

A PILOT STUDY TO EXAMINE THE FEASIBILITY OF INVOLVING URBAN
HAIR SALONS AND STYLISTS IN A SOCIAL MARKETING CAMPAIGN AIMED
AT IMPROVING CALCIUM CONSUMPTION AMONG LOW INCOME, AFRICAN-
AMERICAN AND HISPANIC CHILDREN

By

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ABSTRACT OF THE THESIS

“A Pilot Study To Examine the Feasibility of Involving Urban Beauty Salons and Stylists
in a Social Marketing Campaign Aimed at Improving Calcium Consumption Among
Low Income, African-American and Hispanic Children”

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Research has suggested that hair salons are potentially effective venues to implement health-promotion campaigns; and, salon stylists may be viable liaisons for providing the messages to the community. The focus of this thesis was to examine the involvement of the owners/managers and stylists from hair salons located in a low-income, urban community in the implementation of the *Calcium: Select to Protect* campaign, a campaign targeted toward African-American and/or Hispanic caregivers of young children. Further, it sought to evaluate possible explanations for the campaign's failure.

Three realms of Socio-Ecological Model: the institutional/organizational realm (owners/managers), the interpersonal realm (stylists), and the individual realm (clients) were included in this investigation. Fourteen hair salons, their owners/managers (N=14), and their stylists (N=22), participated. Data pertaining to their demographics, motivating

factors, community relationships and pertinent constructs of the Stage Theory of Organizational Change were evaluated. Twenty-two hair salon stylists were trained to disseminate the campaign information to their clients. The stylists' demographics, personal characteristics, interpersonal relationships with their clients, and additional information pertaining to the constructs of the Social Cognitive Theory were evaluated.

Minimal information regarding the salon clients who did and did not recognize the campaign is presented. Results indicated that the owners/managers were more likely to institutionalize the campaign if they: were a child's caregiver, had perceived campaign implementation as easy, had perceived the campaign was effective, and had considered their participation to be good experience. Sponsoring a community event approached significance when correlated with their intent to institutionalize the campaign. With regard to the stylists, it was found that the campaign training increased their self efficacy and that campaign participation improved their behavioral capability. Descriptive data indicated that more of the clients who had recognized the material were males and that this group was younger than those clients who had not. In conclusion, hair salons and the stylists employed in them were not an effective means of promoting the *Calcium: Select to Protect* campaign in low-income, urban communities; however, additional research should be done to determine why, and to test multiple methods for improving these outcomes.

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CHAPTER ONE: INTRODUCTION

New Jersey Food Stamp Nutrition Education (FSNE) is comprised of the Food Stamp Nutrition Education Program (FSNEP) and the Food Stamp Nutrition Education Network. The overall goals of FSNE are to improve nutrition and increase physical activity among Food Stamp eligible audiences. In New Jersey this is primarily done via direct outreach classes taught through the FSNEP. The FSNE Network supports a collaboration of state agencies, private industries, and community-based, non-profit, health, trade and faith based organizations that strive to: collaboratively and individually support the FSNEP; coordinate nutrition education services to Food Stamp eligible individuals statewide; and, deliver consistent nutrition messages both as part of their regular programming, as well as via social marketing. New Jersey's *Calcium: Select to Protect* social marketing campaign, which encouraged African-American and/or Hispanic caregivers of young children to increase their child's intake of calcium-rich foods, was the first campaign supported via the New Jersey FSNE Network, and is the campaign around which this thesis project was developed.

Adequate calcium intake decreases the risk of high blood pressure, poor bone and teeth development, developing osteoporosis later in life, and may have a protective effect against lead poisoning. Unfortunately, many studies had recognized the suboptimal intake of calcium among children, especially children of African-American and/or Hispanic ethnicities; and, earlier work done by the FSNE Network had noted this was a major concern throughout New Jersey. Thus, the FSNE Network had undertaken the

development of the *Calcium: Select to Protect* social marketing campaign to address these issues throughout New Jersey.

Prior focus group research, supported by FSNE and performed in New Jersey with limited-resource, African-American and/or Hispanic caregivers, provided the data that had been used to support the development of the culturally sensitive information materials used in the *Calcium: Select to Protect* social marketing campaign. Focus group participants had also provided insight as to their perceptions of the most effective locations that could be used as optimal distribution venues.¹

The campaign objectives included:

1. Direct education to limited-resource parents/caregivers of children 1-8 and adolescents to promote the consumption of calcium-rich foods through the Network and other agencies and organizations;
2. The dissemination of evidence-based, culturally-sensitive information and audience-specific, e.g., low-lit, educational campaign materials, via both direct and indirect means of distribution;
3. Assistance from medical care and community agency providers to target audience children and their caregivers, in highlighting the issue of inadequate calcium intake, and the health issues associated with this nutritional deficiency; as well as their assistance in providing instruction for the use and implementation of the campaign and materials created; and,
4. Retail promotion of calcium-rich foods.

Results of the aforementioned focus group research suggested hair salons would be an ideal setting for the display of the *Calcium: Select to Protect* materials, due to regular and frequent target audience visits to salons, and the lengthy duration of their appointments. In reviewing the literature, this finding had been supported by other research denoting hair stylists had been found in some interventions to be valuable liaisons between the community and health organizations, as their staff often formed trusting, personal relationships with their clientele.

Thus, a plan was developed for the incorporation of hair salons as campaign distribution venues, and for educational intervention via salon stylists to be done, as part of the *Calcium: Select to Protect* campaign. The research discussed in this paper describes the pilot study that was conducted to implement and to determine the effectiveness of this portion of the campaign. The Social-Ecological Model was utilized as the framework for this work. The implementation plan included three of the five realms of this model: 1) the institutional/organizational level, i.e., the hair salon owners/managers; 2) the interpersonal level, i.e., the hair salon stylists; and, 3) the individual level, i.e., the hair salon clients.

Within each realm a different psycho-social theory was used to develop the intervention plan and its corresponding assessment. The Stage Theory of Organizational Change was used to guide the hair salon owner/manager intervention and to assess owner/manager awareness of the problem of nutritional deficiency and their willingness to adopt and

institutionalize the *Calcium: Select to Protect* campaign. The Social Cognitive Theory guided the stylists' intervention and assessment. Stylists were expected to serve as campaign liaisons by drawing clients' attention to the campaign issues and/or solutions, and distributing the *Calcium: Select to Protect* materials. The intervention prepared for the stylists, as well as its corresponding assessment, addressed stylists' capability to provide health-related advice, as well as their appropriateness in so doing, and their willingness to serve in the capacity of campaign liaisons. The Health Belief Model guided the intervention and program impact assessment aimed toward addressing the clients' beliefs and actions concerning calcium and their perceptions of their children's intake levels. Expectations for this portion of the campaign were that the provision of information by the campaign in salons, and via salon stylists, would increase client knowledge and beliefs, as well as promote a change in their actions regarding their children's calcium intake.

Based on previous research, the study investigators hypothesized that hair salons in low-income, urban, African-American and/or Hispanic locales would be opportune settings for the social marketing messages of the *Calcium: Select to Protect* campaign. The initial focus of the study presented in this thesis had been to assess the salon clients' beliefs and behaviors pertaining to calcium knowledge and intake. It was originally hypothesized that exposure to the *Calcium: Select to Protect* information and materials would:

- Increase the clients' knowledge of calcium-rich foods and diseases related to inadequate calcium intake in their children;

- Increase the clients' perceived susceptibility of their children to calcium deficiency and resulting health conditions;
- Increase the clients' perceived severity of the effects of calcium deficiency on their children;
- Enable the clients' to recognize common barriers related to their child's calcium consumption and ways to overcome them;
- Increase the clients' perceived self efficacy in their ability to ensure their child consumes an adequate amount of calcium; and,
- Result in the clients offering their children more calcium-rich foods.

However, after post-intervention client data was collected, it was apparent that practically no campaign recognition on the part of the clients had occurred. Thus, although for comparative purposes client demographic data is included in this thesis, statistical analysis of this data became unnecessary, and all hypotheses above failed to hold up to campaign expectations. To determine potential reasons for this phenomenon, i.e., the failure of this campaign to even prompt recognition, let alone impact, the focus of this thesis is limited to assessment of hypotheses pertaining only to the institutional/organizational and interpersonal realms of the intervention.

Regarding the institutional/organizational realm, researchers hypothesized that:

- Hair salon owners/managers who had particular personal characteristics, i.e., had children or grandchildren, had a nutrition-related health condition, and/or were

very health conscious, would be more likely to institutionalize the *Calcium: Select to Protect* campaign;

- Hair salon owners/managers who had a history of serving in volunteer capacities and/or strong community ties and personal relationships with their clients, would be more likely to institutionalize the *Calcium: Select to Protect* campaign;
- Hair salon owners/managers who were aware that calcium-intake was low among children in the community, and that low intake of this nutrient put them at higher risk for certain health conditions, would be more likely to institutionalize the campaign, i.e. continue to display campaign materials after the intervention has been completed; and,
- Hair salon owners/managers who perceived that the *Calcium: Select to Protect* campaign was effective, required little or no effort to implement, and/or found campaign participation to be a good experience, would be more likely to institutionalize the campaign, i.e. continue to display campaign materials after the intervention has been completed.

Regarding the interpersonal realm, it was believed that:

- Stylists in salons where owners/managers had agreed for them to assist in the campaign implementation and allowed for them to be trained in the use of campaign materials, would, participate in and assist with the campaign promotion;
- Personalized training would increase the hair stylists' perceived self-efficacy in their ability to share the health promotional information with their clients as well as their commitment to reinforcing the campaign;

- Hair stylists with the strongest perceived self-efficacy, perceived expectations, and willingness to reinforce the message, will most frequently report having delivered campaign messages and/or having encouraged their clients to improve their health; and,
- As a result of participating in the campaign, stylists' behavioral capability for giving health advice to their clients will increase.

This thesis documents the *Calcium: Select to Protect* campaign hair salon intervention, the research undertaken to assess its efficacy at the two levels described, and perhaps most importantly, hypothesize why this intervention failed to meet its aim to reach the intended campaign target audience.

CHAPTER TWO: LITERATURE REVIEW

Calcium is necessary for many biological functions in healthy people of all ages, but it is especially important for children. Adequate intake of calcium among children may reduce the risk of certain health conditions which may manifest during childhood or later in life. Although the importance of this mineral is well known, research performed prior to and throughout the duration of this study indicated that children, especially those who were African-American and/or Hispanic, were not meeting recommended intake levels for calcium.^{2;3} To address this issue, a culturally sensitive social marketing campaign, i.e., the *Calcium: Select to Protect* campaign, had been developed to increase awareness among caregivers of young children in African-American and/or Hispanic communities. Previous research indicated hair salons were an opportune place to display health promotional messages,^{4;5;6;7;8;9} thus, this literature review was performed to support the development and assessment of a pilot campaign component, i.e., a hair salon intervention.

Included in this review, to provide some background on this issue as well as its scope, are sections on: the importance of calcium in promoting health and reducing risk for various health conditions; children's calcium intake levels; and, dietary sources of calcium. Some background on social marketing, as well as on the theories and models used to support this intervention follow; as does a compilation of information regarding what has previously been learned about barriers to calcium consumption, particularly among

African-American and/or Hispanic audiences, this campaign's target audiences. Finally, similar studies previously performed are discussed.

Calcium and Disease Prevention in Children

Calcium is an important mineral utilized in many biological functions and additionally plays an important role in the prevention of certain health conditions.¹⁰ Adequate intake during childhood may reduce the risk of hypertension and lead poisoning, as well as osteoporosis later in life.

Calcium Intake and Lead Poisoning

Adequate calcium intake may reduce the risk of lead poisoning, a condition that has affected millions of children.¹¹ Studies in Newark, New Jersey and surrounding communities found that 48% of children age one to eight had high blood lead levels, exceeding the government established acceptable limit.¹¹ Elevated blood lead levels have been found to be pervasive in children in urban areas of this region especially among inner city African-American households.^{12;13} Children have been documented to be at a higher risk for lead poisoning because they absorb and retain a larger percent of lead per unit of body weight than adults, and have often experienced nutritional deficits that have further increased their risk.¹³ Sources of lead exposure named include: soil, street dust, and lead based paints.^{11;13} An elevated blood lead level in children is a health issue that needs to be resolved, as increased blood lead levels have been shown to be associated with learning disabilities, delinquent behaviors, and damage to the developing nervous system.^{13;12} A recent study, in 2004, reported half a million preschool children to have

blood lead levels above 10 µg/dl.¹⁴ Excessive blood lead levels have been recognized as a major health concern by the U.S. government and multiple health agencies, e.g., one objective of Healthy People 2010 was to eliminate blood lead levels above 10 µg/dl in children from ages one to five.¹⁵

Lead enters children's bloodstreams through ingestion, and approximately 50% of the amount consumed has been shown to be absorbed.¹⁴ Calcium may be an important mineral when trying to prevent lead poisoning, since calcium and lead compete to bind to the same proteins in the intestine. The hypothesis that adequate calcium will result in a decreased absorption of lead by these proteins was deemed to require additional research at the time of this intervention,¹⁶ but because some studies had shown that increasing calcium in the diets of children who were not consuming the recommended amount helped reduce the amount of lead absorbed, its potential for reduced risk is of note.¹⁴ Also, because of research, such as one study done with lead workers that found that those who consumed milk everyday had greater nerve sensitivity as evidenced by lower electrical current perception thresholds,¹⁷ some researchers believed that calcium may also prevent lead from interfering with nerve receptors thereby decreasing the extent of peripheral nervous system damage from lead toxicity. For these reasons, it appears that increased calcium intake may favorably decrease risk for lead poisoning, which has been well documented as an important health problem in Northeastern urban communities, particularly among minority populations.

Calcium Intake and Hypertension

Hypertension has been defined as a diagnosis of a systolic blood pressure ≥ 140 mm Hg and/or the diastolic blood pressure is ≥ 90 mm Hg. This condition has been associated with increased risk of stroke, heart failure, heart attack, and kidney failure.¹⁸ Data has shown that while hypertension and pre-hypertension affects more than half of the American adult population, it has been found to be particularly prevalent among African-Americans and/or Hispanics, and also affects children, especially of these ethnicities.^{18;19;20;21}

Dietary intervention has been used to treat hypertension. In 2006, a cross-sectional population based study found systolic and diastolic blood pressure decreased with increased consumption of dairy products or calcium.²² In other studies, increased dietary calcium consumption, via low-fat dairy products has been shown to lower blood pressure.^{22;23;24;25;26} However, full-fat dairy products may also be beneficial, as the CARDIA study found an inverse association between whole milk and dairy desserts, and blood pressure.²⁷

Systolic blood pressure has been reduced in children using a diet high in dairy products, fruits, and vegetables. The consumption of these foods in 95 children from the Framingham Children's study was assessed in 2005. By adolescence, children with the greatest dairy, fruit, and vegetable intake had the lowest blood pressure; children with a high fruit and vegetable consumption but low dairy intake had intermediate blood

pressure; and children with the lowest intake of all three food groups had the highest blood pressure.²⁸

An elevated lead burden, in blood and bone, has also been identified as an independent risk factor for hypertension. Elmarsafawy et al. demonstrated that a unit increase in blood lead predicted an increase of 1.2mm Hg in systolic blood pressure; in 2006 they reported that dietary calcium played an important role in lowering blood pressure by modifying the risk of cumulative lead burden.²⁹

Although more than half of the U.S. population has been classified as hypertensive or prehypertensive, a disparity has been shown in the prevalence of the disease based on ethnicity. The Multi-Ethnic Study of Atherosclerosis found the prevalence of hypertension was higher among African-American and/or Hispanic populations than Caucasian populations.²¹ African-Americans not only had a higher risk of developing hypertension, but also for developing complications including strokes and kidney disease.¹⁸ The increased risk of hypertension has been associated with genetic factors in the African-American population.³⁰ In the Hispanic populations, hypertension risks has been more closely associated with environmental factors and acculturation. Data from the Dallas Heart Study showed that the risk of developing hypertension positively correlated to the degree of acculturation, as Hispanic immigrants stopped practicing some traditional behaviors that had a protective effect against elevated blood pressure and had not yet incorporated any beneficial American dietary practices, i.e., decreased sodium and increased calcium intake.³¹

Calcium Intake and Osteoporosis

Osteoporosis is a disease characterized by low bone mass and deteriorating tissue, often resulting in fractures.^{32,33} This condition begins in childhood, although it may not manifest until later in life.¹⁰ Vitamin D and calcium are important dietary nutrients in the prevention of osteoporosis because they are essential for bone mineral deposition.³⁴ Forty percent of the lifetime bone mass accumulation occurs by adolescence, with females reaching their peak calcium accretion by age twelve and a half, and males reach it by age fourteen.³⁴ Studies have shown that inadequate calcium intake during childhood have resulted in lower bone mineral density, which increased risk for fractures, while adequate calcium intake optimized bone density.^{33;35;36;37;38} A study by Black et al, in 2001, measured bone mineral density in children with inadequate calcium intake and found these children had significantly lower total-body bone area, a lower total-body bone mineral content, and were significantly shorter than the control group of children.³⁵ Therefore, it is well documented that calcium is essential for bone development and health and adequate calcium intake should begin in childhood.

Studies of the association of calcium and bone health have frequently been designed with milk and dairy intake used as subjects' dietary source of calcium. In 2004, a study of fifty children, aged three to thirteen years, found that those who abstained from drinking milk sustained more pre-puberty fractures than children with higher milk intakes.³⁹ Increasing the calcium intake in children by supplementing their diet with powdered milk has been shown to enhance bone accretion and increase bone density.³⁸ Assuring adequate intake in children to assure calcium stores in bone are not depleted later on has

been shown to be important, not only during the period of bone development, but throughout childhood.³⁷ The effects of inadequate milk consumption in childhood and adolescence have been found to carry into adulthood, and have been negatively associated with hip bone mineral content and bone density and positively associated with fracture risk in adult women.⁴⁰ The negative effects of inadequate calcium on bone health have been shown throughout the lifespan, thereby establishing the need for adequate intake beginning in childhood.

