter such products.

As a predominant theme in this research, emphasis on the fat content of dairy foods has also been the focus of numerous studies of all age groups. When extensive research was conducted on women aged 25-44 years old to identify consumer attitudes that affect milk consumption, the number one attitude identified was that milk is a fatty food (Anonymous, 1996). Popkin et al. (1992) compared elderly dairy intake data from the 1977-1988 and the 1987-1988 NFCS and found an increase in consumption of low-fat milk and milk products and a decrease in consumption of high fat milk and milk products. Patterson (1996) examined diet practices in over 7,000 women aged 50-79 years and found that low-fat diet practices were prevalent in this population. Results of the socioeconomic questionnaire indicated that almost 50% of women in this study followed some form of prescribed diet; 40% of whom indicated the diet was low in fat. Patterson (1996) reported that 36% of the women studied usually drank non-fat skim milk; similar trends were identified through this focus group research. Many women mentioned daily consumption of reduced fat ice creams, skim milk, 1/2% and 1% milk as lower fat dairy choices. Shepherd (1988) found that females generally had more favorable attitudes towards low fat milk consumption regardless of age or social class. According to Patterson (1996), white women and women of higher socioeconomic status reported significantly more low-fat practices that other women of the same age group. Light et al. (1992) reported that certain dairy foods, such as whole milk, cheeses, butter, and ice creams, have been associated with negative health factors, such as fat, cholesterol and calories, which may have a detrimental effect on consumer acceptance. Similarly, this study found that women identified fat, calories, cholesterol and salt as disadvantages of dairy foods.

High Calories

While the fat content of dairy foods was a great concern to the majority of women, high calorie content was briefly mentioned but was not a predominant theme. Dairy foods were associated with high calories by women in two of the three groups. An illustrative quote is, *"If it isn't lower in calories I won't use it, like cheese or something. If it's regular cheese I won't eat it, it's got to be less calories. ... Yeah, that's what I look at."* One women identified butter, real whipped cream and sour cream as dairy foods not eaten regularly and explained that she was, "*Trying to keep the calories down*." While high fat foods such as sour cream and real whipped cream are also high in calories, it was clear to researchers that the women in this study identified fat as a primary concern, not calories.

High Cholesterol

As with calorie content, women at Westminster Canterbury and Silver Hill perceived dairy foods, particularly cheeses, to be high in cholesterol as illustrated by the following quotes:

As your cholesterol goes up. Then you're going to watch yourself on cheeses and things of this type, and that has, has influenced me. My cholesterol has shot up so now I'm trying to cut out any foods high in cholesterol.

Well I eat spaghetti, but you see, I'm not supposed to have cheese because of high cholesterol. I use tomato sauce all the time.

It appears from these quotes that cheeses are not only associated with cholesterol, but that the cholesterol content motivates women to decrease their consumption of cheeses. When discussing reasons why certain dairy foods are not eaten daily, quiche was identified by a woman as a food containing dairy products. The woman commented that she did not eat it regularly because it contains cheese, which is high in calories and cholesterol. Fischer et al. (1995) found that health seeking behaviors such as avoiding high cholesterol foods resulted in a decrease in consumption of some dairy foods such as ice cream but did not lower total dairy product consumption. Those participants avoiding high cholesterol foods were found to frequently consume skim milk and less frequently consume whole milk. Fischer's research supports the idea that dairy food's association with high cholesterol can influence consumption of these foods (Fischer et al., 1995).

High Sodium

Salt content was another negative health consequence women associated with dairy foods. All groups mentioned that they do watch salt intake as illustrated by the following quotes, *"I try not to eat any salt if I can help it."* and *"Anything you can buy salt free I do. Because I like salt free."* Cheeses were identified as foods containing salt which again appears to play a role in motivating women to avoid eating cheese. When women listed dairy foods at the beginning of the discussions, it produced comments such as, *"The trouble with most of the cheeses though is they have so much salt content and a lot of us have to restrict our salt. So that eliminates a lot of cheeses."* Although women can control the amount of salt they add to food when cooking, one woman commented:

... so many of the cheeses have so much salt. You really can get used to doing without salt. You get so you don't miss it too much, don't you. But these foods (cheeses) already have the salt in them.

