CHAPTER VII: CONCLUSIONS

Major Findings

This study was limited to a small group of college women from Virginia who were willing participants in focus group interviews to explore preceptions, feelings, thoughts, and opinions about dairy foods. Non-Hispanic white women were selected as they are a group at highest risk for developing osteoporosis.

Women in this study were young and healthy; therefore, most did not seem to be concerned with the development of chronic diseases (i.e., osteoporosis, heart disease, high blood pressure) later in life. However, women seemed to have been preoccupied with their physical appearance, particularly body weight and body image. Research indicates that both media and peers pressure young adults to be thin, at any cost, often in an environment unsupportive of regular or healthy eating patterns (Seymour et al., 1997). With Western society’s concern about obesity and cultural pressures (i.e., non-Hispanic white) for thinness, it is likely that adolescents’ concern about weight and interest in dieting influences everyday food choices (Contento et al., 1995). Women’s concern with their body image sparked concern about fat intake and influenced their dairy food choices (i.e., low fat and fat free), as evident by one woman’s comment, “For me, it’s a fat issue—completely a fat issue and that’s it...”. Some women avoided or limited their intake of dairy foods, indicating a lack of awareness about essential nutrients besides calcium that are found in dairy foods. It has been suggested that although adolescents appear to have definite knowledge about the extent to which particular foods are “fattening,” they probably know less about the consequences of these particular foods for risks of chronic disease (Contento et al., 1995). At this age women are looking for acceptance by their peers, not necessarily disease prevention.

To improve dairy food consumption of educated, non-Hispanic white women, educators and the food industry must tailor messages about dairy foods to reach this group of women. Results of this study indicated that this sample of women wanted to
know why dairy foods were important to their health. Advertisements, such as the *Milk--It Does A Body Good* campaign, made an impression on these women and got them thinking about their nutritional health. Women indicated that present campaigns, such as the *Milk Mustache* and *Got Milk?* campaigns, were not convincing them of the importance of this dairy foods. Women seemed to want to know the consequences of not consuming adequate amounts of dairy foods. This was apparent in the following comment made by one women, “*[Osteoporosis] is the sole reason why I drink milk...like after seeing a lot of older ladies and, like, seeing x-rays and stuff...because before that I never listened to my mom...*”.

The educated, non-Hispanic white women in this study group were only a small sample of this particular population subgroup. However, results of this study did provide some insight into the women’s perceptions of dairy foods. In particular, the focus groups generated descriptive information regarding the women’s thoughts and feelings towards dairy foods. Suggestions for additional research, nutrition education, and product development are reported in this chapter.

**Future Research**

One disadvantage of focus groups is that results of focus groups are not generalizable across subset populations, as focus group research does not permit use of a large number of subjects (Krueger, 1994). Results of this study are limited to a small group of single, non-Hispanic white, college females and their perceptions of dairy foods. These women attended colleges and universities in Virginia. However, focus groups were an effective way to explore ideas and attitudes that motivate this group of women to consume dairy foods, providing rich insight that could not have been obtained from quantitative research alone. Results of this study indicated that women’s dairy food choices were influenced by their health and nutrition perceptions of dairy foods, external influences, and sensory characteristics of dairy products.

The next logical step for future research would be to combine the qualitative results from this study with research pertaining to educated non-Hispanic white middle-
aged women as well as with Eddy’s results (1997) on educated non-Hispanic elderly women and their perceptions of dairy foods. These data could then be used by researchers to begin to develop quantitative research tools, such as a questionnaire, to survey a larger sample of educated, non-Hispanic white women (all generations) in Virginia. This would provide researchers with an understanding of those factors that motivated different generations of educated, non-Hispanic white women to choose dairy foods. Results of the larger survey could provide information that could be used to make meaningful recommendations for nutrition educators and the dairy industry for the promotion and development of dairy foods.