African-Americans and/or Hispanics have been observed to have higher bone mass densities than their Caucasian counterparts, but have been shown to remain at risk for developing osteoporosis.⁴¹ Although the incidence of developing osteoporosis has been seen to be much lower among African-American women compared to Caucasian women at age fifty, with a ratio of 1:7, it has been shown to increase to 1:2, as females of both groups reach eighty years of age.⁴² Studies have shown that osteoporosis has been under-diagnosed in the African-American population. A retrospective study in a predominantly African-American hospital, found doctors failed to diagnose osteoporosis in 90% of the fragility fracture cases. The low frequency of diagnosis raised concern because women of this ethnicity have the highest percentage of morbidity and mortality secondary to fractures.⁴³ Hispanics have also been shown to demonstrate a lower incidence of osteoporosis, approximately half that observed in Caucasians; however, Hispanic women experience bone loss at a rate similar to both Caucasian and African-American women.⁴¹ The National Osteoporosis Risk Assessment Survey found that although relatively small percentages of post-menopausal Hispanic (15%) and African-American (10%-20%)

women had osteoporosis, approximately 55.5% of Hispanics and 38% of African-Americans had low bone density.⁴¹ Thus, calcium intake remains implicated as a potentially important nutrient consideration for African-American and Hispanic women, as they have been shown to evidence low calcium consumption; decreased participation in weight bearing exercises; and cigarette smoking.⁴¹

Calcium Intake among Children

The beneficial effect of calcium that may be achieved in terms of reduced risk of disease is related to the amount consumed. Ideally, children should consume their age-dependent recommended calcium intake level; however, many children have not achieved these goals.

In 1997, The Dietary Reference Intake for calcium was increased to equal the levels needed to prevent future osteoporosis.^{2;44} The Adequate Intake (AI) for children and adolescents was determined based on the maximal calcium retention of different age groups;^{2;10} these values are listed in Table 1.

Table 1: Children's Adequate Intake (AI) for Calcium	
Age	AI (mg/day)
1-3 y	500
4-8 y	800
9-18 y	1,300

Low calcium intake among children in the United States has been recognized as a nutritional problem.⁴⁵ The USDA's Continuing Survey of Food Intakes by Individuals (CSFII) from 1994-1996 documented that children, aged five and younger, had an average intake of 809 mg of calcium per day, an average intake that barely met the adequate intake level, suggesting that the intakes of many children fell below current recommendations. From six years of age and on, gender affected a children's calcium intake. Males, age six to eleven, consumed an average of 970 mg of calcium, while females in this age group averaged only 857 mg. The discrepancy was observed in adolescents' intake as well, with a suboptimal average of 1145 mg per day for males, as compared to only 771 mg of calcium per day for females, i.e., neither males nor females in this group were meeting the AI.⁴⁶ This surveillance data confirms children of all ages are failing to consume adequate amounts of calcium through their diet.

Research has suggested that the consumption of milk or other dairy sources is essential for children to maintain adequate calcium intake, as milk has been shown to provide more than half of the total amount of calcium consumed by children aged two to eleven.⁴⁷ To meet the established adequate intake levels, the 2005 dietary guidelines recommended that children, aged two to eight, consume two cups of fat-free or low-fat milk, or two servings of milk products each day. The recommended amount increased for children nine years of age and older to at least three cups per day; however, other research suggested that four daily servings of dairy were required to meet AI levels for calcium.^{44;48}

Since milk and dairy had been recognized as the most common American dietary sources of calcium, trends in dairy consumption were used to reflect calcium intake in children, when data from the NHANES 1999-2000 and from the CSFII from 1994-1996 and 1998 were analyzed. These analyses suggested that less than half, i.e., 44.5%, of the children from two to eight years of age were consuming the recommended two or more servings of dairy each day. Those meeting the recommendation had an average dairy intake of 2.95 servings per day, while those who did not consumed an average of 1.22 dairy servings each day. The average daily dairy intake decreased as children aged, with 80% of children aged 9-18 consuming an average of only 1.45 dairy servings. Declining calcium and dairy intake levels have been shown to begin at an earlier age in females than in males.⁴⁹ Reasons suggested for these declines have included: increased control over beverage choices, e.g., access to sugar-sweetened beverages in school and social setting; peers' attitudes; weight concerns; and misconceptions pertaining to adequate needs, e.g., children believed males have higher calcium requirements than females.⁴⁹

Calcium Intake among African-American and/or Hispanic Children

Discrepancies have been found in the amount of dietary calcium, as well as calcium AI recommendations met, based on ethnicity.^{50;51} Storey et al. analyzed CSFII data from 1994-1996 and 1998 and found that African-American boys and girls, aged two and up, consumed fewer dairy products than their Caucasian and Hispanic counterparts.³

African-American children's calcium consumption met the AI until age three, while non-African-American children continued to meet adequate calcium intake levels until ten years of age.⁵² In examining data collected regarding the calcium consumption of

African-American children, aged two to three, although adequate, their calcium intakes were significantly less than those of children of other ethnicities.³ These ethnic differences have been noted throughout the lifespan, with African-American adolescents and adults consuming less milk and cheese than Caucasians and Hispanics of the same age groups.^{52;53}

A decrease in calcium consumption with age has also been observed in the Hispanic population. Reasons given for this phenomenon included decreased milk intake due to taste preferences, lactose intolerance, and increased sugared beverage consumption.^{2;3;49;54} Focus groups conducted with preadolescent and adolescent Asian, Hispanic and Caucasian females found that Hispanic girls had the strongest negative reactions towards the taste of milk; they were also the only ethnic group to mention lactose intolerance as a barrier to milk consumption.⁴⁹ Beverage choice may exacerbate the problem of suboptimal calcium intake in Hispanic youth as sixty-one percent of study participants indicated they consumed one can or more of soda per day compared to 29% of Asians and 36% of Caucasians.²

African-American and Hispanic youth are at an increased risk for calcium deficiency and the negative health consequences associated with it because of suboptimal milk intake and dietary choices. It should be noted both of these ethnic groups are prone to problems with lactose digestion suggesting that other sources of calcium need to be emphasized in the diet.

Dietary Sources of Calcium

With notably low intakes of dietary calcium, particularly among minority children, it is important to examine which foods are calcium-rich, as barriers to their consumption may be the cause of this nutrient deficiency; while conversely, appropriate recommendations for increased intake of these foods may serve to remedy this nutritional problem.

In the U.S., milk and dairy have been identified as the main sources of calcium in children's diets, with approximately 70% of dietary calcium supplied by milk, cheese, yogurt, and dishes that contain one of these ingredients.⁴⁷ As milk consumption decreases with age, other dairy products have been found to provide more of the total daily calcium intake. Caucasian females from age 5-11 showed a decrease in milk intake, but a coinciding increase in the amount and serving size of cheese and dairy desserts they consumed, causing their calcium intake to remain stable.⁴⁷ Cheese has been shown to be one of the most accepted calcium-rich foods by older children, since as they age they have been found to increase their consumption of foods such as pizza, tacos, and sandwiches. In a study done with 1999-2000 NHANES data, milk added to cereal contributed an average of 276 mg at breakfast, and 436 mg for the day; overall, the consumption of cereal and milk was associated with a seven-fold increase in calcium consumption, with the cereal contributing minimally more calcium to the children's diets.⁵⁵ Among children, one of the least accepted and least frequently consumed calcium sources has been found to be yogurt.⁴⁷

Not only have dairy foods been found to contain much of the dietary calcium that is consumed, but they have also been shown to have the greatest bioavailability among

calcium-rich foods.⁴⁴ Many other calcium-rich foods have not been promoted to improve calcium intake because they contain phytates, oxalates, and tannins, i.e., substances that bind with calcium to form insoluble compounds and thereby reduce calcium's bioavailability. Spinach, sorrel, rhubarb, walnuts, celery, and okra are some food items with a high oxalic acid concentration.⁵⁶ Unleavened bread, nuts, and grains have high concentrations of phytic acid, i.e., phytates.⁵⁶

However, data published in 1993 showed that grain products provided approximately 11% to 22% of the calcium in the diets of Hispanic, Caucasian and African-American adolescents and adults, thus these foods should not be discounted in terms of their ability to help children meet the AI for calcium. In this study, corn tortillas and white bread were among the top ten foods contributing to Hispanic adolescent and adult's dietary calcium intake; other foods mentioned included mixed dishes made with dairy, rice, and beans.⁵³ For children who avoid dairy foods, calcium-fortified grains like bread or breakfast cereals are another option that have been used to increase the calcium intake. Research indicated in terms of excess calories and cavity risk, calcium-fortified grains may be better options than calcium-fortified juices; however, adding .5 – 1.5 servings of calcium-fortified juice can also help children achieve the AI for calcium.^{55;57}

In consideration of children's suboptimal calcium intake, especially that of African-American and Hispanic children, other foods containing calcium may need to be incorporated into the diets to improve their calcium intake status. It appears that children are acceptant of other dairy foods, i.e. milk and ice-cream, and calcium-fortified products

such as cereals. Offering these foods more often as children age may help their calcium intake levels meet acceptable levels.

Factors Contributing to Suboptimal Calcium Intake

With milk and dairy products having been shown to provide most of the calcium in U.S. children's diets, when milk consumption decreases during adolescence, as has been demonstrated in the literature, calcium intake has been shown to decline to inadequate levels. Common reasons that have been found to contribute to decreased milk consumption are: changing food preferences that result in a decreased preference for the taste of milk, easier access to competing lower-calcium foods and beverages, and, increased lactose maldigestion with age.⁵⁷ Also, a lack of knowledge regarding what foods are calcium-rich has been identified as another factor that may contribute to suboptimal calcium intake, particularly among minority populations, such as those targeted in this investigation.

Barriers to milk consumption are of importance since as previously noted, research has shown that children who do not consume dairy products only met approximately 40% of their AI for calcium. In one investigation, only one child out of the 127 studied was able to meet his or her AI without consuming any dairy products.⁵⁷ Knowledge of meal patterns that promote to increased calcium consumption is important to nutrition educators, as meal patterns and variables associated with them have been found to influence milk consumption among children. Milk and dairy has been most positively associated with breakfast meals. Children who eat breakfast have been shown to be more

likely to consume more calcium than children who do not eat breakfast, as they have been found to add milk to their cereal and/or drink hot cocoa.^{55;58} Milk intake at lunch has been noted to vary in terms of the quantity consumed. Also, children who receive school provided lunch meals have been found to consume more milk than children who bring their lunches from home. In terms of mealtime beverage selection, milk has been least associated with evening meals, especially when dining out, where juices, soft drinks, or other sugar-sweetened beverages have been shown to most frequently be children's beverages of choice.⁵⁸

Non-dairy beverage consumption is often blamed as the reason for the decreased milk, and therefore calcium, intake in children. For example, when vending machines within schools have made other beverage options available to children, decreased milk intake has resulted.⁵⁸ However, analysis of the CSFII data from 1994-96 and 1998 showed that non-dairy beverage consumption was responsible for only 2-3% of the variance in children's calcium consumption, most likely because sugar-sweetened beverages did not directly replace milk in the diet. It should be noted, however, that this study was funded by the National Soft Drink Association.³

Children in the United States have been shown to consume approximately 25-30% of their energy intake as snacks, at and away from home; and, their snack food choices have directly affected their calcium intake. Overall, increased snacking away from home has been shown to negatively affect the calcium intake of older children. When they were away from home it has been noted that they rarely consumed milk with snacks, unless

they did so in combination with a specific food, such as cookies. However, this population has been shown to often choose to snack on many calcium-rich foods like cheese, pizza and ice cream.⁴⁹ Younger pre-adolescent children have been shown to be more likely to report consuming calcium-rich snacks like ice cream or milk and cookies. However, it is important to note that less calcium-rich foods, such as chips and candy, have been notably strong competitors for snack choices in this age group.⁵⁸

Lactose maldigestion has been identified to be another barrier to adequate dairy intake. In humans, lactose maldigestion is especially prominent in certain ethnic populations, and has been reported as affecting 75% of African-Americans and 50% of the Hispanic population.⁴² Many dietary strategies have been recommended to help lactose maldigesters to incorporate dairy foods into their diet including: consume small amounts of lactose, i.e., 12 grams or less at a meal; ingest lactose containing foods often to increase tolerance; eat a lactose containing food as part of a meal; choose dairy foods identified as the best tolerated; use lactose digestive aids; and, choose calcium-fortified, non-dairy alternatives.⁴²

Insufficient knowledge regarding what foods are calcium-rich and the relationship between adequate calcium intake and health has been identified as another limiting factor in calcium intake, especially among minority populations. Many adults have been found to be unaware of which foods are calcium-rich and their average daily intake.⁵⁹ For example, in one investigation, only 66% of low income African-American women surveyed were able to identify milk as a good calcium source. In addition, many non-

calcium-rich foods like fruit, breads, grains, meat, and poultry were incorrectly identified as calcium-rich food sources. Further, a lack of awareness of the relationship between adequate calcium intake and the risk for health problems was found to negatively affect calcium intake. This study also found that many adults were able to identify a relationship between calcium and osteoporosis, but less than half of those surveyed were able to identify the relationship between calcium intake and high blood pressure, cancer or diabetes.⁵⁹ Since it is likely that an awareness of the importance of calcium to health and knowledge of foods that contribute to its intake may improve calcium intake, the findings from this study are disconcerting.

Dietary preferences, meal patterns, lactose maldigestion and lack of knowledge appear to contribute to suboptimal calcium intake among children. Therefore nutrition education and/or educational campaigns targeting children and caregivers should focus on introducing target populations to both dairy and alternative calcium-rich foods, and how to incorporate these foods into meals consumed at or away from homes.

Calcium-Related Nutrition Education with Caregivers

Prior to this investigation, few interventions had been done with caregivers of young children in an attempt to improve their children's calcium-intake. Those interventions that were identified in the literature had all used direct education classes for educational delivery.

Again, several nutrition education programs were found to have targeted caregivers to improve the quality of children's diets, in terms of their calcium intake, all of which demonstrated some degree of success.^{60;61} Bon Appetit! and the Calcium Cooking Class Program targeted children and caregivers. This intervention resulted in children's increased ability to identify calcium-rich foods, and caregivers indicating they had incorporated the "trialed" recipes into their home meals.⁶² In an intervention performed on a larger scale, Winzenberg et al. used small group education with mothers to increase the calcium intake and the mothers' and their children's frequency of physical activity. Again, this small group intervention produced favorable results, with improved behaviors among both the mothers and children.⁶³

Although somewhat effective, these educational interventions exhibited some negative aspects. They required substantial time commitments to target only a small number of individuals for each class. Thus, health professionals may wish to test other methods, such as social marketing, in order to educate larger segments of the community.

Social Marketing Campaigns to Deliver Health Education

To extend the reach of nutrition education to larger community segments, methods such as social marketing, have been utilized. Social marketing is a program-planning technique that is utilized to reach large audiences by applying commercial marketing concepts to promote acceptability of an idea and cause a voluntary behavior change.^{64;65;66} For the purposes of delivering and evaluating FSNE social marketing campaigns, the USDA has modified Andreason's definition to define social marketing as

“A consumer-focused, research-based process to plan, implement and evaluate interventions that are designed to influence the voluntary behavior of a large number of people in the target audience.”^{67;68}

Social marketing integrates the exchange theory, audience segmentation, competition, “the marketing mix”, consumer orientation, and continuous monitoring. Program development has often been centered around the four “P’s” of the marketing mix, i.e., product, price, place, and promotion.⁶⁹ The products are the benefits of the proposed behavior change. Price is any costs, physical or emotional, that the consumer will encounter when performing the promoted behavior. The place is where the desired behavior occurs, for instance drinking milk with meals at home. Campaign promotion must make the message attractive and persuasive to consumers. Formative research, with the target population is used as to support campaign development. The target audience’s impressions and feedback are monitored throughout implementation, and the program is revised accordingly. The plans for evaluating the effectiveness social marketing program are designed at the start of the program and assessment continues throughout the duration of the program.

Many FSNE social marketing campaigns have been initiated^{67;68;70;71;72;73} A minimal number of campaign assessments have been forthcoming; and, of those that have, success has been demonstrated.^{67;68;71;72;73} Other documented nutrition-related national campaigns have been described in the literature.^{74;75;76} All campaigns developed have addressed marketing’s 4-Ps, i.e., intervention product, price, place, and promotion.^{67;68;71;72;73;74;75;76}

In all cases, community needs were assessed, and target audience attitudes and beliefs informed decisions on implementation strategies. Campaigns utilized mass media, i.e., radio or television commercials, to publicize the campaign name and contents. Cost benefit ratio analyses determined the best way to gain acceptance of the desired behavior change by associating it with a perceived positive; for example the VERB campaign associated increased physical activity with social engagement and peer recognition.^{74;75;76} At the writing of this thesis all campaigns were underway, and no data reflecting their degree of effectiveness had been published.

Although social marketing is considered a useful means of reaching large populations with nutritional messages, using social marketing to target specific ethnic groups has been found to be challenging due to barriers unique to their situations, such as difficulties accessing health care or their mistrust of the health care system.⁶⁵ Natural helpers, community networks, and community leaders have been successfully used as a means to deliver messages to minority groups.⁶⁵

In an attempt to ascertain how to better develop strategies to link minority communities to health care information and services, focus groups with African-American adults were performed. Focus group findings suggested that when campaigns for minority audiences are designed, it is important that campaign components identified and addressed include: familiar, credible, and knowledgeable information sources; straight forward and motivating messages; and, messages focused on positive outcomes. Suggested channels

for information disseminate included the posting of materials in areas where the target audience waits for a service, such as bus stops and laundromats.⁶⁵

As indicated by the numerous FSNE and USDA campaigns being implemented nationally, social marketing has become accepted as an effective method for delivering nutrition messages aimed at reaching large audiences. However, it is clear that as campaigns are developed and implemented, nutrition educators should utilize the input of their targeted audience, especially minority groups, and concern themselves with pertinent barriers and modes of information delivery to produce effective campaigns.