This perception of cheeses as high in sodium is an accurate one; the addition of salt for flavor makes many cheeses a high sodium choice. One ounce of American cheese provides 406 mg of sodium and 1/2 cup of 1% lowfat cottage cheese provides 409 mg (Wardlaw et al. , 1992).

Lactose Intolerance and Milk Allergies

Dairy food allergies are caused by reactions to the protein in dairy foods while lactose intolerance results from insufficient lactase, the enzyme required to break down milk sugar or lactose. Lactose intolerance is reported to be prevalent in the world population but is most common among Asians, South Americans, and people of African descent (Mahan and Escott-Stump, 1996). Montes and Perman (1991) report that 19% of white Americans are lactose intolerant. One woman in each focus group commented that she was either lactose intolerant or allergic to dairy foods. In most cases, women originally said they were allergic to milk, then went on to comment about Lactaid® which is a brand name for lactose reduced products. The lactase enzyme is incorporated into dairy foods to reduce lactose or is purchased in the tablet

form to be taken orally. This reference to Lactaid® suggested to researchers that women were actually lactose intolerant because lactose reduced products would not benefit someone allergic to dairy foods. If in fact, three of the twenty-four women were lactose intolerant and not allergic to milk products, that would be 12.5% of this sample of older women, which explains why lactose intolerance was only a minor theme. Rorick and Scrimshaw (1979) studied lactose intolerance in elderly adults of different ethnic backgrounds and similarly found an incidence of 12% in elderly of European descent. The following quote was made by a woman about her friend and is illustrative of the misconception about milk allergies and lactose intolerance:

> *...she is allergic to milk and um, she didn't know that for years and years and she kept drinking it thinking it was good for her and she ended up with terrible diarrhea. And then it was discovered about the allergies to milk and she now drinks the alcane. Is that what you call it? (another woman interjects: Lactaid®) Lactaid®, or else if she has to drinks milk, there's the little pills she can take to counteract the effect.*

Women in this study were aware of commercially available lactose reduced products and lactase enzymes, such as Lactaid®, but researchers observed from women's comments that women did find lactose intolerance to be a barrier to dairy food consumption. One woman made the following comment, *"Well, yeah, when you can't tolerate the lactose. And then you buy the pills and they cost twice as much as the milk you're trying to drink so you give up."* During the life cycle activity, one woman commented that she had consumed dairy foods regularly throughout her life until she got older and became allergic to milk products. Now she doesn't drink milk and commented, *"I can get by with the processed ones like cheese."* The use of dairy foods with lower amounts of lactose, such as processed American cheese, may be an alternative for some lactose intolerant individuals.

When asked to think of situations in which they would make a change in dairy foods, women in each group commented that they would change if they developed allergies, which is likely to be a reference to lactose intolerance as previously mentioned. The following quote is illustrative:

> *I would only change if I became allergic to dairy products...and I did, I became allergic to them after gall-bladder surgery... It took my system about a year to adjust... and so I had to cut out milk. I went back to it after about a year. Slowly.*

Others

Though it was not a predominant theme, it was interesting that one woman in the Westminster Canterbury group mentioned the idea that milk was for children as follows, *"Isn't there a general feeling now that milk is not so important for adults ..... I think now they feel that milk is more for babies and children?"* This comment was not made during a discussion of the disadvantages of dairy foods but was mentioned as an afterthought when the moderator asked if there was anything else the women would like to add. In response to this inquiry, another woman responded, *"I've read quite a bit about that, there's the argument that, our systems as babies were designed to digest and absorb milk. But as we get older, we lose that and it isn't as readily assimilated."* This response could be referring to the higher incidence of lactose intolerance in adult populations. Though this was not a predominant theme, it does represent a perception of dairy foods that could motivate women to use supplemental forms of

calcium rather than consume dairy foods. Comments such as these suggest a need for nutrition education programs and marketing strategies that promote the consumption of dairy foods in older women, not just young adults and children.