The NIH (1994) recommended that educators develop health education materials and programs that are specific to gender, age, ethnic group, region, and socioeconomic status. Another logical step for future research would be to study other groups of college-age women as their food preferences might differ. Specifically, qualitative studies could be conducted with young women who are not enrolled in college and with women of different income levels and ethnic backgrounds, as it is reported that young women in general are not meeting their daily calcium requirements. Other important ethnic backgrounds to be studied include Asian-American women as this is another group at high risk for developing osteoporosis. African-American women are another ethnic group to study as they do not seem to be as concerned as non-Hispanic white women are with fat as it relates to body image and body weight. This group also tends to have a higher incidence of lactose intolerance than non-Hispanic white women as well. Results from these types of studies could help educators plan effective nutrition programs that are relevant and appealing to each population.

Additional qualitative studies should explore the perceptions, thoughts, feelings, and opinions of college-age women about osteoporosis, because this information could be used to help develop nutrition education programs as well as market dairy foods. These programs could be useful for identifying effective ways that will motivate young women to recognize themselves as being potentially affected by osteoporosis, and that will
encourage them to begin practicing osteoprotective behaviors. Research that focuses on what will motivate college-age women to take steps towards preventing osteoporosis is important, because at this young age, most women are concerned about body image and physical performance in sports, rather than disease prevention (Hickman, 1996). The development of osteoporosis later in life is a complex process that involves more than just consuming dairy foods to prevent it. Women’s attitudes and beliefs towards other factors that play a role in osteoporosis prevention, such as exercise, should be studied.

**Implications for Nutrition Education and Product Development**

**Introduction**

A unified public health strategy was recommended by the NIH Consensus Development Conference (1994) to promote optimal calcium intakes in the American population. The strategy includes a broad outreach and involves educators, health professionals, and the private and public sectors. The NIH (1994) recommended that educators develop health education materials and programs that are specific to age, gender, ethnic group, region, and socioeconomic status. It also recommended utilizing the existing national organizations and the mass media to distribute information that would help decrease consumer confusion and encourage consumers to increase daily calcium intakes. This would be especially important for college age women as they do not feel they are at risk for chronic disease from inadequate calcium intake. In the private sector, NIH (1994) recommended that manufacturers and producers of food products continue to develop and market a wide variety of calcium-rich foods to meet the needs and tastes of a multiethnic population. In addition, restaurants, grocery stores, and other foods places need to increase the accessibility and visibility of calcium-rich products for the consumer (NIH, 1994). Therefore, suggestions for both nutrition education and product development are reported in this chapter.
Nutrition Education

Nutrition education programs aimed at increasing dairy food consumption and thus increasing calcium intake are key components in the prevention of osteoporosis and other chronic diseases. Nutrition education programs should be designed to meet the needs of this group of educated women. Results of this study indicate that the women were very concerned with the amount of fat in their diets. Most of the women in this study felt that the fat content of dairy foods was a disadvantage, which outweighed the benefits of calcium from dairy foods. This suggests that nutrition education programs targeted towards young women should continue to teach women that dairy foods are an important food group, and that avoiding this food group compromises one’s nutrition status. It might be emphasized that food choices should be based on balance, variety, and moderation in the diet. Programs also could teach women how to make low fat dairy food choices since women were concerned with fat in dairy foods. These choices should include dairy foods in addition to low fat and skim milk, since the college women felt that skim milk was the principle low fat alternative to the higher fat dairy products. The programs could include information on how to use the “Nutrition Facts” label located on food packages to help women make low fat choices that are also high in calcium. For those women who prepare their own meals, an emphasis on using the “reduced fat” directions or low fat ingredients, such as skim milk or yogurt in cooking is recommended. Women also need to know that low fat food choices are not always low in kilocalories as this is a common misconception about low fat products. Although cholesterol was not a major concern of the women in this study, education programs should emphasize that lower fat dairy foods are also lower in cholesterol. Research has shown that with proper nutrition counseling, teenage girls and women can increase their intake of dairy products without experiencing a change in percentage of body fat, percentage of energy from fat, weight gain, or an increase in blood cholesterol (Finn, 1997).