Psycho-Social Theories in Nutrition Education

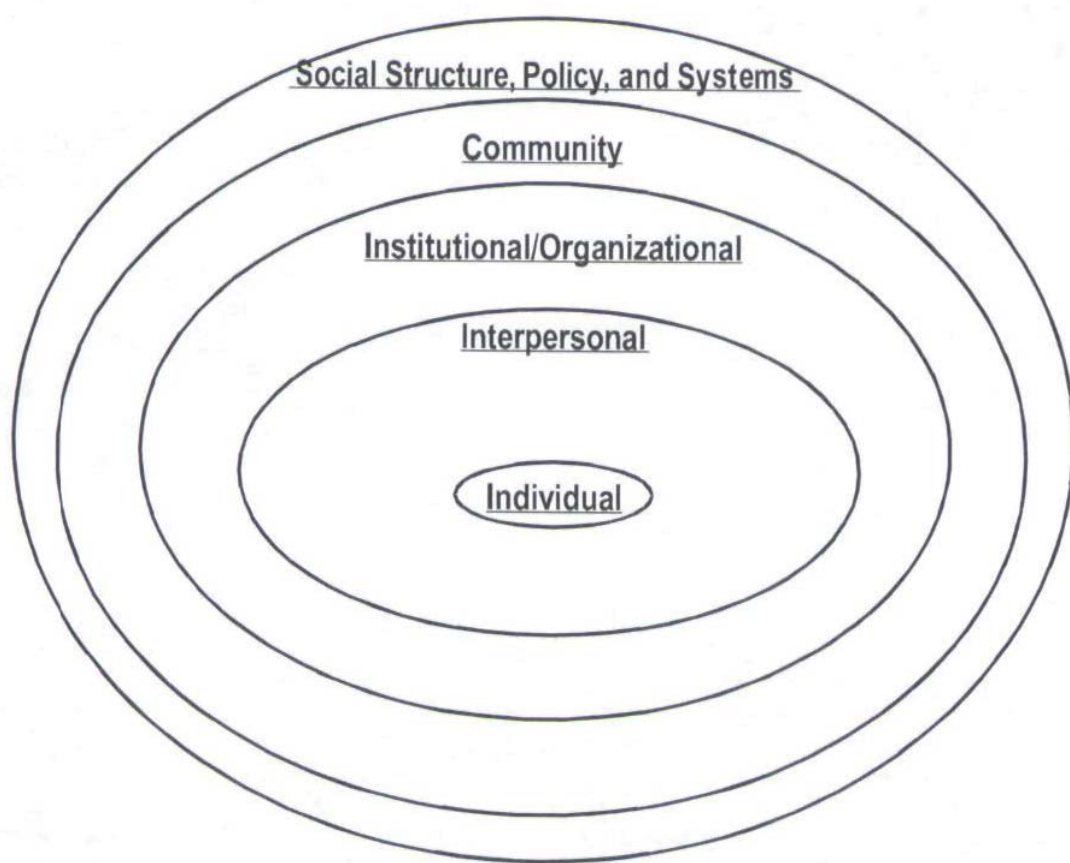
Psycho-social theories and models guide research-based nutrition education programs, as well as the assessment of planned interventions. Theories of health behavior propose that mediating variables, i.e., constructs, predict outcomes. Thus, presumably, targeting these variables will result in a behavior change.⁷⁷ The Social Ecological Model defined the scope of the *Calcium: Select to Protect* campaign described in this thesis. Within this framework, a different psycho-social theory was employed to structure and assess the intervention and its evaluation.

Social Ecological Model

The Social Ecological Model has been used to develop nutrition interventions that target large communities. According to this model, the social world is broken down into five realms where intervention may take place. The realms are 1) social structure, policy, and

systems; 2) community; 3) institutional/organizational; 4) interpersonal; and, 5) individual (Figure 1). In this project, i.e., the hair salon intervention of the *Calcium: Select to Protect* campaign, within each realm a different theory was utilized to implement and evaluate the intervention.⁷⁸

Figure 1: Social Ecological Model⁷⁸



The outermost realms of the Social Ecological Model are useful for executing large scale nutrition education campaigns in that changes at the organizational level reinforce and enable desired changes to occur within the interpersonal and individual levels.⁷⁸ By

definition, the social structure, policy and system realm includes local state and federal policies that regulate or support change, such as laws, regulations, organizational mission statements, position papers and/or industry standards. Public education, advocacy and educating the policy makers are approaches used to foster a change in this realm. Social networks, norms and standards between individuals, groups, partnerships and organizations make up the community realm of the Social Ecological Model. To achieve the desired results in this realm collaboration and input from the target audience and community awareness is required. The institutional/organizational realm focuses on influencing organizational behavior, i.e., businesses, schools, churches, public agencies, service organizations, and others are used to reach the community to implement an intervention. Adoption of programs and policies and their measured effectiveness reflect the efficacy of the intervention through these channels.

The model's inner realms include the interpersonal and individual realms. The interpersonal realm involves peers, families, friends or other groups that provide social identity and support for an individual to implement the intervention.⁷⁸ At the individual level, each person in a community has a different perception of an intervention based on their life experiences, knowledge, attitudes, beliefs, and personality traits. Intervention work in this realm targets specific aims to promote positive health changes.

To effectively implement interventions, several realms of the Social Ecological Model should be targeted. Further, it is appropriate to utilize psycho-social theories appropriate to the realms to be addressed. In this thesis project, the realms targeted were the

institutional/organizational, the interpersonal, and, the individual realms. The Stage Theory of Organizational Change was used to guide the institutional/organizational intervention, i.e., the hair salon owner/manager intervention. The Social Cognitive Theory was used to guide the interpersonal intervention, i.e., the stylists' intervention; and, the Health Belief Model was used to guide the individual intervention, i.e., the client intervention. As such, each of these theories/models is described below.

Stage Theory of Organizational Change

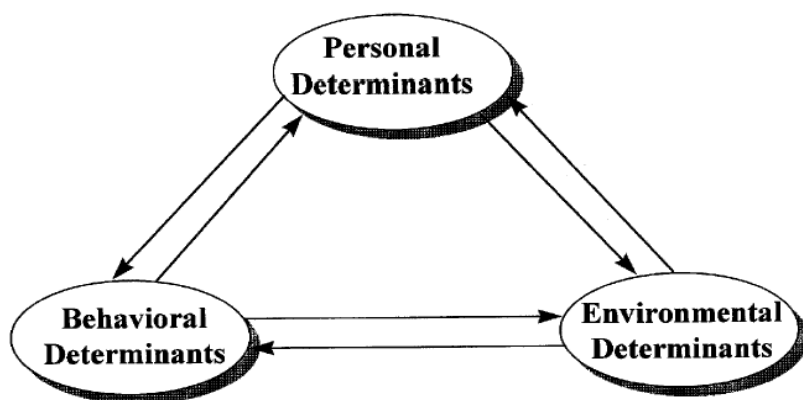
Constructs from the theories of organizational change can be used a guide to the institutionalization of a program at the institutional or organizational sphere of the socio-ecological model. For example, the Stage Theory of Organizational Change explains how organizations develop new goals and the stages the organization passes through in the implementation of a program, and thus informs interventions conducted at this level.⁷⁹ The contemporary model of the Stage Theory includes seven stages: 1. Awareness; 2. Search for possible responses where solutions; 3. Evaluation of alternatives; 4. Adoption; 5. Initiation of action; 6. Implementation of the change; and 7. Institutionalization.⁷⁹ Different levels of management and staff are included at various stages to reach the goal of institutionalization. For example, senior management is the group that typically identifies problems and that is ultimately responsible for choosing the solution(s) that will be implemented. Management is also usually the gatekeeper for possible institutionalization. Whereas, mid-level staff plays a vital role in the actual implementation of any program. Collaborating with organizations within the community

is important for those planning community-based interventions, because organizations can do much to spread and reinforce public health messages.⁷⁹

Social Cognitive Theory

The Social Cognitive Theory is valuable in implementing and evaluating health promotion programs because it acknowledges, “reciprocal determinism,” i.e., the interplay among behavior, personal, and environment determinants that influence the desired behavior and draws the interventionists’ attentions to constructs within these factors that must be addressed for an effective campaign to ensue (Figure 2). Affecting the model’s determinants are primary constructs that relate to the behavior(s) to be addressed. They are: behavioral capability, i.e., the knowledge and ability to perform the desired behavior; observational learning; self-efficacy; goals; perceived facilitators; and, barriers.^{80;81}

Figure 2: Reciprocal Determinism in the Social Cognitive Theory⁸²



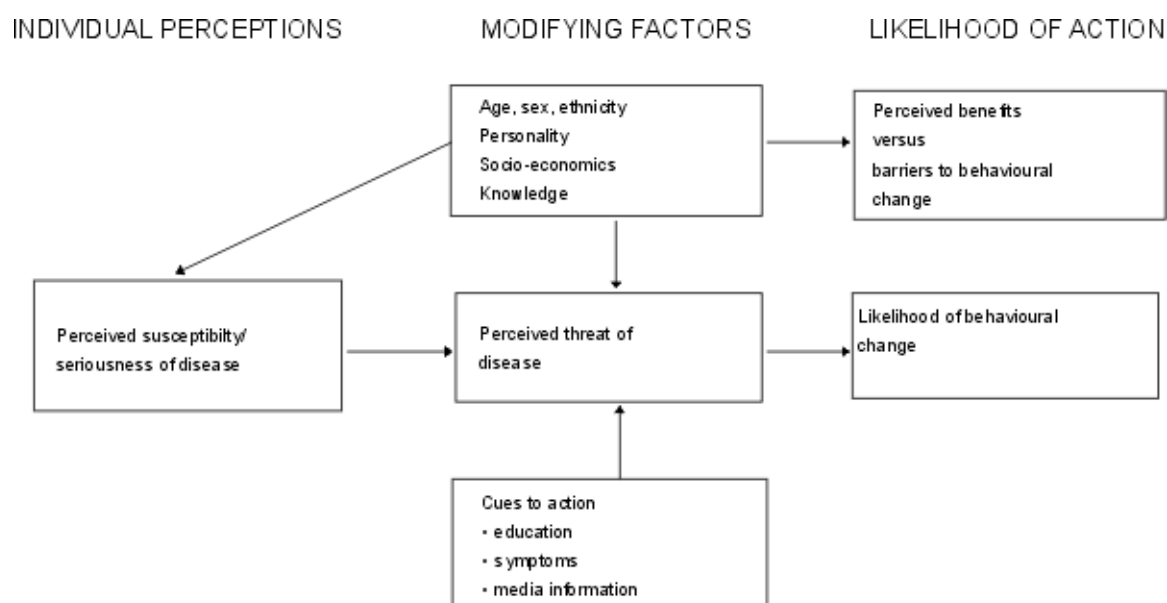
Also included in the theory is the concept of reinforcements or rewards, as these are often critical to increasing the likelihood of the target behavior being repeated. Outcome

expectations and expectancies are the components of the model that reflect what the individual expects to occur after they engage in a behavior and how much value they associate with it, i.e., this is a value-expectancy model.⁷⁹

The Social Cognitive Theory is an example of a model that has previously been applied to intervene at the interpersonal level. For example, one study, a pilot test, analyzed the effectiveness of using the lay public to deliver a smoking cessation program in a primarily African-American city.⁸³ Volunteers were trained with an already established program modified to include three constructs of the Social Cognitive Theory: outcome expectations, outcome expectancies, and self-efficacy. The trainers were educated on information regarding smoking cessation. Although the training initially generated measured increases in the trainer's knowledge, expectancies, expectations, and self efficacy, the results returned to baseline over six months because the participants did not have the opportunity to deliver the message to the public.⁸³ This finding suggests that the timeframe intervention implementation when this model is used to intervene in interpersonal communications should be considered.

Health Belief Model

The Health Belief Model has often been used to address behavior change in the individual realm of the Social Ecological Theory (Figure 3).

Figure 3: Health Belief Model⁸⁴

According to this model, the individual's stage or readiness to change is measured by assessing the following constructs: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, self-efficacy, and cues to action.⁷⁹ Perceived susceptibility and severity measure an individual's perception risks of a negative health condition and the seriousness of that condition. The model suggests that individuals undertake cost benefit analyses in which they weigh the perceived barriers or obstacles to adopting a health behavior against its perceived benefits. Cues to action prompt behavior change. Self efficacy, a recently added construct, asserts the individual's belief that he or she can commit to the recommended change(s).⁷⁹ The constructs of this model work together to facilitate change, as the perceived susceptibility to the problem being addresses, as well as its severity must be high, while identified benefits must be valued, behavioral self efficacy must be high, and perceived barriers to performing the behavior(s) must be low.⁸⁵

The Health Belief Model has been used to formulate and evaluate osteoporosis intervention programs utilizing small group educational classes. The results of one lecture-based program showed an increase in knowledge, and participants' beliefs that calcium intake was beneficial. However, these positive changes did not prompt participants to adopt prevention behaviors.⁶⁰ Another more intense, hands-on program, increased participants' self-efficacy scores and resulted in a statistically significant increase in calcium intake.⁶¹ Both studies' investigators noted that an increase in knowledge alone did not change pertinent behaviors, and suggested that prevention programs must focus on the clients' beliefs and behaviors to best facilitate change.^{60;61}

Hair Salons as Venues for the Delivery of Health-related Messages in the Community

As previously noted, the delivery of health-related messages via social marketing in minority communities may be difficult. However, one recommended way to increase acceptance may be to utilize natural helpers, community networks, and community leaders in message delivery; a second recommended tactic was to display the informational material in a location where the target audience is most likely to notice it.⁶⁵ Previous work has suggested that clients visit hair salons in minority communities at least once every eight weeks,⁹ and spend from thirty minutes to several hours per visit.⁷ During salon visits, investigators have seen clients spending time talking to and socializing with the salon employees, with whom they often form personal relationships.⁷ The salon has been documented as a place of social support where women share advice, support, and empathy. Women have been observed enjoying companionship, sharing

information and secrets, and escaping or collectively confronting their personal problems in this setting. Researchers have noted that often women have set out to seek beauty advice, but topics concerning health have arisen as well.⁹ Beauty salon atmospheres are relaxing and non-judgmental, thus they have been identified as opportune settings for the delivery of health-related or public health information to community members.⁴

Hair stylists are categorized in the literature as personal service workers, a class of workers who come into close physical contact with individuals without providing a health service.^{5:7} They are also natural helpers, that is, people others turn to for advice, support and assistance, i.e., trusted individuals that demonstrate empathy and respond well to others' needs.⁸⁶ They often have a loyal clientele and spend a significant amount of time with each individual when providing their service(s). These qualities give hair stylists the potential for playing a key role in delivering health-related messages to their clients.

It is noteworthy that the trusting relationship among salon stylists and clients that has been recognized in salon settings appears to have been intensified when the owners, employees, and clients are of the same ethnicity.⁷ Older African-American women, in particular, are believed to have developed a strong oral culture in the hair salon using this setting to network, exchange information, and talk about local news.⁶ This relationship can be seen in Latino or Dominican run beauty salons as well, where the owners and employees of these businesses were found to be useful resources spreading public health messages.⁷

Additional evidence has been presented in the literature to suggest that hair salons may be viable nutrition education/campaign venues in African-American, as well as Caucasian communities. Solemen and colleagues conducted an observational study in ten hair salons to understand the differences in functioning and socializing between salons serving primarily African-American clients, as opposed to those serving primarily Caucasian clients.⁸⁶ While differences were noted, i.e., African-American clients were observed spending considerably more time in the salon than their Caucasian counterparts, were younger in age, and had spent more years as patrons of particular salons, approximately one out of every five conversations between the hair stylists and clients in all salons were health related. The most popular topics in both ethnic groups included: motherhood, pregnancy, and diet and weight-loss. Caucasian stylists and clients additionally discussed back pain and skin problems.

All topics were spontaneously initiated, and were often characterized by light banter, even when important issues were being discussed.⁸⁶ Further, the stylists were noted to often be the opinion leaders, i.e., those whose information the group trusts. These findings point to the need for stylists who will take part in interventions to be trained to “weave” health-related topics into conversations without seeming rehearsed or forced.

Since reading material was always observed to be readily available for clients, and it was found to be utilized at various points throughout salon visits,⁸⁶ written materials may be a good way to integrate health-related messages into salon interventions.

For salons to be effective intervention venues for disseminating health messages, stylists must be willing to participate. In one study designed to assess the willingness of the staff, it was found that most stylists had been willing to communicate health information related to breast cancer to their clients.⁶ In other work, hair stylists have participated in interventions designed to increase awareness about breast cancer by disseminating information pertaining to breast cancer and mammography.⁵ The inclusion of trained stylists in this intervention resulted in an increased incidence of clients speaking to their health-care providers about breast cancer and participating in voluntary breast cancer screenings.⁸⁶

More recently, Linnan and colleagues assessed the needs, interests, and preferences of licensed stylists in a rural setting in regards to sharing health messages with their clients.⁸ The stylists expressed interest in discussing health messages and were comfortable relaying information as many were already discussing healthy eating, weight control, and exercise with regular clients.⁸ A major barrier when using these professionals to relay a health-related message was the time commitment required to provide adequate education as most stylists reported being busy and preferred to learn any material on their own time. Although stylists had indicated they were interested in delivering health-related messages, research has found the amount of time and duration of training had to be dictated by the stylists rather than the researcher.⁸

The North Carolina BEAUTY and Health Pilot Project not only asked the hair stylists to deliver a health-related message but employed a community-based participatory research

approach by including them in the planning, implementation, and evaluation of the intervention. The stylists were asked to report what topics they typically discussed with their clients and how they would like to receive training to address the interventions key messages, i.e., eat at least five servings of fruits and vegetables daily; engage in thirty minutes of daily physical activity; and call the National Cancer Institute's hotline for more information. The stylists provided input regarding the most appropriate and reasonable ways to integrate these messages into their discussions with clients during their appointments.⁹ During the intervention the key messages were provided to clients via conversation with stylist and/or by educational materials displayed in the waiting room, i.e., brochures, promotional items, and prompts to ask the stylists for more information. The trained stylists successfully delivered the key messages to their clients. Their intervention was deemed successful because more than half of the clients surveyed post intervention reported they had discussed the cancer prevention advice with their health care providers and 55% reported a change in health behaviors as a result of the conversations they had had with their stylists.^{8;9}

Five studies related to the inclusion of salon hair stylists in health promotion interventions were able to be identified for this literature review. Of these five studies, only two provided insight regarding the success of their participation. Based on these studies it should be noted there were many potential barriers that interventionist who intend to work with this audience should consider. Some considerations include: the large amount of time the researchers dedicated to training a very small number of stylists; the flexibility required to work with even this small number of stylists; and the fact that

stylists indicated they preferred to learn the information on which would have made it difficult for researchers to discern if the same degree of training had occurred across stylists and to what degree they were competent to discuss the information with their clients.