One woman mentioned an association with calcium intake and kidney stones. This woman said that she had trouble with too much calcium and made the following comment, *"You need calcium, but not in the urine. Then you develop kidney stones."* About 3% of women and 10% of men develop a kidney stone during their adult years (Coe et al., 1992) and 80% of stones are composed of calcium oxalate (Mahan and Escott-Stump, 1996). Such stones are not caused by excessive calcium intake; they are caused by underlying metabolic conditions which may or may not be affected by calcium intake. Treatment for such conditions requires identification and treatment of the specific defect (Mahan and Escott-Stump, 1996). One type of kidney stone, commonly seen in small intestinal diseases, is caused by overabsorption of oxalate and is actually treated with 800 to 1200 mg/day of calcium (Mahan and Escott-Stump, 1996). While kidney stones are not a concern for most adults and they were mentioned by only one woman, this does represent a negative health perception associated with calcium containing dairy foods.

Calcium supplementation

As noted in the previous sections, health perceptions associated with dairy foods can play a role in motivating women to consume or avoid dairy foods. Most women in this study felt that dairy foods were high in fat while many women felt that certain dairy foods, particularly cheeses, were high in sodium and cholesterol. Women were aware of the calcium content of dairy foods as well as the link between osteoporosis and calcium intake. As previously mentioned, some women in each group reported that they consumed dairy foods specifically for calcium. However, the use of calcium supplementation was prevalent among women in all focus groups.

Although no focus group questions addressed calcium supplements, they were discussed in each group, often following the discussion of osteoporosis or disadvantages of dairy foods. At Warm Hearth and Silver Hill, women initially mentioned calcium supplements early in the focus group. When one woman at Warm Hearth explained that she made an effort to drink two glasses of milk a day for the calcium, another woman responded *"Tums® help too."*. When women were asked about osteoporosis, a woman commented that all women over 50 were threatened by osteoporosis which led the researcher to ask if this ever affected food choices. Following this probe, a woman responded, *"I think you think about calcium."* Immediately following this remark, one woman reported "*... substituting the Tums® for dairy products.*" and another replied, *"Or taking the calcium supplement."* The timing of this discussion led researchers to conclude that women associated Tums® and other calcium supplements with osteoporosis prevention.

Women discussed different types of calcium supplements though Tums® was the most prominent in two of the focus groups. Women at Westminster Canterbury did not specify the brand of calcium supplement, but did report that they take calcium in supplemental form. The following quote illustrated women's use of Tums®: *"I get the little different colored, taste like candy when you take em, its Tums® with calcium. It's good for you. I take that in case I don't take the milk.*". Women also rely on calcium supplements other than Tums®. One women responded:

I take those calcium citrate, four tablets a day. Well, I have been interested in nutrition for many years and I read everything I can find on it and I read quite a bit about that particular form of calcium being the most easily digested that you can buy. Of course, now they have prescriptions for calcium, even injections that doctors are recommending but so far I've just stuck with the tablets.

One women admitted that she did not like milk but drank the calcium fortified orange juice:

But I've been sticking to that orange juice for a long time now, because I like orange juice and usually have a glass of it every morning. And I've begun ... at dinner too. So I'm drinking two glasses of orange juice a day. ... and one glass of that is comparable to a glass of milk. ... and you can't taste any difference.

Based on women's comments, it appeared to researchers that women felt they were meeting their calcium needs through supplementation. The following quotes provided examples. When discussing Tums®, one woman commented, *"I don't get enough calcium otherwise."* while another woman stated: *" I take calcium pills. .... Drinking milk. I just take pills there."* One woman explained a reason for supplement use:

They told me some time, many years ago, that it would take four quarts of milk, to make up for the calcium that you need in the body a day! ... that's why he (my doctor) suggested I (take) the calcium tablets...

It appeared to researchers, that some women substituted dairy foods with calcium supplements and felt that they could not get the calcium they needed through dairy foods alone.

Researchers observed that some women received information on calcium supplements from their physicians as illustrated by the following quote *"They say every women should take one Tums® a day, at least one Tums® a day. The doctors recommend it for the calcium."* In another focus group, a women turned to her friend and instructed: *"You must have at least six Tums® a day. Two after each meal ... or two after three meals."* Widespread use of Tums® among the women suggested to researchers that women probably were not calcium deficient, but this was not due to dairy intake.

Use of supplements such as Tums® or calcium citrate is an alternative to the use of dairy foods to meet calcium needs. Although women recognized the calcium content of dairy foods, this may not have been a powerful motivating factor for women to consume dairy foods if they felt supplements were meeting their needs. The NIH Consensus Conference on Optimal Calcium Intake (1994) reported that dietary sources such as dairy products are the preferred way to obtain optimal calcium intake. This recommendation is consistent with the current USDA Food Guide Pyramid dietary guidelines of 2-3 servings of dairy products a day. Based on comments discussed above, researchers felt that women need to be educated about these recommendations and about all the nutrients found in dairy foods that they do not get from Tums®.