Results of this study also suggest that dairy foods as important sources of calcium should continue to be stressed to the college-age women. Women in this study knew that dairy foods were a good source of calcium and perceived this as a benefit of consuming
dairy foods; however, the women did not perceive the adverse consequences from inadequate calcium intake as an immediate concern. The women knew that calcium from dairy foods was important in osteoporosis prevention. They were also aware of the debilitating effects of osteoporosis but felt that it was a disease that affected older women. Educational efforts targeted at this age group might help women to understand that development of osteoporosis is a life-long process. Health professionals, including those at college health centers, could take part in educating this group of women about the potential for developing osteoporosis, and on how to implement protective behaviors, such as an increased consumption of dairy foods. Women also need to know that a family history of osteoporosis may mean an increased risk. This might help young women become more aware of their calcium intakes. A nationwide Gallup telephone survey of 1,021 U.S. women of all ages (Anonymous, 1993) about health practices reported that approximately 7 in 10 women (69%) believed they could lower their risk or help prevent osteoporosis. However, among women with a family history of osteoporosis, 85% believed they could lower their risk.

Although women in this study were aware of calcium in dairy foods, many mentioned taking calcium supplements to meet their needs. This suggests that nutrition education should emphasize to women that calcium needs should be met through dietary sources. Educators could develop programs that help women choose foods that are rich sources of calcium. The same concept is true regarding the use of other vitamin/mineral supplements. Through nutrition education women should be able to make a wide variety of food choices that are good sources of numerous vitamins and minerals. Furthermore, women in this study did not seem to be aware of other nutrients that are in dairy foods. Education that emphasizes dairy foods as good sources of other nutrients, such as protein (especially for vegetarians), phosphorus, vitamin D, and magnesium, may encourage college women to increase their consumption of dairy foods.

There were many external influences that played a role in the dairy food choices of women in this study. Educators might keep these influences in mind when developing
programs. An important influence for most women was their mothers. Mothers encouraged positive habits regarding dairy food consumption, specifically to drink milk during childhood, but they also encouraged the women to use supplements. Mothers and college women need to know that food is the preferred way to meet nutrient requirements and that supplements should be used only in certain cases. Educational efforts could emphasize the importance of making dairy foods available in the home, especially lower fat versions of dairy foods besides milk. They should continue to teach mothers that low fat milk is appropriate for children over two years old, and in fact is recommended.

Women in this study also discussed food labels and felt that the nutrition information on food labels was important, but seemed confused by this information. Women also did not seem to be sure of how many servings of dairy foods would fulfill their daily calcium needs. This confusion indicates a need for nutrition educators to teach consumers, specifically young adults, how to read Nutrition Facts and how to understand the nutrient content claims on product labels (i.e., reduced fat versus low fat).

Registered dietitians could also take part in nutrition education efforts, by working with the dining services on college campuses. Results from this study indicated that women were dissatisfied with dairy food choices in the dining halls, primarily due to the higher fat content of the dairy foods offered. Dining halls should strive to offer a variety of nutritious foods. The dining services could implement programs and events that take place in the dining halls to promote healthy food choices, especially during National Nutrition Month®.

Women in this study indicated a desire for foods that are convenient, such as “easy to make” or “grab and go” foods. Educators could continue to emphasize single-serving foods, such as individual packs of yogurts, puddings, and cottage cheeses, because these dairy foods are good choices for those leading busy lives. Expense in terms of women’s financial situations at college was another factor in women’s dairy food
choices. College-age women need to learn basic budgeting skills to help them make affordable food choices that help them meet their nutrient needs.