Summary

Calcium is a vital mineral used in many biological functions; inadequate intake may result in negative health effects. Although the importance of adequate calcium intake is well known among health professionals, it is clear that children, especially those of African-American or Hispanic descent are not meeting the recommended AI. Small group education has been used to increase awareness and foster behavior change; however larger scale interventions utilizing the techniques of social marketing may be a preferable technique for disseminating this information to target communities. Some previous research has shown the effectiveness of employing hair stylists as promoters, and hair salons as venues for delivering a health related messages, particularly in minority communities. Using what was learned from previous work, this study used the framework provided by the social ecological model, and constructs from the Stage Theory of Organizational Change Model, the Social Cognitive Theory, and the Health Belief Model to deliver a portion of the *Calcium: Select to Protect* campaign to urban, low-income, primarily African-American and Hispanic individuals via hair stylists from salons in Newark, New Jersey; and, to assess the involvement of salons and stylists in the intervention.

CHAPTER THREE: METHODS

The Social Ecological Model guided the development of this study and its methods, which targeted the institutional and organizational, interpersonal, and individual realms associated with hair salons. Again, the study aim was to assess if hair salons were effective implementation sites for a nutrition education social marketing campaign; and, if the salons' hair stylists were viable liaisons for the distribution of the campaign information and materials.

Different psycho-social theories and models were used to determine the intervention and assessment methods appropriate for the investigation designed to examine each realm. As stated in the introduction, the Stage Theory of Organizational Change was used to guide the hair salon owner/manager intervention, as follows. The Social Cognitive Theory guided the stylists' intervention and assessment. The Health Belief Model guided the intervention, and was to have been used to perform campaign's impacts on the clients; however, as previously discussed, the minimal impact of the campaign modified the aims of this thesis to do little more than provide descriptive statistics regarding clients assessment aimed toward addressing the salons' clients.

All campaign materials for the *Calcium: Select to Protect* social marketing campaign were designed prior to this project's initiation, and had been created to target African-American and/or Hispanic caregivers of young children. Thus, the details of the research that had served as the foundation for the development of both the campaign materials'

content and design, as well as the selection of campaign venues, including hair salons, is described elsewhere.¹ Campaign material content included: how much calcium children of different ages need; which dairy foods and non-dairy products are good sources of calcium; tips to help those who are lactose intolerant get enough calcium; how calcium may protect children from different health conditions; and how to determine how much calcium is in a packaged food item. The *Calcium: Select to Protect* materials had been designed to be culturally appropriate, colorful, and written in a manner appropriate for African-American and/or Hispanic audiences that exhibited low-literacy levels.

This chapter includes specifics regarding the implementation and assessment design for the portion of the *Calcium: Select to Protect* social marketing campaign that was conducted in hair salons in Newark, New Jersey. It additionally includes a description of the methods employed in study design deviations that were deemed necessary after initial client post-test data reflected that this intervention had failed.

Methodological Decisions Made Prior to Salon Recruitment

Newark, New Jersey, was the community chosen for the implementation and evaluation of the hair salon portion of the *Calcium: Select to Protect* campaign. Newark was chosen because Essex County had the highest prevalence of New Jersey households participating in the Food Stamp Program (n=33,062), and Newark was home to the vast majority of the individuals living in these households. Hudson County's Jersey City hair salons were chosen to be used as control locations, as Hudson County was geographically and demographically similar to Essex County, as was the number of households in the county

that were participating in the Food Stamp Program (n=24,982). The vast majority of Food Stamp Program participants in Hudson County were located in Jersey City, which made this city the closest match possible for the intervention.

In order to ensure a representative sample of hair salons and clients were chosen for the intervention, the advice of Dr. Dirk Moore, a biostatistician employed at UMDNJ's School of Public Health, located in Piscataway, New Jersey, was sought to assist with sample size determination. However, the statistician advised that since the literature review conducted to identify similar studies that had used hair salons and stylists in educational promotions revealed that none pertained to nutrition, power calculations to determine an appropriate sample sizes could not be performed. Since this was a pioneer study, he advised the research team to use whatever sample size that was feasible within the time constraints of planned intervention and its funding.

Three study protocols were used to assess campaign success at each of the three study theoretical realms, i.e., the institutional/organizational realm: the owners/managers; the interpersonal realm: the stylists; and, the individual realm: the hair salon clients. These protocols were approved by the Rutgers Institutional Review Boards' Human Subjects on April 24th 2006; E06-374, E06-376, and E06-374, respectively

The Institutional/Organizational Realm of the Campaign Intervention

The methods employed regarding the campaign intervention at the project's institutional/organizational realm, i.e., the owners/managers of the hair salons, included

recruitment and survey assessment of select variables chosen to support evaluation of the study's hypotheses. Campaign participation necessitated owners/managers making decisions regarding not only whether or not they were willing to allow their salons to participate in the campaign implementation, but also, the degree to which they were willing to support the campaign's implementation. The means by which they were recruited; the choices they were given with regard to degree of campaign implementation; and, the assessment of pertinent variables, as well as how they were assessed, is described below.

Hair Salon Recruitment Methods

Hair salons in both Newark, the experimental community, and Jersey City, the control community, were identified by entering the search terms "beauty parlors" and "hair braiding" into the Verizon Super Pages for both cities. The listings obtained from this search were then cross-referenced with the listings for "beauty parlors" from the America Online Yellow Pages. During the month of May 2006, attempts to reach the owners or managers of the listed hair salons in Newark, New Jersey were made via phone, and the purpose and details of the study were explained to those reached

Unfortunately, a large prevalence of out-of-date contact information and difficulty scheduling appointments to speak with the owner(s)/manager(s) by telephone necessitated a modification of this recruitment method. Beginning in June 2006, "cold calls" were made to salons using a cluster sampling technique. Although all hair salons were first called, primarily to ensure they were still in operation via these "cold calls,"

i.e., most owners/managers were approached regarding study participation without a scheduled appointment. Consequently, most participating salons were identified using the revised recruitment protocol that used the phone listings to locate hair salons in close proximity, after which each site was visited in person. Additional hair salons that were noticed while traveling between sites were also recruited. Language barriers were ameliorated by bringing along bilingual paraprofessionals who were employees of the New Jersey Food Stamp Nutrition Education Program to the hair salons that were recruited in primarily Hispanic areas.

During initial contacts made with the salon owners/managers, they were introduced to the *Calcium: Select to Protect* materials, and the details of the study were discussed. The owners/managers of the hair salons were presented with two participation options. The first, “full participation,” required that they agree to keep at least twenty brochures and one poster displayed in salon locations that were easily noticed, and that they allow the research team to survey their clients prior to and after the cessation of the study. This option also required them to allow their stylists to participate in the study by being trained about the campaign, and facilitating campaign implementation through communications with their clients. The second option presented to the owners/managers, or “modified program,” allowed for hair stylists’ exclusion from the implementation, and included only the display of the aforementioned campaign materials, as previously described.

At the initial contact, owners/managers who agreed to allow their salons to be campaign intervention sites were asked to sign a site authorization form (Appendix I) to allow Rutgers to conduct research at their facilities. They were also asked to sign a memorandum of understanding (Appendix II; Appendix III), a consent form (Appendix IV; Appendix V), and to complete a pre-intervention survey (Appendix VI; Appendix VII).

The original design of the owners'/managers' initial meetings was planned to entail the researchers explaining the details of the intervention options and introducing the *Calcium: Select to Protect* materials. A copy of the brochure was to be left for their review. They were later mailed a pre-campaign survey with a pre-stamped, self-addressed envelope to return the survey to the researchers. An extra copy of the consent form and a thank you letter were enclosed in this package as well. The owners/managers were then to return the surveys to the researchers. However, due to the low return of owner/managers surveys, this design was altered in June 2006, such that the surveys were completed during the initial contact.

Jersey City control sites were identified and recruited in the same manner as the experimental sites. The owners/managers of the control site salons were only required to sign the site authorization form and to allow the research team from Rutgers to interview their clientele. The owners/managers were told about the *Calcium: Select to Protect* campaign, and promised they would be contacted in the future if hair salons proved to be effective venues for campaign implementation.

Hair Salon Campaign Implementation Methods

The *Calcium: Select to Protect* brochures, brochure display holders, and posters were first distributed in hair salons in October 2006. The research team placed brochures in salon locations that were viewed by salon clientele. Researchers returned to each facility three times a month for the first two months, then reduced their visits to once every two to three weeks for the remainder of the study period, i.e., December 2006 to May 2007. During each visit, the researchers counted the brochures that remained on display, as well as any that had been stored elsewhere by the staff, and replenished the stock to its original count. Any missing or damaged posters were replaced during these site visits.

In locations where “full participation” had been agreed to, training was scheduled as described below. Ultimately, in these locations, stylists were to have: worn aprons that bore the same pictures as shown on the campaign posters, discussed the campaign with their clients, and distributed campaign brochures to clients at opportune times.

Hair Salon Owner/Manager Surveys

The owner/manager pre-intervention survey was developed to collect: demographic data and intervention logistics, such as the approximate number of hair stylists that could be recruited to be trained at each salon, and the best times and days for the training to be scheduled. It also assessed variables that were believed to potentially be related to the owners’/managers’ willingness to institutionalize the campaign, e.g., information on their relationship with their clients and community; and, variables related to two of the

constructs that are part of the Stage Theory of Organizational Change, i.e., awareness of the problem and ease of adoption.

According the Stage Theory of Organizational Change, in order for a problem to be addressed, and ultimately rectified, those required to make institutional changes must first be aware of the problem. Therefore, survey questions to evaluate this construct examined: owners'/managers' awareness about calcium's importance in children's diets; their awareness of the possible negative effects of calcium deficiency, e.g., please list some health conditions children may be at risk for if they do not get enough calcium; and, their beliefs regarding if children in the community were consuming enough calcium.

To measure the owners'/managers' readiness to adopt the campaign, the researchers evaluated their impressions of the campaign's potential for success, e.g., Do you believe the brochures and posters will make your clients want to give their child more calcium-rich foods?; as well as, their impressions about the ease of adopting the program, e.g., How easy do you feel it will be to keep these brochures and posters on display?

The follow-up survey (Appendix VIII; Appendix IX) that was administered to the owners/managers at the conclusion of the study was designed to examine their impressions regarding how effectively the campaign was implemented, and their intent to institutionalization it. Implementation was assessed via questions such as: "Did you or your staff see people looking at the posters?"; and, "Did your beauticians talk to their clients about the calcium facts in the brochures?" Intent to institutionalize the campaign

was examined via questions such as: “Will you leave the poster up?”; and, “Will you continue to encourage the stylists to give clients a brochure?”

To assess campaign institutionalization, in addition to assessing owner/manager intentions to institutionalize the campaign, a FSNE program employee made an unannounced visit to the hair salons in which the campaign had been conducted. The visit was made eight months after the post survey administration was concluded. During the visit the employee observed: if stylists were wearing the campaign aprons; and, if campaign posters and brochures remained visible. In cases where campaign materials were not visible, the employee, posing as a client who had been in the salon months ago, feigned interest in the campaign materials, and asked if the brochures were available anywhere in the salon.

Institutional/Organizational Realm Data Analyses

Data was analyzed using SAS Windows version 9.1 (SAS Institute Inc, Cary, NC).

Descriptive statistics were used to examine demographic variables, variables that may have affected the owners’/managers’ willingness to participate, e.g., personal motivating factors and strong community and/or client relationships, and the data collected in regard to the Stages of Organizational Change Theory.

Variables that researchers believed may have potentially affected the hair salon owners’/managers’ intent to institutionalize the *Calcium: Select to Protect* campaign were correlated with their intent to institutionalize responses. Intent to institutionalize

responses were examined both as dichotomous responses to each of three potential campaign intents, i.e., continued: 1) use of posters; 2) use of brochures; and, 3) practice of having stylists advise clients; as well as via a summative score.

The hair salon owners'/managers' personal motivating factors, i.e., perceived level of health consciousness, previous diagnosis with a nutrition-related health condition, and caring for a child, were correlated with reported intent to institutionalize the campaign to assess any relationships. The owners'/managers' previous volunteer work or sponsorship of a community event and client recognition were also correlated with the owners'/managers' reported intent to institutionalize the campaign, as it had been hypothesized that those who were involved in these activities would be more likely to institutionalize the campaign.

To evaluate the hair salon owners'/managers' awareness of the problem, descriptive statistics were reported on their beliefs about the risk for calcium deficiency and the negative health effects associated with it. Correlations were run on the variable assessing the owners'/managers' beliefs that children were consuming enough calcium and their intent to institutionalize the campaign, as it had been hypothesized that those aware of the problem would be more likely to continue the campaign.

To address the last hypothesis pertaining to the institutional/organizational realm, the variables assessing the owners'/managers' perceived effectiveness of the campaign, perceived ease of implementing the campaign, and their experience working with the

research team were correlated with the aforementioned variables pertaining to their intent to institutionalize the campaign. Categorical data collected on the perceived ease of implementing the program, e.g., did you notice the clients taking the brochures, was analyzed using the chi-square tests.

Methods Regarding the Interpersonal Realm of the Campaign Intervention

Again, the portion of the *Calcium: Select to Protect* campaign delivered at the interpersonal realm was the component involving the hair salon stylists. The methodology that pertained to this realm of the intervention included stylist recruitment, training, assessment of commitment to the campaign, and pre and post assessment of selected variables developed to support the researchers' hypotheses, e.g., client relationships and current practices regarding giving advice to their clients. Recruitment method, details of the hair stylists' training session, evaluation of participation, and the assessment of variables that may have affected participation are described below.

Hair Salon Stylists Recruitment

During the month of November 2006, the hair stylists from those salons in Newark, New Jersey that had been recruited for campaign intervention were invited to participate in a training session. Information obtained from the owners'/managers' initial survey was used to schedule salon training visits both during days when the most stylists were scheduled to work, and during times when the clientele volume was low, so as not to impede the stylists' work. All stylists present on the day of the training were asked to participate. As incentives, stylists were offered tote bags, stress balls, measuring cups,

and chip-clips bearing the *Calcium: Select to Protect* logo, if they completed the training session. A custom-made apron with the *Calcium: Select to Protect* logo and the picture from either the African-American or Hispanic poster was also used as an incentive for participating in the training; however, the aprons were created with the intention that they would be used to promote the *Calcium: Select to Protect* message, i.e., they were “walking posters.”

Hair Stylist Intervention

The training was performed in an informal manner and aimed to familiarize stylists with the campaign materials and messages. Prior to the training, the stylists were asked to sign a consent form (Appendix X) and complete the pre-intervention survey (Appendix XI). Those who chose to participate in the training and to subsequently assist with the campaign implementation were both asked to distribute the campaign materials and to speak with their clients about the information contained within the brochures, during client appointments.

Training was delivered via the reading of a training sketch that was designed to be read to the stylists while they worked. Although this training design was not optimal, owners/managers had previously indicated that stylists would not participate in the training during personal time and they would not allow the stylists to stop working during their scheduled hours to participate (Appendix XII). Stylists were either trained individually or in pairs in cases where they were working in close proximity to one another. Two trained bilingual paraprofessionals from the New Jersey Food Stamp

Nutrition Education Program conducted the training sessions with Spanish speaking stylists. A participatory action research approach was integrated into the training protocol to gain and share insights among the stylists, as to the best approaches for their assisting in the implementation of the *Calcium: Select to Protect* campaign in their respective hair salons.

The stylist training was broken into two sections. First, the stylists were taught the content of the *Calcium: Select to Protect* brochure, i.e., the prevalence of children not meeting their calcium requirements; the health conditions that may be positively impacted via the adequate intake of calcium; which foods were calcium-rich; the milk food group recommendations made in MyPyramid; how to determine the amount of calcium in a food, using the food label and/or its package; barriers that stop children from getting enough calcium; and, tips for helping people who are lactose intolerant or who do not consume dairy foods for other reasons, meet their calcium requirements. The stylists were asked to participate in an activity to determine the amount of calcium in two percent milk, using the Nutrition Facts label. After the stylists were read the training script and completed the activity, they were given a few minutes to look through the brochure independently and to ask questions. During the second section of the training, the stylists were asked their opinions concerning their clients' potential reactions to the information; barriers they expected to encounter when speaking with their clients, and how they thought they could overcome the barriers they had identified. They were also asked to give examples of methods they would use to approach the topic of calcium and their children's calcium intake with their clients. These results are found in Hair Stylists'

Opinions on the Implementation of the *Calcium: Select to Protect* Campaign (Appendix XIII).

At the end of the training, the stylists were introduced to the two campaign implementation tracking documents, i.e., the client log (Appendix XIV) and the progress log (Appendix XV). The client log was designed to record the number of clients with whom they had spoken about the *Calcium: Select to Protect* information. The progress log consisted of three questions for interviewing each stylist every time the campaign materials were replenished at their respective salons. The progress log questions queried the topics the stylists had discussed with their clients, and stylists' opinions as to how well their clientele liked the materials on display. This was to be done every two to three weeks.

After the training, the stylists completed the training evaluation (Appendix XVI) to determine how effective the training had been, what could have been done to improve it, and their self efficacy talking to their clients about the calcium information. A summary of all methods shared by participating stylists regarding how they might introduce the topic of calcium and children to their clients was compiled into a handout, *You Can Help Your Clients Make Sure Their Children Get Enough Calcium* (Appendix XVII). This handout was sent to all trained stylists within a few weeks after the final training session was complete.