Surprisingly, this trend in calcium supplementation found in this study has not been reported in other research. Slesinski et al. (1995) examined U.S. trends in the use of vitamin and mineral supplements based on the 1987 and 1992 National Health Interview Surveys (NHIS). Slesinski (1995) found that in 1992 only 9.6 % of adults aged 65-74 and 9.7% of

adults over 75 reported daily use of calcium supplements, whereas our research suggests that educated, Caucasian women over 65, might use some form of calcium supplement. Slesinski (1995) did find that whites were 2 times more likely to take calcium supplements than other races, and females were 4 times more likely than males which could explain the increased use among focus group participants. Slesinski (1995) did not find significant differences in calcium supplement use among different socioeconomic status and education levels. Furthermore, Slesinski (1995) reported that the greatest decrease in calcium supplement use was in women aged 55-64 years which was attributed to increasing emphasis on estrogen replacement therapy as a treatment for osteoporosis.

Popkin et al. (1992) suggested that the elderly population is responding to risk-avoidance suggestions about lowering fat and cholesterol intake which appears to be true in this research. However, Popkin et al. (1992) also suggested that women were failing to respond to protective health messages about increased calcium intake because overall dairy food intake did not increase. These focus group discussions suggested to researchers that women were receiving health messages about calcium intake, but were relying heavily on calcium supplements to meet perceived calcium needs.

Preferences and Sensory Attributes

Sensory attributes of a product play an important role in motivating people to consume a product. Many women reported that they liked dairy foods and thought they were "good" without identifying any specific attributes of the product such as taste and texture. For example, *"And I eat the Alpine Swiss cheese right much. Because it's good with ham, its good with tomatoes."* or *"...I would love to have some whipped cream! It's so good ."* Some women considered dairy foods such as chocolate yogurt to be *"delicious"* or identified taste as the reason for liking a product: *"Without my cheese, it wouldn't taste good."* Another women reported that chocolate milk was very satisfying. More specific sensory qualities were not discussed by the women.

Other researchers have also found that sensory attributes were important factors in choosing dairy foods. Higgins et al. (1985) used semantic differential scales to determine attitudes related to the use of four milk products by the elderly: whole milk, cottage cheese, yogurt, and coffee whitener. Individuals in the study were most influenced by sensory appeal of a product. Although elderly participants in the study by Higgins et al. (1985) did have attitudes about health benefits of milk products, health aspects of dairy foods were not found to be sufficiently compelling to result in changes in food habits among the elderly. When Shepherd (1988) studied the beliefs associated with low fat milk consumption, results contradicted those found by Higgins et al. (1985). Differences between these results were likely to be due to the differences in the types of specific dairy product studied. Shepherd (1988) found that nutritional beliefs were the most important factor outweighing sensory attributes. It is not surprising that Shepherd (1988) found health beliefs motivated women to drink skim milk, a fat free beverage, while Higgins et al. (1985) found that sensory qualities motivated women to consume foods like whole milk, a high fat choice. Researchers in this study concluded that both sensory attributes and health perception might play a role in motivating women to consume dairy foods which should be explored in future research.

Even if a food is perceived to be healthy, this may not be an adequate motivation if the product does not taste good to the consumer. A few women in the groups specifically cited a dislike for milk and were clear that they did not drink it for this reason or used it only in small quantities. The following quotes are illustrative: *"I have never liked milk. I use it on cereal*

and that is about the extent of my milk use." and *"I don't drink milk because I don't like it. Never really liked milk."*

When discussing reduced-fat or fat-free dairy products other than milk, most women were pleased with ice creams and frozen yogurts, but were unhappy with reduced-fat cheeses. When compiling the initial list of dairy foods, women in all focus groups listed several types of reduced-fat or fat-free frozen dairy desserts that they liked. Many reported that they also liked Alpine Lace® Reduced Fat Swiss Cheese, but were adamant about their dislike for other modified cheeses using descriptors such as: *"Awful."* and *"Oh it's terrible. "* Most women reported that they disliked the taste or generally stated that "*There's something lacking*" in low fat products. The following quote is illustrative: *"The one (cream cheese) that has no fat you can.. agghh! I can't take it with no fat. I took it, I threw the whole thing out. I don't like the taste of it."* Although most women disliked the taste or could not identify exactly what it was they disliked about the foods, a few women identified texture as unacceptable, such as the following woman's response to what she disliked about the fat free cheeses, *"...the texture and there is no taste*."