Lastly, media sources played a role in influencing the college women’s food behaviors and attitudes. Women’s emphasis on the fat content of dairy foods was associated with their body image and desire to be thin, which is promoted by the media with the “supermodel” body image. However, the media’s recent emphasis on women’s acceptance of their bodies, whatever shape and size, needs to be continued. Education also needs to shift women away from this “supermodel” image and emphasize the importance of eating a variety of foods to promote health and prevent diseases, such as osteoporosis, later in life. These educational tools need to offer reasons that answer why adequate daily consumption of dairy foods is important. Educators and the food industry could work together to structure new tools that will increase women’s consumption of dairy foods as well as promote sales of these products. Advertising is one tool that could effectively offer young women a reason to consume dairy products.

Product Development

Teenagers (ages 12-19) comprise a powerful market segment as they represented $109 billion in retail spending in 1995. This included money spent to buy clothes, groceries, and other items (Hickman, 1996). College women in this study suggested new ideas for dairy products to the researcher. Ideas included yogurt pops, dairy candies, reduced fat macaroni and cheese, and low fat cheese pasta. Some of these ideas already exist on the market, and this indicates that the food industry is making efforts to target this age group. However, marketers of food and other products are still trying to determine the best ways to reach teenagers with product information and to encourage trial and repeat purchases (Hickman, 1996).

Sensory characteristics and convenience of dairy products were primary factors that influenced the types of dairy foods that college women in this study chose. Women indicated that taste was a priority to them when choosing foods. If a food does not taste good, consumers are not likely to eat it (Hess, 1997). Hickman (1996) reported that food
sampling is a powerful way to reach teenagers and young adults. The dairy industry might continue food sampling as part of their market research for product development. Working with college dining programs to conduct food sampling at school dining halls and food courts might be a good way for the dairy industry to target this age group.

In addition to good taste, teens and young adults are looking for convenience, such as that found in microwaveable and single-serve items (Hickman, 1996). Convenience was a predominant factor in these college women’s food choices. Women were interested in single-serving products that are targeted towards the single adult, because these types of products are convenient and help reduce spoilage. Although women in this study used some dairy products packaged in smaller sizes, they indicated they wanted more individually packaged dairy products and that these products be “easily accessible.” Because women expressed difficulty in opening certain products, new or improved products also should be easier to open. One idea that was particularly interesting was that of bottled milk in vending machines. It was mentioned that soft drinks from vending machines were consumed out of convenience. If dairy products were available in a similar way, women might consume more milk and other dairy products.

Women mentioned that some characteristics of dairy foods were very satisfying to them, such as ice cream, frozen yogurt, and a glass of cold milk. These foods were described as “soothing” and “refreshing,” especially on a hot day. Women also mentioned that they enjoyed drinking milk with cookies or brownies. Since media sources seemed to influence these college women’s food choices, advertising might be one way to reach this group of women. These comments are possibilities for how the dairy industry might target college-age women through advertising. In advertising of dairy products, the message should alert teens to the product and then give them a reason to buy it (Hickman, 1996). Women expressed dissatisfaction towards the current dairy advertisements, including Milk Mustache and Got Milk? Campaigns. Women felt they were silly and unconvincing for their age group. As with nutrition education,
advertisements to market dairy products should meet the needs of educated, non-Hispanic white women. Industry could offer reasons to buy dairy products to target this age group. Some women felt that the old milk campaign, Milk--It Does A Body Good, was effective in communicating a reason for drinking milk with the growing boy and girl. Other ideas similar to this could include the images of a young girl with her grandmother who has osteoporosis or an aging woman consuming dairy foods to prevent chronic diseases later in life. Such images could provide convincing reasons to these women to increase their dairy food consumption. For this age group, dairy advertisements might also provide nutrition information as a reason to buy the product.

Women expressed dissatisfaction with the sensory characteristics of some dairy products served in restaurants and dining halls. Products were described as being too greasy and the cheese hardening on top. Restaurants and dining halls might strive to present dairy foods in appealing ways to encourage women to consume dairy products. If food does not look appealing, it is not likely to be chosen (Hess, 1997). In addition, women expressed dissatisfaction with the availability of lower fat dairy foods offered in restaurants and dining halls. Efforts to provide more low fat options such as serving skim milk and frozen yogurt and using less cheese in dishes are possibilities.