During the intervention period, stylists were instructed to provide a *Calcium: Select to Protect* brochure to clients with children and to engage them in conversations pertaining to this information. Additionally, stylists were asked to record the number of clients spoken to on their client logs and to report the topics they had discussed with their clients to the research team when the materials were restocked.

Post-intervention, stylists were queried using a modified version of the survey that had been administered pre-intervention (Appendix XVIII). The stylists' post-survey included an additional five questions addressing the constructs of behavioral capability, self efficacy, and reinforcement. Again, stylists signed a consent form prior to having completed the post-intervention survey (Appendix XIX).

Hair Salon Stylist Surveys

Although concepts of the hair salon stylists' surveys were previously mentioned, this section will further describe the complete contents of the stylists' surveys. The pre and post intervention surveys developed for assessment of the hair salon stylists' portion of the campaign were designed to collect demographic information about the stylists; to evaluate the stylists' relationships with their clients; and, to evaluate variables related to the constructs of the Social Cognitive Theory. However, since the environmental determinants of stylists' involvement in the campaign were outside of the control of this study, this construct was not addressed. Environmental determinants included factors such as their owners' agreeing to allow their salon's participation and the stylists' involvement in the training, the number of clients they had to serve simultaneously, how

many of their clients had children, etc. Thus, only the reciprocal determinism pertaining to particular behavioral and personal determinants were addressed in this study.

Behavioral determinants included the stylists' knowledge about children's calcium needs and calcium's relationship to health, and their skills in providing advice pertinent to the campaign messages. Personal determinants included self efficacy, i.e., their comfort level in asking their clients about the amount of calcium-rich foods they eat, providing accurate advice about calcium to their clients, and that their advice would be heeded; the stylists' expectations of the campaign's potential for success; and, their willingness to reinforce the campaign messages.

Observational learning was evaluating by asking the stylists to report the nature of the content of any information that they had previously observed with regard to the benefits of dairy products and calcium, as well as from where it had been learned, e.g., brochures, mass media, food labels, etc. To evaluate their potential for serving as role models for their clients, the stylists were queried about their own and their children's daily dairy intake.

To assess the stylists' behavioral capability for campaign delivery the following were assessed. Their knowledge of children's recommended calcium intake levels was assessed using questions pertaining to daily calcium needs for specific age groups, and their knowledge of health conditions that can result from inadequate intake. Further, to evaluate the stylists' skills for potentially influencing their clients' behavior, they were queried about general and health-related advice they had previously provided to clients.

The stylists' expectations pertaining to the outcome of their participation in the campaign were evaluated by querying their beliefs on whether caregivers would offer their children more calcium-rich foods if they knew the benefits and the effects of increased calcium intake on children. The stylists' beliefs that they could get their clients to offer more calcium-rich foods to their children were also assessed.

Self efficacy was measured by querying the stylists about their perceived level of comfort when they delivered health-related messages, i.e., how comfortable are you giving health-related advice and how comfortable are you talking to your clients about calcium. An additional question appeared on the post survey to evaluate the stylists' beliefs pertaining to the effectiveness of their role in the campaign, i.e., do you believe clients are offering their children more calcium-rich foods?

To assess the stylists' willingness to reinforce the *Calcium: Select to Protect* information and material, the stylists were asked to report their levels of comfort in asking their clients about calcium intake and giving their clients the campaign materials to take home.

Data Analysis Regarding the Hair Salon Stylists Participation

Data was analyzed using SAS Windows version 9.1 (SAS Institute Inc, Cary, NC).

Descriptive statistics were used to assess the demographic information collected.

Variables pertaining to stylist/client relationships, stylist and stylists' children's calcium intake, the stylists' measured participation in the *Calcium: Select to Protect* training and campaign implementation, and the constructs of the Social Cognitive Theory that had been hypothesized to impact the stylists' campaign participation.

To test the hypothesis that those stylists who were given the opportunity by their salon owners/managers to participate in the *Calcium: Select to Protect* training sessions and to participate in the campaign intervention would do so, two methods were employed. First, the number of stylists owners/managers reported as given the option to participate was compared to the number of stylists who actually did participate. Secondly, pre to post changes in stylists' report of: 1) having provided clients with advice; 2) having provided clients with health advice; and, 3) having helped clients in learning to make healthy lifestyle choices were assessed.

The Social Cognitive Theory suggests that behavioral and personal determinants influence behavior. Thus, it would predict that if the stylists' knowledge and skills, i.e., their behavioral capability, increased, their campaign participation would as well. More specifically, they would have: more often provided advice to their clients; believed more of their clients had used their advice; and, judged that the advice they provided had been followed.

Personal determinants included: the stylists self efficacy regarding their ability to share the campaign materials, their expectations about the campaign's potential for success, the impact they anticipated as a result of their campaign participation, e.g., beliefs that clients would offer their children more calcium-rich foods if they knew the benefits, and, their intent to reinforce the campaign, e.g., continue talking to clients about calcium and providing brochures. Personal determinants were assessed via quantitative methods and

were reported descriptively, as well as via pre/post paired t-tests run to assess stylists' changes with regards to the personal determinants constructs. The study hypothesis that predicted that participation in the training would increase the stylists' self efficacy regarding their ability to share the campaign materials was evaluated in this manner. Data regarding their expectations of what increasing children's calcium intake would do was additionally reported in a qualitative manner.

To examine the reciprocal determinism between the behavioral and personal determinants, correlations were used to evaluate the relationships among variables associated with these constructs. Correlations were also used to evaluate relationships between enhanced behavioral and personal determinants, and the stylists' level of participation in the campaign. The latter correlations addressed the third hypothesis; i.e., that those stylists with the strongest personal determinants, i.e., self efficacy, perceived expectations, and willingness to reinforce the campaign messages, would most frequently report having delivered the campaign message and/or having encouraged their clients to improve their health.

To evaluate behavioral capability, changes in the stylists' knowledge and skills were assessed. Knowledge pertained to children's calcium requirements and associations between adequate calcium intake and reduced risks for various health conditions. Skills were assessed as the stylists' perceptions of: the number of clients to whom the stylists had provided advice, the number of clients who had used the advice that had been provided, and how often they thought their clients had used their advice. The stylists'

descriptions of the advice they had provided and how they had helped clients make healthier lifestyle changes were also assessed. Changes in behavioral capability were assessed via both qualitative and quantitative methods. Quantitative data was reported descriptively, and paired t-tests were run to assess change. The latter statistics were used to address the study's hypothesis that stylists' behavioral capability for giving health advice to their clients would increase.

Methods Regarding the Individual Realm of the Campaign Intervention

African-American and Hispanic caregivers of young children who were patrons of the participating salons were the target audience for this campaign. They were represented in the individual realm of the Social Ecological Model. This section describes the methodology employed in the intervention and evaluation used within this realm. This includes recruitment for pre and post-test survey samples and evaluation of baseline and post-campaign: awareness and knowledge about risks associated with low calcium intake; the clients' children's calcium intakes; barriers to providing ample calcium to their children; knowledge of calcium-rich foods; campaign recognition; and, assessment of select constructs from the Health Belief Model that had been deemed likely to affect clients' likelihood of noticing and using the campaign materials, e.g., clients' perceived susceptibility.

Hair Salon Client Pre and Post-test Sample Recruitment

African-American and Hispanic caregivers of young children were recruited both pre and post campaign intervention from Newark and Jersey City hair salons that had agreed to

participate in the campaign intervention. As discussed in the introduction, since no campaign effects were ultimately realized, throughout the remainder of this thesis only the data collected in Newark, the experimental location, will be analyzed, presented, and discussed. Clients were surveyed immediately upon recruitment. Recruitment was conducted by the research team which was comprised of: four graduate students, an undergraduate student, their faculty advisor, the advisor's research assistant, and nine paraprofessional staff who were employed by the New Jersey Food Stamp Nutrition Education Program. All surveys done with Spanish speaking clients were administered by either the paraprofessional staff, or one of the two students who spoke Spanish, one of whom was the undergraduate.

The majority of client recruitment and consequential survey administration was done during the salons busiest hours, i.e., Thursday afternoons, or Friday and Saturday mornings and afternoons. Researchers approached clients who visibly appeared to be African-American or Hispanic in the participating salons. The researchers introduced themselves and read the consent form to those clients who agreed to speak with them (Appendix XX). The survey questions were also read to participating clients by the researcher. At the beginning of the survey, the clients were screened to see if they cared for a child. Those who did not were thanked for their time, but did not continue. After the survey had been completed, the client was given a copy of the consent form with the research team's contact information, as well as a P-Saurus Eats puppet as a thank you for study participation.

Hair Salon Clients' Survey

The same survey tool (Appendix XXI) was used prior to and at the completion of the intervention. Information was gathered pertaining to: demographic information; factors that may have increased clients' likelihood of having been exposed to the *Calcium: Select to Protect* campaign material, i.e. frequency and duration of client visits; the constructs of the Health Belief Model hypothesized to affect clients behaviors, i.e., perceived benefits, perceived severity, perceived susceptibility, perceived barriers and perceived self efficacy; and the clients' children's calcium-rich food intake.

A food frequency questionnaire was utilized to gain insight to the amount of calcium-rich foods consumed by the clients' children. The original intent was to attach a food frequency questionnaire to the survey that had been developed and validated by Dr. Sue Shapses from the department of Nutritional Sciences at Rutgers University; however, the reliability and validity of this questionnaire had not been tested with our target population therefore was not deemed to be appropriate. To make the food frequency questionnaire more culturally sensitive, the research team had planned to incorporate additional Hispanic foods. These foods were found in the *Calcium: Select to Protect* brochure, the "Calcium, Are You Getting Enough" brochure developed by the Oregon Dairy Council, and the foods recommended by the members of the FSNEP Spanish Translation Committee. It was decided that the addition of these foods would have threatened the validity of the tool, therefore, only the foods listed in the *Calcium: Select to Protect* brochure had been used to develop a culturally sensitive food frequency questionnaire. This food frequency portion of the survey tool had been intended to be used to measure

an increase in the intake of calcium-rich foods among clients' children as opposed to an increase in calcium intake.

The survey was designed to be administered using either a closed-ended food frequency questionnaire or an open-ended food frequency questionnaire. This multi-method approach was used to determine how accurately the participants reported their child's intake of calcium-rich foods when they were read all the foods listed on the food frequency questionnaire. The research team believed that if the child ate or drank the food regularly, and if the caregiver knew it was rich in calcium, the food would be reported during the open-ended survey without prompting. Using the closed-ended food frequency questionnaire, the clients would be read a list of calcium-rich foods and asked to describe specific varieties and brands of foods that their child consumed and how often their child did so. To administer the survey using the open-ended method, the client would be asked to name all of the calcium-rich foods that their child consumed. All answers, including incorrect ones, were to be recorded. Clients were also asked to name any calcium-rich foods that their child did not eat to determine if they knew of any other foods that they may not have mentioned.

The clients' survey was piloted once in three of the enlisted hair salons located in Newark, New Jersey for face validity. Any questions that had been difficult for the clients to understand or prompted invalid responses, were revised with the help of the research and development team at the New Jersey's Food Stamp Nutrition Education Program's state office.

In addition to collecting data pertaining to the clients' children's calcium-rich food intake via the food frequency questionnaire described above, the survey questions addressed the following constructs of the health belief model: perceived susceptibility, perceived severity, perceived barriers, perceived benefits, and self efficacy.

The clients' perceived susceptibility to their child's risk of calcium deficiency assessed clients' belief on adequate amounts of calcium and level of concern that their children may not be meeting their needs. Perceived severity of calcium deficiency was assessed by querying the clients about their knowledge of the consequences of calcium deficiency and how harmful they believed inadequate intake was to their children.

The perceived benefits and perceived barriers were assessed because it was hypothesized that the clients' likelihood to increase their child's calcium intake would be greater if they believed the benefits were substantial and they were able to overcome the perceived barriers. Clients provided free-form answers as to how they thought getting enough calcium would help their child and difficulties they encounter ensuring their child has an adequate intake.

Self-efficacy was the final construct evaluated with the survey tool to assess the clients' belief that they could accomplish the promoted behavior, i.e., increasing their child's calcium intake. To assess this construct the clients were queried on how sure they were in their ability to identify and obtain calcium-rich foods and how sure they were that they could get their children to eat calcium-rich foods.

Client Intervention

The original intent of this study was to use a pre and post survey tool addressing the aforementioned constructs of the Health Belief Model to assess the effectiveness of implementing the *Calcium: Select to Protect* campaign in hair salons in conjunction with the hair stylists disseminating the information, on changing the clients' behavior in regards to calcium intake and their children. However, due to the low reported client recognition, the data collected from those that noticed the materials in hair salons verse those that did not notice the material was compared to assess possible differences between the two groups.

Data Analysis of Hair Salon Clients:

Data was analyzed using SAS Windows version 9.1 (SAS Institute Inc, Cary, NC). Descriptive statistics were done to compare the variables believed to affect client recognition of those who had observed the *Calcium: Select to Protect* material with those who did not post intervention.

Summary

The *Calcium: Select to Protect* Campaign in hair salons targeted three realms of the Social Ecological Model, utilizing a different theory to develop an intervention in each realm. The results presented in the remaining chapters focus on the institutional/organizational and interpersonal realms with some descriptive data obtained from the individual realm.

CHAPTER FOUR: RESULTS

The *Calcium: Select to Protect* campaign targeted the institutional/organizational, interpersonal, and individual realms of the Social Ecological Model. The results presented in this chapter focus on the interventions completed at the institutional/organizational and interpersonal levels. Descriptive statistics are reported for the hair salon clients, the target audience within the individual level.

Results in the Institutional/Organizational Realm

Hair Salon Recruitment Results

The *Calcium: Select to Protect* Social Marketing campaign implementation study was performed in Newark and Jersey City, New Jersey. A total of three hundred and ninety-nine potential hair salon listings were found for Newark, New Jersey using the online directories, and two hundred and seventy-nine listings were identified in Jersey City. One hundred and forty-seven hair salons in Newark were reached via phone, and the person who answered the phone stated he or she was not interested in the program; or, were assumed to be not interested, after failing to respond to repeated telephone requests for a return call.

Eleven of the Newark listings turned out to be barber shops or nail salons, and were therefore not eligible for the study. Sixteen salons were eliminated because of language barriers, i.e., workers spoke only Spanish (n=13) or Portuguese (n=3), and one was located outside of Newark. One hundred and thirty seven of the listings constituted out-of-date contact information, such as disconnected phone numbers or closed businesses.

Twenty Newark hair salons agreed to participate; however, six were eliminated from the recruitment pool because they did not service African-American or Hispanic clients.

Fifteen hair salons in Jersey City, the control location, were enlisted to match the final number of participating salons in Newark. At the study onset, a total of twenty-nine hair salons were to be included in the study; fourteen in the experimental group and fifteen in the control group. Of these salons, only three set up meetings via phone contact; others were recruited on site.

Hair Salon Owners

Demographics. One representative from each location, identified himself or herself as the owner (n=3; 21%), the manager (n=9; 64%), or both (n=2; 14%). This person was responsible for his or her respective salon's participation in the *Calcium: Select to Protect* campaign. Interestingly, the salons of three individuals who identified themselves as the "manager," bore their names, i.e., Boswell's House of Coiffeurs, Fanta's Hair Braiding, and Gina's Beauty. All owners/managers identified their race to be either African-American (n=10; 71%) or Hispanic (n=4; 28%); and, most were female (n=10; 71%). Twelve (86%) of the owners/managers reported that they cared for a child or grandchild. Twelve owners/managers from the original fourteen continued to participate throughout the study and completed the post-intervention survey. Post intervention data was not collected from two of the owners/managers because one had left the country during the time frame when the surveys were collected, and the other had fallen ill and was residing in a long term care facility.

Campaign Training Logistics. Queries regarding the owners/managers opinions about the best days to train the stylists indicated that Wednesday (n=9; 64%) was the best day for doing so. Tuesday (n=5; 36%) and Monday (n=3; 21%) were their secondary choices; however, one owner (7%) requested the researchers train the stylists on a Thursday. The best time to deliver the training varied from early morning to early afternoon, with answers ranging from 9:00 a.m. to 1:00 p.m. The majority of owners/managers (n=12; 86%) requested that researchers come to the salon between 10:00 a.m. and 12:00 p.m. The number of stylists to be given the option to participate ranged from one to seven. In total, owners/managers indicated that thirty-eight stylists could be approached for campaign involvement (mean=3.5 \pm 1.7).

Health Consciousness and Health. Most of the participating owners/managers indicated they were health conscious but that they did not have a nutrition-related health condition. These variables had been hypothesized to be personal motivators for campaign institutionalization.

The degree of health consciousnesses of the owners/managers varied; however, almost half considered themselves to be very health conscious. Details of these results, as well as the number of owners/managers who had been diagnosed with a nutrition related disease, are found in Table 2.

Table 2: Owners'/Managers' Potential Health Motivators for Campaign Participation (N=14)	
Potential Health Motivators	n (%)
Degree of health consciousness	
Not conscious at all	2 (14%)
Somewhat conscious	4 (29%)
Very Conscious	6 (43%)
Don't know	2 (14%)
Diagnosed with a nutrition related health condition	
Yes	3 (21%)
No	11 (79%)

There was no relationship between how health conscious the owners/managers were and their having been diagnosed with a nutrition-related disease.

Community Involvement and Client Relationships. Most of the owners/managers surveyed (n=12; 86%) had never participated in any volunteer work. However, five (36%) owners/managers reported that their business had sponsored an event within the community. Although two owners/managers (14%) reported no recognition of their client, the majority (n=12) recognized their clients either often (n=6; 43%), or very often (n=6; 43%).