When confronted with the high fat products and the reduced-fat alternatives, someone in each group mentioned that they would rather just have small amounts of *"the real thing"* offering the advice *"Just don't go overboard on anything."* While two groups had mixed opinions, one group generally agreed that eating less of the real thing would indeed be preferable. The following quotes illustrate these women's views, *"I would rather eat less, and enjoy what I eat. I don't like all these synthetics."* and *" I cut down on fat by ... just taking a little bit of it. That's right, (I'd rather have the real thing) than have that fat free."* Eating less of "the real thing" can be an effective way to reduce fat in the diet; however, it also results in decreased calcium intake. Eating small amount of real ice cream or full fat cheese is not likely to provide adequate amounts of calcium and other nutrients found in dairy foods.

Combined Influence of Health Preferences and Sensory Attributes

Although fat seemed to be the predominant theme, the variety of themes identified through these focus group discussion it suggests that no one factor influenced women's consumption of dairy products. Instead it might be a combination of perceptions and motivations that collectively influenced women to purchase and consume dairy foods. Health perceptions, such as calcium content of dairy foods, motivated some women in this study to consume dairy foods. Perceptions of high fat, cholesterol, or sodium motivated some women to either avoid some dairy foods, such as cheeses and full-fat ice creams, or consume limited amounts of these dairy foods.

The interaction between sensory attributes and health beliefs, specifically fat content, was examined by Light et al. (1992) who studied the effects of fat content and label information on risk perception and liking of dairy products. Consumers rated their liking of both high and low fat versions of processed American cheese and vanilla ice cream, with and without label information. Consumers also completed personality and perceived risks tests to determine perceptions of risk associated with consumption of high fat and cholesterol foods. High fat ice cream was liked more than low fat ice cream regardless of label information, but label information identifying high fat ice cream actually increased liking of the product. High fat cheese without the information was liked the most, while low fat cheese without information was liked the least. When consumers knew the fat content of the cheese, consumers still preferred the high fat product but they liked it less than before and similarly liked the low-fat products more than before. Light et al. (1992) concluded that information

such as fat content may influence initial purchasing of a product, but liking of the product is determined by sensory attributes. Consumers also indicated that they did not believe food labels and this decreased their use of this type of information and contributed to their perception of risk even in reduced fat versions (Light et al., 1992). No indication of distrusting food labels was found in our study, though women did express confusion over expiration dates. Participants found it difficult to find expiration dates and did not understand the difference between “Use By ” and “Sell By”. However, women mentioned they frequently referred to nutrition facts labels when selecting products.

CHAPTER VI

RESULTS AND DISCUSSION: EXTERNAL FACTORS THAT INFLUENCE DAIRY FOOD INTAKE

The external influences will be reported according to the following three themes: Subjective Norms, Media Influences, and Environmental Factors. Physicians were the primary influence for most women to change or limit their dairy food intake, but some women were also influenced by the media. Women frequently discussed problems they had with packaging size and ease of opening. Limited availability of small size containers was a deterrent to purchasing some dairy foods, such as cottage cheese and low-fat ice creams. Although the women in this study were not low income, they felt that other older adults were often limited in food choices by their income. These themes will be discussed in detail with illustrative quotes.

Subjective Norms

The social environment often influences people to behave in a certain way. In the Ajzen and Fishbien model of Social Behavior (1980) this component is known as Subjective Norm, and it refers to a person's perceptions that important others desire the performance or nonperformance of specific behaviors. As it pertains to this study, subjective norms refers to a person or group of people that would influence these older women to consume or not consume dairy foods. The predominant influence mentioned by the women in this study was their physician. Family members were mentioned in a few cases and friends were not mentioned at all; however, fellow group members offered suggestions to one another about how to lower fat in the diet, including the use of low-fat dairy products in recipes as previously mentioned. This suggested to researchers that women do influence one another in a social environment although they may not outwardly perceive this as a factor in their food choices.