Awareness of Calcium Deficiency and Its Effects. Exactly half of the owners/managers believed children consumed enough calcium. When queried about the potential negative health conditions that may result from calcium-deficiency, half of the owners/managers identified “weak bones” (50%); one specifically mentioned osteoporosis; and, six (43%) said weak teeth. Other responses included: “bowed legs” (n=1), bad skin (n=1), broken finger nails (n=1), sickness (n=1), diabetes (n=1), “loss of growth” (n=1), and, bleeding gums (n=1).

Ease of Campaign Adoption and Its Potential Outcomes. When queried about the ease of displaying the campaign materials, using a five point Likert scale where one was very hard, two was hard, three was not sure, four was easy, and five was very easy, the owners’/managers’ mean response was 4.5 ± 0.8 .

Seven owners/managers (58%) followed the original protocol as to how the *Calcium: Select to Protect* information was to have been displayed. The remaining five (43%) made the following alterations: the poster was not displayed (n=1; 8%); the brochures were relocated to a different spot in the salon (n=2; 17%); and, one owner/manager wore his the *Calcium: Select to Protect* apron not only while working in the salon, but also while he worked at his other job, i.e., selling food from a truck across the street from the salon (n=1; 8%). Post campaign implementation, one manager (8%) mentioned there had been difficulty displaying the materials; however, when asked to describe the problem, the manager clarified that the problem had been with the stylists talking to the clients, rather than the display of campaign materials.

More than half of the owners/managers (n=7; 58%) reported that they noticed the stylists had difficulty talking to the clients for various reasons including: clients' disinterest; clients asking questions that the stylists were unable to answer; clients wanting more information that the stylists did not have available to give them; language barriers between the clients and the stylists; and, difficulty experienced in showing and explaining the materials to clients while simultaneously providing styling services. These obstacles caused the stylists to alter the way they approached the topic of calcium with clients. For instance, some stylists only spoke to those who were interested; and, in cases where there was a language barrier, the stylist just handed the brochure to the client. One owner (8%) noted that there were many repeat clients who had already seen the information at the beginning of the intervention; therefore, towards the end of the campaign the materials were only given to new clients.

In terms of determining owners'/managers' overall satisfaction with the campaign implementation, i.e., found their participation to have been a good experience, eleven owners/managers (92%) reported that they would recommend working with the research team to other business owners.

Intent to Institutionalize the Campaign. Most owners'/managers' responses on the post campaign survey (n=12) indicated a willingness to institutionalize the campaign. All of the owners/managers indicated they were willing to continue to display the brochures and eleven (92%) stated they would continue to display the posters. Most said they would

continue to encourage the stylists to speak with their clients to deliver the campaign messages (n=11; 92%) and to distribute the *Calcium: Select to Protect* brochures (n=10; 83%). The summative variable, i.e., the sum of the preceding responses, indicated that ten owners/managers intended to continue to fully implement the campaign. One owner/manager intended to continue implementing the full campaign, with the exception of encouraging the stylists to talk to their clients about calcium; and, one owner/manager only intended to continue to encourage the stylists to distribute campaign brochures.

Since all owners/managers intended to continue the brochures' display, this intent variable could not be correlated with the variables that had been predicted to potentially motivate the owners'/managers' commitment to the campaign, e.g., having children themselves, having a nutrition-related health condition, etc. Thus, correlations were only run between intent to: continue to display the posters, to encourage stylists to speak with clients and to distribute campaign materials, and the summative score described above. Likewise, intent to institutionalize the campaign could not be correlated with owners'/managers' perception of the campaign materials' effectiveness, as evidenced by if they had observed their clients looking at the campaign materials, as all said that they had.

There were no significant correlations between owners'/managers' intents to institutionalize the campaign and: their beliefs about whether or not children consumed enough calcium; their having been diagnosed with a disease; their degree of health consciousness; their having previously done volunteer work; their having indicated they

were familiar with their clients; their perceptions regarding the ease of campaign implementation; or, their perceptions that participating in the campaign had been a good experience.

Only caring for a child or grandchild produced a significant correlation ($r = 0.6$, $p < .05$) with the owners'/managers' intent to encourage stylists to continue distributing the *Calcium: Select to Protect* brochures to clients. However, having sponsored a community event approached significance ($r = 0.6$, $p < 0.1$) with the owners'/managers' summative score regarding their intent to institutionalize the campaign, while it was negatively correlated with the owners'/managers' intent to encourage the stylists to give the *Calcium: Select to Protect* campaign brochures to their clients ($r = -0.6$, $p < 0.05$).

Prior to campaign implementation, overall owners/managers believed the campaign components would be effective in that they would result in their clients' giving their children more calcium-rich foods. That is, when a five point Likert scale, with responses ranging from completely disagree to completely agree, was used to assess the campaign's components' likely effectiveness, owners'/managers' mean responses were 4.07 ± 0.7 , with regards to the brochures and posters, and 4.2 ± 0.8 with regards to their stylists' participation in the campaign. To see if these owner/manager perceptions were related to their intent to institutionalize the campaign, results ancillary to the study hypotheses indicated that the summative variable assessing owners'/managers' beliefs that their stylists' participation in the campaign would result in the campaign's overall

effectiveness and their intent to institutionalize the campaign approached significance ($r=0.5$; $p<0.1$).

Hair Salon Campaign Implementation Results

Twenty-two hair salon stylists from the fourteen participating Newark hair salons participated in the *Calcium: Select to Protect* training in November 2007. The trainings were completed mid-morning and early afternoon. The training was conducted on Wednesday in half of the salons ($n=7$; 50%), with the remaining seven salons trainings held on either Monday ($n=1$; 7%), Tuesday ($n=4$; 29%) or Thursday ($n=2$; 14%).

In October 2007, the fourteen salons in the experimental group either received forty African-American brochures with a coordinated poster that had been created to target the African-American community ($n=9$; 64%); or, forty Hispanic brochures and a coordinated poster ($n=4$; 29%), that had been developed for the Hispanic community by illustrating culturally appropriate pictures and foods, and including the verbiage in both English and Spanish. One Hispanic location received only brochures, as they refused to display the poster. One salon requested a set of both brochures and matching posters to account for the mixed ethnicity of the clients; this salon received thirty English and thirty Hispanic brochures, and both posters.

A total of 1,519 African-American brochures and 610 Hispanic brochures were distributed between October 2006 and May 2007. The quantity of African-American brochures distributed by each salon ranged from 68 to 378 with an average of 135 ± 95

brochures distributed. However, one salon reportedly distributed 378 brochures. When this outlier was removed, the mean and standard deviation of the brochure distribution decreased to 103 ± 26 . The five salons that displayed the Hispanic brochures distributed between 89 and 162 brochures, with an average of 122 ± 30 brochures per salon and a smaller range of 89 to 162 brochures. Eight months after the study's conclusion none of the salons had the brochures on display. When queried as to whether the brochures were still available, all stylists and/or owners/managers responded that they didn't know anything about them.

At the start of the campaign, as previously described, thirteen of the fourteen participating salons displayed the posters provided. At the immediate conclusion of the research, three salons (21%) no longer displayed the poster, although multiple replacements had been provided. Only one explained the reasoning, i.e., the poster was never re-hung after the salon was repainted in November 2006. As was the case with the brochures, eight months after the study's conclusion none of the salons had the posters on display.

Fifty-two *Calcium: Select to Protect* aprons were distributed to both the stylists who were trained, as well as those who were not; twenty-nine of the aprons pictured an African-American girl with milk, and twenty-three, a Hispanic baby with milk. During the course of the intervention, the stylists in seven of the fourteen participating salons were observed wearing the aprons. Eight months after the intervention, none of the stylists were wearing the aprons when the researchers stopped by.

Results in the Interpersonal Realm

Hair Salon Stylists

Demographics. Only twenty-two of the thirty-eight stylists that the owners/managers had indicated could take part in the campaign training and subsequently deliver campaign messages to their clients, i.e., 58%, chose to participate. By salon, the percentage of stylists who participated ranged from zero to one hundred percent of those who were given the option to participate. The mean number of stylists who participated per salon was 2 ± 1 . Seventeen of these stylists completed post-campaign surveys.

The participating stylists' mean age was 40 ± 14 years, and 39 ± 12 years pre and post campaign, respectively. The respective mean incomes and income ranges of those willing to report them were: $\$11,992.31 \pm \$10,791.24$ and $\$1,200$ to $\$32,000$ ($n=12$); and, $\$19,212.50 \pm \$15,500.62$ and $\$5,000$ to $\$36,000$ ($n=8$). Additional stylists' demographics, revealed via pre and post campaign surveys, are shown below (Table 3).

Table 3: Additional Demographics for the Hair Salon Stylists Who Participated in the <i>Calcium: Select To Protect</i> Campaign		
	Pre Campaign (N=22)	Post Campaign (N=17)
	n (%)	n (%)
Gender		
Female	19 (86%)	15 (88%)
Male	3 (14%)	2 (12%)
Ethnicity		
Black	13 (59%)	9 (53%)
Hispanic	9 (41%)	8 (47%)
Food stamp recipient		
Yes	1 (5%)	0
No	21 (96%)	17 (100%)
WIC recipient		
Yes	1 (5%)	0
No	21 (96%)	17 (100%)
Caregiver of a child		
Yes	14 (64%)	9 (53%)
No	8 (36%)	8 (47%)

Work-Related Variables and Client Relationships. When assessed pre (n=22) and post campaign (n=17), it was found that stylists worked 4-7 (mean = 6 ± 1) and 3-7 (mean = 5

± 1) days, respectively. In terms of hours worked per week, they numbered 8-74 (mean = 41 ± 18) pre campaign, and 12-70 (mean = 46 ± 19) post intervention.

Prior to the intervention, the amount of time stylists (n=22) spent with each client varied between ten minutes and six hours with a mean of 96 ± 87 minutes. The amount of time stylists (n=17) reported spending with each client after the intervention ranged from twenty minutes to five hours, with the mean being 80 ± 92 minutes. Both prior to and at the end of the study, more than half of the stylists (n=14, 64%; and, n=12, 71%, respectively), noticed their clients brought their children with them to the salon.

During their initial interviews, when stylists were asked to rate their level of comfort in providing health-related information to their clients on a five point Likert scale, all stylists exhibited some level of comfort in doing so. Their responses indicated that seven (32%) were a little comfortable; three (14%) were somewhat comfortable; eight (37%) were very comfortable, and four (18%) were completely comfortable.

When asked how often they engaged in health-related conversations with their clients, their responses varied. Some stylists (n=7; 32%) reported conversations pertaining to this topic arose daily, a mean of 1.7 ± 1.2 times per day. Ten stylists (45%) indicated they normally spoke about health-related topics with their clients an average of 1.5 ± 0.5 per week. Four stylists (18%) said they had health-related conversations less frequently, i.e., a mean of 1.5 ± 1 per month. Overall, pre-campaign, stylists (n=22) spoke with their clients about a health-related topic an average of 1.05 ± 2.60 times per day.

After the intervention, one stylist reported that she never talked about health-related topics with her clients, and another was not sure how frequently topics in this area arose. Four stylists (24%) reported that they spoke with their clients about a health-related topic on a daily basis, an average of 2.6 ± 1.5 times. Some stylists ($n=6$; 35%) reported talking about health-related issues on a weekly basis, with the mean number of times they did so reported as 2.2 ± 1 . The remaining four stylists (24%) talk about health-related issues a mean of 1.8 ± 0.8 times per month. Overall, post-campaign, stylists ($n=16$) spoke with their clients about a health-related topic an average of 0.74 ± 1.18 times per day.

Pre-campaign, the stylists' self-reported frequency of food-related conversations with clients varied, as well. Two stylists (9%) indicated they never spoke about food with their clients, while nine stylists (41%) indicated that food came up in their conversations with clients at least daily, with a mean of 1.9 ± 1.8 times per day. Those who reported the frequency of their conversations occurring on a weekly basis ($n=7$; 32%), reported that the mean number of food-related conversations they had with their clients averaged 2.1 ± 0.9 per week. Overall, pre-campaign, stylists ($n=22$) spoke with their clients about food an average of 0.65 ± 0.87 times per day.

At the study's conclusion, one stylist reported never having food-related conversations with her clients, another said she didn't know if she did or not. Most stylists ($n=9$; 17%), however, reported they talked about food with their clients on a daily basis, with the mean number of times being 2.4 ± 1.4 . Weekly food-related conversations were reported by two stylists (12%); with a mean of 2.5 ± 0.7 conversations per week. Four (24%)

stylists reported that they engaged in food-related conversations with their clients a mean of 1.4 ± 0.9 monthly. Overall, post-campaign, stylists (n=16) spoke with their clients about food an average of 1.43 ± 1.58 times per day.

Calcium-related Observational Learning. Prior to the intervention, almost three quarters of the stylists (n=16; 72%) had seen or heard about the health benefits of dairy. Seven (32%) had seen an advertisement for calcium or dairy, such as the “Got Milk” campaign. Five (23%) recalled having received some general information on calcium, while three (14%) recalled having seen more specific information pertaining to calcium’s health benefits, including: its role in strengthening bones (n=1; 5%); its role in strengthening teeth (n=1; 5%); or that it was good for the spine (n=1; 5%). One stylist (5%) recalled having seen information regarding which foods were calcium-rich.

Observational learning occurred in a variety of settings. Six stylists (27%) indicated they had been exposed to information pertaining to calcium on the television, three (14%) had seen it in magazines, and one (5%) had heard an announcement on the radio. Healthcare settings were noted to have been exposure locations by three stylists, i.e., a hospital (n=1; 5%) and doctors’ offices (n=2; 9%). One stylist (5%) had received information through a state program and another (5%) had seen information in the supermarket. Social networks had also been utilized to learn about the health benefits of calcium, i.e., one stylist (5%) noted she had talked about calcium with her daughter or friends. Finally, one stylist (5%) reported that reading food labels had exposed her to information regarding

calcium. Two stylists (9%) noted the *Calcium: Select to Protect* brochures had been the source of their information.

After the campaign intervention, all seventeen stylists had seen or heard about the benefits of dairy. Ten stylists (59%) had learned about the benefits of dairy from the *Calcium: Select to Protect* brochures and posters. Other sources of information identified included: television commercials (n=7; 41%); magazine advertisements (n=2; 12%); supermarket displays (n=1; 6%); milk cartons (n=2; 12%); signs (n=1; 6%); the hospital (n=1; 6%) or doctors' offices (n=2; 12%).

Knowledge of Calcium Needs. Prior to the training session, most of the stylists did not know how many milligrams (mg) of calcium children aged one to three (n=15; 68%), four to eight (n=16; 73%), or nine to eighteen (n=15; 68%), needed each day, by the end of the campaign this had not change (n=13; 77%). Of those that reported calcium needs in terms of mg pre-campaign, only one stylist correctly identified the adequate intake for children aged one to three. Post campaign, one stylist was able to give the correct answer for each of the three age groups. Stylists' pre and post campaign responses varied widely, Table 4.

Table 4: Stylists' Pre and Post Knowledge of Children's Calcium Needs in Milligrams (mg)						
Children's Age Groups (years)	Sample that Reported in mg n (%)		Response Ranges (mg)		Response Mean and Standard Deviation (mg)	
	Pre	Post	Pre	Post	Pre	Post
1-3	7 (32%)	4 (24%)	4 – 600	4 - 500	331 \pm 307	152 \pm 236
4-8	6 (27%)	4 (24%)	2 - 1000	6 - 1000	319 \pm 400	453 \pm 553
9-18	7 (32%)	3 (18%)	3 - 1000	2 - 1300	374 \pm 421	534 \pm 680

For children aged one to three, two stylists (9%), pre-campaign, reported children's dairy intake needs in terms of the number of dairy servings they should consume per day. One of the two stylists felt one serving of dairy would be adequate, but the other believed children of this age should consume five servings each day. The responses of the six stylists who answered post campaign were: two servings (n=2; 12%); three servings (n=2; 12%); and five servings (n=2; 12%). For children aged four to eight, pre-campaign both stylists thought children should consume three servings of dairy each day. Five stylists' post campaign responses varied with answers including one serving (n=1; 6%); three servings (n=1; 6%); four servings (n=1; 6%); six servings (n=1; 6%); and, seven

servings (n=1; 6%) per day. For children aged nine to eighteen, pre-campaign, one stylist reported their needs to be two dairy servings per day, while the other believed four dairy servings per day were adequate. Post campaign responses were: one (n=2; 12%); three (n=1; 6%); four (n=1; 6%); and, five (n=1; 6%).

A paired t-test was to be done to assess stylists' changes in knowledge of calcium needs, however only two stylists provided answers prior to and after the completion of the campaign, therefore statistical analysis was unnecessary.

Knowledge of Health Conditions Related to Inadequate Calcium Intake. Results of the initial surveys showed that more than half of the twenty-two stylists (n=13; 59%) did not believe children were consuming enough calcium. When asked what health conditions may occur with inadequate calcium consumption, responses were: weak bones (n=17; 77%, four of whom specifically said osteoporosis); Rickets (5%); "bowed legs" (5%); weak teeth (n=11; 50%). Questionable health conditions identified included: poor growth (n=2; 9%); bad skin (n=1; 5%); weak hair (n=1; 5%); weak nails (n=1; 5%); dizziness (n=1; 5%); get colds or get sick (n=2; 9%); bad eyesight (n=1; 5%); bleeding gums (n=1; 5%); difficulty walking (n=1; 5%); difficulty thinking (n=1; 5%); falling frequently (n=1; 5%); and cancer of the bones (n=1; 5%).

After the intervention, an identical percentage of stylists surveyed, (n=10, 59%), did not believe children were getting enough calcium. Knowledge of calcium's role in teeth and bone health was apparent among the stylists with responses including: "bad or weak

teeth” (n=8; 47%); “rotten teeth” (n=2; 12%); cavities (n=1; 6%); weak bones (n=8; 47%) and osteoporosis (n=3; 18%). One stylist responded if children do not get enough calcium they “won’t get enough growth.” Post campaign questionable responses included: diabetes (n=1; 6%); weight gain (n=1; 6%); dehydration (n=1; 6%); sickness (n=1; 6%); poor blood (n=1; 6%); and, cancer of the bones (n=1; 6%).