Older women commonly have multiple health problems (Administration on Aging, 1996). Independently living women, such as those in this study, by definition do not rely on a nurse or other caregiver, so their physician would be their primary medical authority. Consequently physicians influenced many aspects of these women's dietary choices. Based on the questionnaire alone, 50% of the women were on modified diets as prescribed by their physicians (such as lower fat, cholesterol and/or sodium). As previously noted, women were trying to reduce fat in their diets, and this was influenced by physicians in many cases. The following quote is an example of a commonly mentioned topic, *"None of my doctors... they don't want you to eat fat."* When asked what would influence them to make changes in dairy food intake, women most often cited their physician, for example: *"If a doctor said something then I'd make a change. Oh yes."* When the physician was mentioned, other women in the group nodded and agreed, *"I was going to say the doctor too."* In these instances, women did not specify if doctors encouraged them to eat more or less dairy foods. However in other instances, physicians recommended that women eat less dairy foods. Some women offered specific examples:

> *My doctor. ... I was having some sort of digestive problems, and so the first thing my doctor said to me was you need to give up milk products for, like, a*

couple of weeks and let's see if that's what is causing your problem.... yeah, he recommended it.

While this was only a temporary situation, another woman gave the following statement during a discussion of fat in the diet: *"They (doctors) don't want you to eat dairy, in fact, dairy is a no-no for most of us."* When the woman was asked if her doctor specifically gave her this advice she replied *"yes"*. Despite this, physicians did recognize the importance of calcium and frequently suggested that women take calcium supplements. This might explain the discussion of Tums® in relation to osteoporosis.

Family was only mentioned as an influencing factor in two instances. In one case, a woman mentioned that she would make tapioca pudding when her son came to visit. This, however, does not represent a long term dietary change. Another woman mentioned that she switched to skim milk when her husband became ill, but at the time of the focus group he was recently deceased which inhibited further discussion of this trend. While concerns for the spouse could potentially be a motivational factor for women to change their diet or specifically dairy intake, it was not apparent in this study. Only one woman in the focus group lived with her husband, which partially explains the lack of family influence. Such an influence could possibly be more predominant in middle aged adults when health problems first became apparent, or if the study included a larger number of women who lived with their spouses.

Media

Women also mentioned that seminars and literature were ways they received information about nutrition and health. At Westminster Canterbury, women mentioned several different health newsletters they received as a means of learning about healthy eating. One woman commented, "*There is quite a lot of literature about nutrition ...*" and mentioned that she had recently subscribed to the "Harvard Health Letter", and another woman replied that she already received the University of California Wellness letter. Women in the group agreed these types of written materials do provide important information that helps them make food choices as illustrated by the following quote *"I think many people read newsletters and various magazines and studies and um, think that the ideas get based on that."* One group mentioned seminars as a way to gain nutrition information, but no other groups discussed health newsletters or other literature. This groups emphasis on literature and educational seminars could be a reflection of their academic background as this was the only group where all women had attended some college and several had graduate degrees.

In addition to the media sources mentioned above, women in all focus groups mentioned the food guide pyramid and the nutrition labels found on food products. For example, one woman reported that she made an effort to drink two glasses of milk a day and gave the following reason, *"Well I'm following that pyramid diet."* When discussing the importance of dairy products in relation to other foods, two groups felt that it was very important while Westminster Canterbury women argued that all foods were equally important based on the Food Guide Pyramid. When discussing low fat products, women reported that, *"Labeling is important to us now..."* and *"I think most of us check those Nutrition Facts."* From comments such as these, it was apparent that women in this study were not only aware of the current emphasis on low fat foods as previously mentioned, but also were aware of the Food Guide Pyramid and the new Nutrition Facts labels on food. Such knowledge suggested to researchers that women have received some nutrition education in the past. The retirement communities, where these women were recruited, provide a variety of activities for their residents, which could possibly include nutrition education. However, no specific mention of

such programs was made. One woman commented that exposure was one important influence with the comment,*" I think we as former housewives will pay more attention to different foods than men who don't shop. I mean we would be, maybe the first one exposed to all these different options."* Researchers concluded from comments that women in this study were influenced by a combination of people and media as summarized by the following quote:

> *... I think perhaps if you go to seminars, and you, people talk with you, you know, and you understand, like she's talking about, the pyramid, and what it is exactly and everything, that you might, that might influence your diet and the choices you make.*

Environmental Factors

Availability of Small Package Sizes

When discussing improvements that the dairy industry could make, women in all focus groups frequently reported that certain dairy foods were not available in small enough containers. Women felt that large family size packages were a waste of money because they often spoiled before they could be used. Women frequently commented*: "It just goes to waste."* and "*You don't buy a lot of things that are in big packages."*

When discussing package size, lower-fat ice creams and cottage cheese received the most complaints. One women in the Westminster Canterbury focus group said that cottage cheese was available in small containers in some stores in the area, but the other group members and other focus groups discussed the lack of availability of small containers at great length. Women directly mentioned that they would buy it more often if they could find it in a smaller container. The following quotes are illustrative:

> *I don't know what you can ever do about this, but I think the cottage cheese comes in too large a container. And by the time I get arou.. , I maybe would eat it once or twice a week, and by the time I've had it a couple of weeks you have to throw it out. So if it came in a smaller container I'd be happier. I'd buy it more often.*

> *They're about six servings, I would say, in one of those smaller containers (of cottage cheese) . ... and you don't want it six times in a row. You do not do it that way, you throw it away. ... When you're a single, when you're by yourself you waste a lot of food... because they're not packaged small enough.*

One woman also pointed out that it would not be that difficult to package cottage cheese in single serve containers, because after all, "*they did that with yogurt."* While women were most often dissatisfied with the size of cottage cheese containers, many women also felt that "healthier" ice creams and frozen yogurts were only available in half-gallon containers. One women explained:

> *It's the same way with buying ice cream ... When I bought that Breyer's® low fat, that's the first time I've bought ice cream maybe in three or four years simply because a half a gallon is too much. And I very rarely ate/eat ice cream anyway. You can't buy anything in a pint unless it's Haagen Dazs®.*

Another less frequently mentioned item was block cheese: *"Some things they ought to cut down in size because when they have these longs bars of cheese, if you don't eat a lot, you'd like to have half of it, in other words you'd like to share it with somebody."*

Not only were women unhappy with the large sizes, they also felt that they were a large consumer market, and products should be marketed to meet their needs as well as those of other single people. Several women were adamant about this as is evident by the following quotes, *"Nobody considers us, we're widows, and we live alone and they don't care."* , and:

> *Yes the packages are too big, that's one of my main complaints. ... to remember that there are a lot of people in the world who are single and only need like one serving, you know, or two servings, and not to put it in such big containers. You waste a lot of money and you waste a lot of food. ... I think that's one of the main objections that people who live alone would like the industry to know, that we could use much smaller containers.*
>
> *I've found that stores don't give a damn. Personally, they don't give a..., they're after the younger people. Fast food, get the buck, get whatever they can sell, they can put on sale, they don't care.... I would tell them to look to the health of some of the seniors...*

Physical Limitations: Difficulty Opening Packages

Another concern voiced by older women in this study was difficulty in opening certain types of packages. The types of problems women encountered included opening plastic milk cartons, zip pack cheese, and aluminum wrapped cream cheese. Problems were attributed to *"old hands"* and declining vision. Though problems encountered were not consistent among groups, problems mentioned in one group often resulted in agreement from other group members. For example, in one focus group a woman commented on an improvement she would like to see with plastic milk cartons:

> *Easier opening probably. ... You've got those plastic bottles and you're supposed to take a piece of plastic and pull it off from around there. Sometimes I, once or twice I've gotten the pliers out so I can get hold of it. Like to see it easier to open.*

Following this comment, a fellow group member agreed, *"Sometimes those milk cartons are terribly hard to open."* Another woman suggested changing to the screw top lids on cardboard cartons like those now used for orange juice cartons. In another focus group, a woman commented on the difficulty opening zip-pack cheeses: *"... they put a little tiny black mark where you're supposed to open, but you can't see it!"* This led two other women to comment *"We can't see that well anymore, you know."*, and *"We need a big black mark! (On zip pack cheese)."* Other women commented that it was difficult to open cream cheese in the foil package as well as block cheeses. In frustration, one woman concluded, *"By the time you get it open, you say forget it!"* While it is unclear from this study whether improving packaging will motivate women to purchase more dairy foods, making products easier to open is another way the industry can cater to the large and rapidly growing older market.