Their Own and Their Children’s Calcium Intake. When asked to report the amount of dairy foods the stylists (n=22) consumed daily prior to the campaign, the number of servings they reported having consumed each day ranged from zero to four servings, and averaged 1.9 ± 1.2 servings. When considering only those seventeen stylists who were surveyed at the conclusion of the study, it was found that their dairy consumption, pre-campaign, also ranged from zero to four servings per day (mean= 1.9 ± 1.2 servings); while after the campaign these stylists consumed between one and four servings of dairy foods per day (mean= 1.8 ± 1.0 servings).

At the onset of the campaign, nine stylists (41%) were unable to report the daily number of dairy servings their children consumed, some because their children were older and/or because their children did not reside in the stylists’ homes. Of the thirteen stylists’ who reported their children’s intake, responses ranged from zero to four servings per day, with a reported mean of 2.5 ± 1.1 servings. Of the ten stylists that cared for a child post-intervention, one stated she was unsure how many servings of dairy foods her child consumed each day; however, the remaining nine reported an increased intake of dairy servings by their children, with servings ranging from zero to three and one to four, pre to

post campaign, respectively, and averaging 2.2 ± 1.0 and 3.0 ± 1.1 pre to post campaign. Although the stylists' children's intake increased, the increase did not reach statistical significance.

Hair Stylist Campaign Participation

Level of Participation. Level of stylists' participation could not be accurately assessed, as client logs were completed by only four stylists during the first three months of the campaign. None were completed thereafter. However, according to the minimal data collected from these four stylists, the number of clients to whom they had spoken about the campaign messages ranged from six to thirty clients, and averaged twenty-one clients per stylist during that three month period. In December, and at the end of the study period, decreases in the frequency of campaign-related conversations were reported. Stylists indicated these decreases were due to the decline in business that occurred around the holiday season, and their perceptions that most clients had already been exposed to the campaign material.

As a result of stylists' non-compliance with regard to completing the client logs, the research team used proxies to assess their participation in the campaign. These proxies were the stylists' pre and post campaign dichotomous responses regarding if they had provided to their clients: 1) any advice; 2) health-related advice; or, 3) assistance in making healthy lifestyle choices. Student's t-tests revealed that changes among the number of stylists who engaged in each of these types of conversations did not significantly increase; however, overall, reported increases did occur.

Before the stylists were trained in the *Calcium: Select to Protect* materials, almost three-quarters of them (n=16; 73%) provided health advice to clients and slightly more than half (n=13; 50%) stated that they had helped their clients make healthier lifestyle choices.

Stylists gave similar responses to two separate open-ended queries, i.e., describe the health advice you have provided to clients, and describe how you have helped your clients make healthy lifestyle choices. Similar responses appear in Table 5 below.

Table 5: Advice Provided to Clients by Hair Stylists Pre and Post Campaign Q1: What advice have you given to your clients? Q2: How have you helped your clients make healthy lifestyle choices?				
Subjects on Which Clients Had Been Advised	Q1 Pre n (%)	Q2 Pre n (%)	Q1 Post n (%)	Q2 Post n (%)
What to Eat/Food		4 (19%)	3 (18%)	3 (18%)
Weight Loss	3 (14%)	1 (6%)	3 (18%)	1 (6%)
Exercise More/Join a Gym	6 (27%)	6 (27%)	2 (12%)	1 (6%)
Diabetes	1 (5%)		1 (6%)	
Cholesterol	1 (5%)		1 (6%)	
Hypertension	1 (5%)			
Salt Intake	1 (5%)			
Vitamin Supplements	4 (18%)	2 (9%)	1 (6%)	1 (6%)
Get Enough Calcium: drink milk, eat cheese, take supplements, eat non-dairy calcium-rich foods when needed	1 (5%)	3 (14%)	4 (24%)	4 (24%)
Water	1 (5%)			
Noni Juice		1 (5%)	1 (6%)	1 (6%)
Herbs	1 (5%)		1 (6%)	
Smoking Cessation	2 (9%)		1 (6%)	1 (6%)

Other health advice given pre-campaign by one stylist each included advice to: drink less alcohol; get involved in wellness programs; be “stress free,” take particular measures when their children had lead poisoning; and, go see (her) primary care doctor (n=1; 5%); advice regarding healthy lifestyle choices included “fast together.” Non-health-related responses to this question were given by four stylists (18%) who said they provided hair care advice, one stylist who recommended becoming more involved in religion (5%), and one stylist who gave no specifics, indicating that the advice she gave was dependent on her clients’ conversations. In response to the second question, non-health-related responses included: stay in school and relationship advice, each given once.

By the completion of the study, more of the stylists (n=15; 89%) had provided health advice to clients, and slightly more than half (n=10; 59%) had helped a client make a healthy lifestyle choice. In addition to the responses listed in the table above, one each addressed osteoporosis prevention, the symptoms of menopause, and not to do drugs. One stylist advised her clients to “help stop the killing and violence in the neighborhood.”

Pre to post campaign respectively, the percent of stylists who provided advice to their clients increased from 86% to 94%; the percent of stylists who provided health-related advice to their clients increased from 73% to 88%; and 59% to 60% reported they had helped their clients make healthy lifestyle choices. In all three variables, none of the increases were statistically significant.

Self Efficacy. Prior to the intervention, self efficacy was evaluated with three questions using a Likert scale to measure their responses; questions queried their degree of comfort in: 1) discussing health-related issues with their clients; 2) talking about calcium with their clients; and, 3) asking their clients about the amount of calcium-rich foods they eat.

Most stylists reported being either very or completely comfortable in providing clients with health-care related information prior to the campaign (mean=3.5 \pm 1.2); however, by the end of the campaign, their self efficacy had diminished (mean=3.1 \pm 1.2). Complete results are reported in Table 6.

Table 6: Hair Stylists' Pre and Post-Campaign Self Efficacy with Regard to Their Degree of Comfort in Giving Healthcare-related Advice		
	Initially (N=22)	Post Campaign (N=17)
	n (%)	n (%)
Not Comfortable	0 (0%)	1 (6%)
A little comfortable	7 (32%)	5 (29%)
Somewhat comfortable	3 (14%)	2 (12%)
Very comfortable	8 (36%)	5 (29%)
Completely comfortable	4 (18%)	2 (12%)
Don't know	0 (0%)	1 (6%)

With regard to their self efficacy related to their degree of comfort in speaking to clients about calcium, the stylists' initial ratings improved post-training, by a difference of 0.5 ± 1.3 , an increase that approached significance. However, post intervention changes decreased significantly ($t=-4.04$, $p<0.001$) to levels 0.375 ± 0.81 ($n=16$) points lower than the stylists' ratings prior to the intervention. Stylists' levels of comfort speaking to their clients about calcium are found in Table 7.

Table 7: Hair Stylists' Initial, Post training, and Post Campaign Self Efficacy with Regard to Their Degree of Comfort in Speaking to Their Clients About Calcium			
	Initially (N=22)	Post Training (N=22)	Post Campaign (N=17)
	n (%)	n (%)	n (%)
Not Comfortable	0 (0%)	0 (0%)	1 (6%)
A little comfortable	7 (32%)	3 (14%)	6 (35%)
Somewhat comfortable	1 (5%)	3 (14%)	3 (18%)
Very comfortable	9 (41%)	13 (59%)	4 (24%)
Completely comfortable	3 (14%)	3 (14%)	2 (12%)
Don't know	0 (0%)	0 (0%)	1 (6%)

Comfort in asking clients about the amount of calcium-rich foods they consumed prior to the campaign remained relatively constant pre campaign (mean= 2.8 ± 1.0), to post (mean= 2.8 ± 1.5). Complete results are found in Table 8.

Table 8: Hair Stylists' Pre and Post Campaign Self Efficacy with Regard to Their Degree of Comfort in Asking Their Clients About the Amount of Calcium-Rich Foods They Eat		
	Pre Campaign (N=22)	Post Campaign (N=17)
	n (%)	n (%)
Not Comfortable	2 (9%)	1 (6%)
A little comfortable	7 (32%)	6 (35%)
Somewhat comfortable	5 (23%)	3 (18%)
Very comfortable	6 (27%)	4 (24%)
Completely comfortable	1 (5%)	2 (12%)
Don't know	1 (5%)	1 (6%)

Researchers had hypothesized that stylists with the strongest perceived self-efficacy would most frequently report having delivered campaign messages and/or having encouraged their clients to improve their health. When the stylists' self efficacy ratings were correlated with the stylists' reports of having given any advice or health advice, or having helped their clients make healthy lifestyle choices, the only significant relationship identified was between the stylists' comfort level talking about calcium and their report of having helped clients make healthy lifestyle choices ($r=0.5$; $p<0.05$).

Expectations. The stylists' expectations regarding what effects increased calcium would have on children; if their clients would feed their children more calcium-rich foods

provided they were made aware of its potential benefits; and, if they could help clients get their children to eat more calcium-rich foods, were assessed pre and post campaign intervention. At the initiation of the *Calcium: Select to Protect* campaign, six stylists knew that the result of increased calcium in the diet would be favorable, but they gave broad descriptions of its effects, i.e., it “makes them healthier” (n=4; 18%), that more calcium would be good for children’s development (n=2; 9%), strong bones (n=4; 18%), or strong teeth (n=2; 9%).

More questionable responses included: children will have more energy (n=1; 5%); children will learn better (n=3; 14%) or have a “fresher brain” (n=1; 5%); children will behave better (n=2; 9%); calcium will help children grow (n=2; 9%); the child’s appearance will improve (n=1; 9%); hair will look better (n=1; 9%); skin will look better (n=1; 5%); teeth will look better (n=1; 5%); children will be stronger (n=1; 5%); and personal hygiene will improve (n=1; 5%). Two stylists (9%) felt increased calcium intake could be harmful if excess amounts were consumed, and one other felt increasing calcium intake would cause children to develop black teeth.

The seventeen stylists surveyed at the completion of the study reported very similar responses, i.e., enhanced children’s health (n=4; 28%), improved growth (n=3; 18%), strong bones (n=5; 29%), and strong teeth (n=7; 41%). Questionable responses included: hair would be healthier (n=1; 6%); nails would be healthier (n=1; 6%); skin would be healthier (n=1; 6%); children would learn better (n=1; 6%); children would be more

active (n=1; 6%); blood pressure would rise (n=1; 6%); or there would be no effect (n=1; 6%).

Before the *Calcium: Select to Protect* campaign was initiated, almost all of the stylists (n=21; 96%) believed their clients would offer more calcium-rich foods to their children if they knew the health benefits. By the end of the study, all of the stylists believed their clients would offer more calcium-rich foods to their children if they knew the benefits for doing so.

On a five point Likert scale with one representing “not sure”, and five representing “completely sure,” pre-campaign mean responses to the question querying their belief that they could help their clients improve their children’s calcium-rich food intake were 2.4 ± 1 ; which increased to 2.9 ± 1 , post-campaign. Detailed results are found in Table 9.

Table 9: Stylists' Belief that They Could Help Clients Improve Their Children's Calcium-Rich Food Intake		
	Pre Campaign (N=22)	Post Campaign (N=17)
	n (%)	n (%)
Not Sure	4 (18%)	1 (6%)
A Little Sure	5 (23%)	5 (29%)
Somewhat Sure	10 (45%)	5 (29%)
Very Sure	2 (9%)	3 (18%)
Completely Sure	1 (5%)	1 (6%)
Don't know/Refused	0 (0%)	2 (12%)

The variables evaluating the stylists' belief that their clients would offer more calcium-rich foods to their children if they knew the health benefits and how sure the stylists' were that they could help clients get their children to eat more calcium rich foods, collected post intervention, were intended to be correlated with the variables measuring participation, i.e., providing advice, providing health advice, and helping clients make healthy lifestyle choices. Since all of the stylists believed their clients would offer their children more calcium-rich foods if they knew the benefits, correlations could not be done. The variable assessing how sure stylists were that they could help clients get their children to eat more calcium-rich foods did not produce a significant correlation with any of the variables assessing participation.

Willingness to Reinforce the Campaign Messages. In terms of their willingness to continue distributing the campaign materials and to continue speaking with their clients about feeding their children more calcium-rich foods after the study was completed, most stylists planned to continue talking to their clients about calcium and distributing the brochures (n=15; 88%). One stylist (6%) was not sure if she would continue talking to the clients about calcium, and one (6%) did not plan to continue. Two stylists (12%) did not know if they would continue giving their clients the calcium material to read at home.

The stylists' willingness to continue talking to clients regarding calcium, to continue distributing brochures, and to continue giving the clients information to read at home were correlated with the three variables assessing participation, i.e., providing advice, providing healthcare-related advice and helping clients make healthy lifestyle changes. No significant relationships were evidenced.

Behavioral Capability

Although the original intent of the researchers had been to assess stylists' behavioral capability via their knowledge of children's calcium needs and the negative health effects that may result from inadequate intake as well as the advice the stylists had given their clients, the results were insufficient for this purpose. Instead, the stylists' perceptions regarding how many clients to whom they had provided advice, how many had used their advice, and how often they had done so, assessed via five point Likert scales, were used as proxies for behavioral capability since researchers hypothesized if stylists' capabilities improved these proxies would increase, as well. Results to test the hypothesis that

campaign participation would increase behavioral capability were determined using these three variables. As expected, stylists' mean responses of all three variables increased. The differences from pre to post intervention are reported in Table 10. Results of a paired t-test showed that the only proxy of behavioral capability that increased significantly was the stylists' perception of how many clients used their advice ($t=2.25$; $p<0.05$).

Table 10: Differences in Stylists' Reports of Providing Advice, Quantity of Clients Provided with Advice, and Perceived Frequency of Clients Using Advice		
	N	Mean \pm SD
Number of Clients Provided with Advice	14	0.3 ± 1.2
Quantity of Clients Using Advice	10	0.6 ± 0.8
Frequency of Clients Using Advice	13	0.15 ± 1.1

Of the nine correlations run among the proxies for the stylists' behavior capability and their perceived self efficacy, to test a hypothesis implicit to the Social Cognitive Theory, i.e., reciprocal determinism between these two constructs, four were found to be statistically significant. Three of these significant relationships were between the stylists' comfort level talking about calcium and their perception of: the number of clients to whom they provided with advice ($n=15$: $r=0.74$; $p<0.005$); how many clients use their advice ($n=14$: $r=0.56$; $p<0.05$); and how often their clients use the advice provided ($n=15$: $r=0.67$; $p<0.01$). The stylists' comfort level providing health-care related advice was significantly related to their perception of the number of clients to whom they provided advice ($n=14$: $r=0.7$; $p<0.01$).

Results of Implementing the *Calcium: Select to Protect* Campaign in the Individual Realm

The hair salon clients (n=123) represented the individual realm of the Social Ecological Model. Although it was decided that the individual realm would not be the focus of this thesis due to the failure of the intervention, descriptive statistics are reported for demographic variables and those variables that assessed the constructs of the Health Belief Model. This was done to provide a visual comparison to illustrate any obvious differences between those clients who noticed the *Calcium: Select to Protect* material and those who had not.

Clients' Demographic and Salon Patronage Information

The ages of the clients who observed the *Calcium: Select to Protect* materials ranged from eighteen to forty-seven with a mean of 32 ± 8.5 years. For those that did not see the material, ages ranged from eighteen to eighty-three with a mean of 36 ± 12 years. Other hair salon client demographics can be found in Table 11. The difference in age between the two groups approached significance ($t=-1.87$; $p<0.1$).

Table 11: Hair Salon Clientele Demographic Data		
	Clients who had noticed campaign materials (N=16)	Clients who had not noticed campaign materials (N=107)
	n (%)	n (%)
Gender		
Male	2 (13%)	5 (5%)
Female	14 (88%)	102 (95%)
Ethnicity		
Black (non-Hispanic)	15 (94%)	47 (44%)
Hispanic	1 (6%)	60 (56%)
Recipients of Federal Assistance		
WIC	0 (0%)	16 (15%)
Food Stamps	1 (6%)	16 (15%)

On average, clients who had noticed the materials visited the salon 52 ± 85 times per year with a range of 12 to 365 times. Those who had not noticed the materials visited the participating salon an average of 22 ± 20 times per year with a range of zero to sixty, with zero indicating this was the stylists first time visiting the salon. For the group that had not seen or heard about the *Calcium: Select to Protect* materials, the minimum amount of time spent in the salon was zero minutes and the maximum was nine hours with a mean of 2 ± 1.4 hours. Those who had seen the material spent a mean of 3 ± 2 hours in the salon per visit, ranging from half an hour to eight hours. Every client who had noticed the materials had been to the salon before. It was the first visit to the participating salon for eight (8%) of those who had not observe the material

Clients' Responses to Questions Assessing the Constructs of the Health Belief Model

At least three quarters of the clients who had noticed the materials (n=12; 75%) and those who had not (n=87; 81%) believed their children are getting enough calcium. More than half (n=10; 63%) of those who had reported seeing the *Calcium: Select to Protect* materials were not concerned at all that their children were not getting enough calcium. More of those clients who had not recalled the materials were concerned about their child's calcium intake as less reported no concern (n=51; 48%). Table 12 illustrates the stylists' responses to queries regarding perceived susceptibility.

Table 12: Hair Salon Clients' Perceived Susceptibility of Calcium Deficiency		
	Clients who had noticed campaign materials (N=16)	Clients who had not notice campaign materials (N=107)
	n (%)	n (%)
Believe their children are getting enough calcium		
Yes	12 (75%)	87 (81%)
No	4 (25%)	18 (17%)
Don't know	0 (0%)	2 (2%)
Concern that their children are not getting enough calcium		
Not worried at all	10 (63%)	51 (48%)
Slightly worried	0 (0%)	11 (10%)
Worried sometimes	1 (6%)	16 (15%)
Worried	2 (13%)	10 (9%)
Very worried	3 (19%)	18 (17%)
Don't know	0 (0%)	1 (1%)

Few of the clients (13%) who had noticed the campaign materials believed calcium deficiency was not harmful; these responses were comparable to those who had not noticed the campaign materials, 10% of whom believed calcium deficiency was not

harmful. Complete results from those surveyed who believed calcium deficiencies were harmful are displayed in Table 13 by their severity ratings.