Expiration Dates

The problem with expiration dates related to both package size and declining vision. As previously mentioned, women were concerned about spoilage of dairy foods because they could not finish a large container alone. Women found expiration dates difficult to find and sometimes difficult to read as well. One woman commented to her neighbor, *"Oh, they've been dating it (cream cheese) for a long time, its just hard to find the date on some of these things."* Another woman pointed out, "*Well yes, they could improve on that, they can make it uniform, different manufacturers put 'em in different places."* These types of comments indicate that women would like to see expiration dates in large print in a uniform location on products.

During the focus group at Westminster Canterbury, women expressed confusion about "Use By" and "Sell By" labels on milk cartons. One woman commented that she had tried to ask for help, *"But you know, even the grocery store people, do not know."* Another woman turned to the moderator and asked, *"Is it good if you go by the sell by?"* This indicated to researchers that she was still confused about the labels.

Concerns about finding and reading expiration dates as well as concerns about larger packages both appear to be related to spoilage. Due to age, chronic disease, or medication, older adults may be more susceptible to food borne illness or infection. This sample of women was concerned about spoilage, and some women mentioned perishability as a disadvantage of dairy foods. Dairy products are perishable foods and do represent a good medium for bacterial growth; to protect the consumer, dairy foods such as milk are pasteurized to kill pathogenic bacteria and 95-99% of spoilage bacteria as well (Bennion, 1990). Bennion (1990) recommends storing dairy foods at 7˚C (45˚F), keeping them covered to avoid contamination, and returning foods to the refrigerator immediately after use to prevent the products from getting warm. In a sample of women that is already concerned about spoilage, labels could help prevent these women from consuming spoiled foods and provide reassurance, if women understood their meaning and could locate dates on the package.

Cost

While participants were not low-income women, they did mention the cost of dairy food items in several instances which suggested that it could be a motivating factor for some older women. As already mentioned, women in all focus groups did not like to buy large packages because it was a waste of money when it spoiled before it was completely used. At Warm Hearth, the women initiated a conversation about the cost of dairy foods when asked if there was anything else they would like to discuss. These women recognized that smaller packages usually are not as cost effective to buy and made comments such as, *"... then they charge you an arm and a leg when you buy a small (container)..."*. In addition, women in this focus group felt that nutritionally modified products were also more expensive and made these comments, *"If it's salt free, or this free, or that ... fat-free, it's more expensive*." and *"... like she said, anything that is made special has a higher price..."* However, it did appear that the women at Warm Hearth were more concerned with the unacceptable taste of low-fat products rather than cost.

While women in this study felt they were not necessarily affected by cost, they felt that this was a real concern for many older women with the following comments, *"Well, I don't think it affects any of us ... but we're saying that there are people in our age group that it would affect."* and:

> *... we live on a fixed income, you know, I don't mean that any of us are poor or lacking or whatever, but people have to remember that people on fixed income are not getting raises... if you're working you get maybe a 5% raise, or a 7% raise... or whatever but, we get, what? 2.5 on social security or 1.5 or something like that.... so you really are not getting...ahead as far as financially.*

Even among higher income women, changes in brands had been made to save money such as, *"Well, I buy the store brands of milk, instead of uh.. you know, some of those, better milk labels, .. ."* and *"...you've always bought brands, and now you get the other..."*. After this spontaneous discussion of cost in the first focus group, women in the second focus group were asked if they found the cost to be acceptable and they responded *"Not when it starts going up. That's what it's doing right now. Increasing."* and *"Well, we'd all like to have it lower."* When discussing the general topic of making food choices in the opening activity, women from Silver Hill made it clear that cost was not a motivating factor with the comment:

> *I have to read every label to make sure that it doesn't have fat or sugar and uh, easy to use because I'm forever in a hurry, always,... and I'd like it if it taste good, it has to be, you know, appetizing and, of course, I don't care about what it costs if it has all the other things.*

When the topic of cost was discussed in that focus group, women again commented that they were an important and growing consumer market and commented, *"There's an awful lot of older people around, and we're getting more and more, and they're going to have to please older people..."*.