Table 13: Hair Salon Clients' Perceived Severity of Calcium Deficiency		
	Clients who had noticed materials (N=16)	Clients who had not notice materials (N=107)
	n (%)	n (%)
Degree of harm resulting from calcium deficiency		
Slightly harmful	7 (44%)	28 (26%)
Harmful enough that you need to see a doctor	4 (25%)	48 (45%)
Harmful enough that you need to go to the hospital	1 (6%)	16 (15%)
Harmful enough that you may die	1 (6%)	2 (2%)
Don't know	1 (6%)	2 (2%)

At least three quarters of the clients who had seen the campaign materials (n=12; 75%) and those who had not notice the material (n=90; 84%) claimed they did not have difficulty making sure their children got enough calcium. Data from those who stated barriers to ensuring their children consumed adequate levels of calcium are shown in Table 14 below.

Table 14: Hair Salon Clients' Perceived Barriers to Ensuring Their Child's Calcium Intake		
	Clients who noticed the campaign materials (N=16)	Clients who did not notice the campaign materials (N=107)
	n (%)	n (%)
Client had difficulty making sure their children get enough calcium		
Yes	4 (25%)	16 (15%)
No	12 (75%)	90 (84%)
Don't know	0 (0%)	1 (1%)
Client knew how to find out how much calcium is in a food		
Yes	13 (81%)	70 (65%)
No	3 (19%)	37 (35%)
Client avoids dairy foods		
Yes	5 (31%)	21 (20%)
No	11 (69%)	86 (80%)
Client's children avoid dairy foods		
Yes	3 (19%)	13 (12%)
No	13 (81%)	94 (88%)

CHAPTER FIVE: DISCUSSION

The original intent of this study had been to evaluate the effectiveness of hair salons as a venue to implement a health-related social marketing campaign targeted toward African-American and/or Hispanic caregivers of young children. The salons were not effective venues. Due to the extremely low reported client recognition of the materials, the focus of the study shifted to examining the involvement of hair salon owners/managers and stylists in the implementation of the campaign. Further, possible causes of this failed attempt are considered and potential solutions to overcome these problems. Although few clients recognized these materials, a brief examination of the client demographics and constructs of the Health Belief Model are included. Campaign results discussed below are organized according to each of the three realms of the Social Ecological Model, as well as by the study hypothesis.

Intervention at the Institutional/Organizational Realm

Hair Salons as Campaign Implementation Sites

Hair salon recruitment proved to be difficult. It required the principal investigator to spend approximately one hundred and twenty hours in contacting the salons' owners/managers by phone and personal visits, from May through June of 2006. Aside from the principal investigator's labor hours, salon recruitment required approximately eighty labor hours of Spanish-speaking paraprofessionals time, to contact owners/managers and to translate information during the meetings. In many cases when visits were scheduled via telephone, the owners/managers were not present at the pre-

arranged time, or the salon was closed. This resulted in multiple trips to the same salons, in cases where they appeared to be a viable venue.

Managing to get salon staff on the telephone in order to discuss the potential for campaign implementation in their salons was another barrier researchers faced. The research team tried to make phone calls during off-peak hours, as it was believed that the employees may have had more time to dedicate to phone calls during these periods. This proved to be ineffective, as a large percentage of employees asked the researchers to call back; however, when researchers did call back they were either “put off” again, or they were told that the owner/manager would contact them. They never did.

Calls made to explain the study and to arrange a time to meet in person elicited a very low response rate. Although no research in the literature could be found that identified the challenges associated when performing telephone research with small business owners, one study found that despite six different methodologies having been employed, mail surveys of small business owners exhibited notoriously low response rates.⁸⁷ Further, the low response rate of owners/managers was consistent with the increasingly low response rate found when contacting consumers for a telephone survey.⁸⁸ Visiting the salons in person often alleviated this problem because the campaign materials helped capture the interest of the owners/managers. However, this method also elicited limited success as the owners/managers were frequently not present at the salons during unscheduled visits. Ultimately, a 10% recruitment rate was accomplished, this is less than the 16% rate reported by another study done on similar salons; however, all of the

salons included in latter study were eligible for participation whereas multiple salons from this study did not meet the inclusion criteria.⁸⁹

The majority of Hispanic salons included in this work were of a traditional nature, i.e. the stylists washed, cut, dried, and styled hair. In terms of those salons used as campaign sites to reach African-Americans, doobie shops and braiding salons were included in this study. Even though their nature was slightly different than typical hair salons, these salons were included as they often served a greater quantity of clients than the more traditional salons in the target communities. Doobie shops did not cut the clients' hair but rather, wash, dry, and style their hair into a doobie, a style in which the head is used as a roller to straighten the hair. These shops were often managed and staffed by Dominican stylists. Braiding salons were similar to doobie shops in that braiders did not cut the clients hair. Instead, they created styles, such as: cornrows, twists, and weaves, usually adding extensions of either faux or human hair to their clients' natural hair. African or African-American women typically owned and operated these salons, which were observed to serve fewer clients than the doobie shops and traditional salons. The lesser number of clients that were served in braiding salons was likely due to the extensive amount of time it required to style each client's hair.

The salons described above were frequented by target population clientele who spent prolonged periods of time in them. The campaign materials had been posted in visible locations throughout the salons, as well as on the stylists' aprons. Over the course of the study period a large quantity of brochures were distributed; however, as can be noted by

the large standard deviation of brochures, these numbers may have been skewed by one salon's questionable distribution of 378 African-American brochures. This salon appeared to service the clients with the most economic hardships, as many conversations regarding defective heating in low-income housing and lead poisoning were overheard by the researchers. Also at one visit, suspicious activity was observed between one stylist and a client. Although this observation was not further queried, it was believed to have involved the sale of an illegal substance. When this salon outlier was removed, it was found that both the Hispanic and African-American salons distributed approximately equal numbers, suggesting these facilities were all potentially viable venues for implementing health-related social marketing campaigns.

Yet despite the previously described efforts and the apparent success of brochure distribution, the clients failed to notice the campaign materials. Researchers were surprised to find an almost complete lack of client campaign recognition, since this contrasted with previously published findings from similar studies. One of these studies had reported that 37% of salon clients had recognized education materials that had been displayed in the twenty intervention salons;⁸⁹ while another study found that 81% of salon clientele had read the educational materials that had been displayed.⁹ A third study reported educational success, i.e., positive behavior changes, that exceeded changes made among the control site clientele, by 81%.⁵

Factors associated with previous salon interventions and design differences may help explain the discrepancies regarding their varying degrees of success. Potential

differences that may have influenced these varying success rates included: the extent of stylist training efforts, dissimilarities among salon clientele demographics, the health conditions being addressed, and the interventions' durations.

First, the stylists from the other studies who had helped promote the interventions' educational messages spent dedicated time participating in more in-depth and extensive training sessions. In all three of the interventions found in the literature, stylists had practiced stating what they would say to their clients in front of the researchers via role playing activities. In one of the interventions, the stylists had actually practiced delivering educational messages to their clients in front of the research staff.⁵ This intervention additionally offered multiple training sessions, i.e., three, one of which actually took stylists to the hospital to participate in the actions they would later encourage their clients to take.⁵ Additional references were provided to stylists in two of the intervention training sessions,^{89;9} one set of which was provided in the form of a handbook.⁸⁹

In contrast, due to comments made by the owners/managers, the *Calcium: Select to Protect* training sessions were less compelling. That is to say, owners/managers had indicated that their stylists' would not willingly donate their personal time to coming in for training. This contrasted with one of the published studies that had indicated stylists had been willing to participate on their own time. However, this was likely due to the provision of valuable incentives, i.e., the trainings included professional development offered by a renowned stylist, as well as subject payment.⁸⁹ The *Calcium: Select to*

Protect incentives for participation, i.e., a totebag worth less than \$4, a stress ball, a measuring cup, and a chip clip, paled by comparison. Owners/managers further indicated that they would not allow their stylists to neglect their work to participate in the training. Thus, the *Calcium: Select to Protect* training sessions had to be provided to stylists while they were working. This most likely decreased the amount of attention the stylists' dedicated to learning about the campaign's educational messages and how to best deliver the messages to clients. Also, under these conditions it was impossible for the trainers to have the stylists practice how they would deliver the campaign messages.

Another discrepancy between the salon interventions identified in the literature and the intervention described in this thesis, regarded differences among the communities in which they were performed, i.e., presumably less urban communities, and demographic differences among the salon clientele. One was done in a University community in Virginia and targeted well educated, working, married, older women;⁵ while the other was conducted in a central North Carolina county, and targeted African-American and Caucasian, middle-aged women, over half of whom had completed college.⁹ Only one of the studies identified in the literature had been implemented in an urban minority community, similar to the one targeted by the *Calcium: Select to Protect* campaign. In this intervention the majority of clients were older African-American women. Interestingly, the study done in the community most similar to the one targeted in this work, was the one that reported the least success, i.e., the lowest percentage of clients who had recognized the intervention materials. None of the published works had been done in Hispanic communities.

Another difference in the three studies described in the literature and the work described in this thesis was the actual content of the health-related messages delivered and the health conditions addressed. The three other published works focused on cancer preventions. Two studies encouraged clients of the salons to participate in breast cancer prevention, i.e., yearly mammograms,^{5;89} while the BEAUTY study focused on more general cancer prevention messages, i.e., eat more fruits and vegetables and increase physical activity.⁹ The perceived threat of calcium-deficiency among children may not have been as compelling as the threat of cancer to the clients; therefore, they may have been more receptive to cancer prevention messages. This may be particularly true with regard to two of the studies, as they promoted breast cancer prevention. At the time of the writing of this thesis, breast cancer was a disease that affected about one in eight women to the extent that at some time during their life they had invasive breast cancer.⁹⁰

Implementation duration may have been another factor that contributed to the differences in success rates between the three other studies conducted in hair salons, and the work described in this thesis. The other published intervention studies,^{5;9;89} were implemented for shorter periods of time, i.e., two, seven, and twelve weeks as compared to the *Calcium: Select to Protect* campaigns' eight months. One might expect that the longer duration of the *Calcium: Select to Protect* campaign would have elicited stronger results. However, researchers noted much greater salon and stylist participation during the first three months of the study. Therefore, shorter intervention periods may yield greater success as the stylists' may not get bored with the campaign, and perhaps decrease their participation accordingly.

Hair Salons Owners/Managers

As stated in the results, most of the owners/managers who participated in the campaign initially identified themselves as the managers, even if the salons bore their name. The research team suspected that some of the “managers” were at least partial owners. Their not initially stating as such may have been the result of their lack of trust in the research team. Or, they may not have wanted to indicate their level of decision-making authority in case they needed to decline participation due to responsibilities or financial investments they were not willing to make. Claiming they were not owners helped shield them from the discomfort associated with potentially wanting to refuse participation.

Intent to Institutionalize the Campaign

Although most of the owners/managers reported that they intended to institutionalize the *Calcium: Select to Protect* campaign, none of them did. However, hypotheses developed to assess their indication that they “intended” to institutionalize the *Calcium: Select to Protect* campaign were investigated.

Personal Motivating Factors. The hypothesis that hair salon owners/managers who had children or grandchildren, a nutrition-related health condition, and/or a high level of health conscious, would be more likely to institutionalize the *Calcium: Select to Protect* campaign was only minimally supported by the study results.

Not surprisingly, many of the salon owners/managers were stylists themselves, and most were females. This had been expected since it has long been documented that “hair

stylist” is female-dominated profession.^{7;91} The fact that these females owners/managers were willing to implement the campaign is consistent with previous findings that women supervisors were most willing to implement worksite-based health programs.⁹² It had been hypothesized that the fact that owners/managers were predominantly female would be an asset to the study, in part because of the previously mentioned finding, as well as because many had children or grandchildren. With regards to the researchers’ abilities to examine the first portion of this hypothesis, i.e., that hair salon owners/managers who had children or grandchildren would have a higher level of commitment to the campaign. In this hypothesis, the presumption on the part of the researchers had not only been that these owners/managers would simply “be” parents or grandparents, but that they would be primary caregivers, who are most often women.

The results suggested that, in fact, having children or grandchildren was the only personal characteristic that approached significance when correlated with the owners’/managers’ intent to institutionalize the campaign. The owners/managers who cared for a child, especially a young child, were themselves part of the campaign’s “target audience”; this may have made them more likely to institutionalize the campaign since the campaign’s message was as important to each owner/manager as it would be to the community. These results parallel the findings of one study which found that employers were more interested in health promotion campaigns for the employees, if they perceived the wellness programs would benefit them personally.⁹²

The second part of the hypothesis which examined owners'/managers' levels of health consciousness and/or previous diagnoses with a nutrition-related health condition was rejected as the results indicated these were not personal motivating factors. It is possible that the owners'/managers' perceived level of health consciousness and/or previous diagnoses with nutrition-related health conditions may not have correlated with plans to institutionalize the campaign because the campaign addressed children's health rather than adults'.

Community and Client Relationships. The second hypothesis predicted that hair salon owners/managers who had a history of serving in volunteer capacities and/or strong community ties and personal relationships with their clients, would be more likely to institutionalize the *Calcium: Select to Protect* campaign. This hypothesis was reasonable as a previous study conducted in hair salons located in a similar community found that those owners/managers that had agreed to participate did so for altruistic or humanitarian reasons.⁸⁹ These motivating factors were believed to suggest owners'/managers' humanitarian leanings. Analysis run to evaluate this hypothesis yielded disappointing results. Previously having sponsored an event within the community was the only factor that approached significance when correlated with the owners'/managers' overall intent to institutionalize the campaign. This was encouraging since some research in Latino communities had previously recommended that hair salons engage in sponsoring health-related community events.⁷ Perhaps those owners/managers who had sponsored an event were more committed to the improvement of their neighborhoods, and therefore most likely to promote a health-related message.

Despite their commitment to promote a health-related message, they did not plan to encourage the stylists to distribute the campaign brochures. Perhaps they believed that if clients wanted the brochures they would pick them up on their own and stylists' distribution of the material would be considered a nuisance. Or, they may not have wanted stylists to use work time to implement the campaign. However, it would seem, in consideration of Linnan's theory that the hair salon is a place of social support and where beauty advice is given but health is discussed as well, that owners/managers would be willing to allow stylists' to distribute these campaign brochures.⁹

Owners'/managers' reports of client recognition were believed to indicate that personal relationships existed between the owners/managers and clients. This belief was consistent with previous research that found stylists and clients of the same ethnicity often formed personal relationships.⁷ A limitation to the study described in this thesis was that these personal relationships were assessed with only one question. Also, since owners/managers were only asked if they "recognized" clients they may have only known what the clients who visited frequently looked like and may have not actually engaged in conversations. Therefore, this single question may have been an inadequate indicator of client relationships. This limitation may explain why the results of this campaign did not support the hypothesis that personal relationships with clients would make owners/managers more likely to institutionalize the campaign.

Awareness of Calcium Deficiency. The hypothesis that owners/managers who were aware that children's calcium-intake was low, and that low intake of this nutrient put them at higher risk for certain health conditions would be more likely to institutionalize the campaign, i.e., continue to display campaign materials after the intervention has been completed was rejected.

The Stage Theory of Organizational Change suggests awareness to a problem is the first step towards taking actions to help rectify it. Although the researchers discussed the inadequate calcium intake of the community's children with the owners/managers prior to the intervention, survey responses suggested that only half of the owners/managers developed awareness. This percentage allowed for statistical analysis; however the results did not support the hypothesis that owners/managers with increased awareness would be more likely to institutionalize the campaign.

An additional question was asked to assess the owners'/managers' awareness of the negative health conditions associated with inadequate calcium intake, again, after they had been introduced to these conditions via the *Calcium: Select to Protect* brochure. Although the owners/managers in this study were not able to identify osteoporosis as the specific health condition resulting from calcium deficiency, they did report weak bones, as well as weak teeth. They were unable to name other conditions, such as risk for hypertension or lead poisoning as possible results of inadequate calcium intake. Also, they reported many incorrect conditions, despite having read the brochure. Their responses were similar to the results of a study that had evaluated adults' knowledge of

the conditions related to suboptimal calcium intake which found that many adults identified a relationship between calcium and osteoporosis, but less than half of those surveyed identified calcium intake's relationship to high blood pressure, cancer, or diabetes.⁵⁹ The lack of awareness of the resulting health conditions led to the rejection of the hypothesis that owners/managers with increased awareness would be more likely to institutionalize the campaign. The owners'/managers' acceptance of the campaign despite this lack of awareness may be explained by the fact that they were aware of the negative health consequences associated with inadequate intake, although they could not name them.

In conclusion, the research team rejected the third hypothesis, i.e., owners/managers with greater awareness would be more likely to institutionalize the campaign.

Perceived Campaign Effectiveness, It's Ease of Implementation, and the Owners/Managers Reactions Toward Campaign Participation. The final hypothesis in this section, i.e., that hair salon owners/managers who perceived that the *Calcium: Select to Protect* campaign was effective, that it required little or no effort to implement, and/or who found campaign participation to be a good experience would be more likely to institutionalize the campaign, was partially accepted.

The first portion of the hypothesis was supported in the literature as it had been previously found that owners/managers of small businesses needed to perceive a program to be effective to institutionalize it for their employees.⁹³ In the work described in this

thesis, it appeared that all of the owners/managers believed in part that the campaign was effective, since all of them reported that they had noticed clients looking at the materials. As previously stated, statistical analyses were not run on these variables due to the consistency of these responses. It should be noted that the majority of owners/managers did report intent to institutionalize the *Calcium: Select to Protect* campaign, therefore, the first part of this hypothesis, should not be discounted.

Ease of adoption was considered to be an important factor when designing the implementation strategies of the *Calcium: Select to Protect* campaign in hair salons. Health promotions have been considered to be suitable when they require little effort from the implementers. For example, one study found restaurant management noted ease of implementation is one of the factors needed for them to be willing to institute a program.⁹⁴

Despite the fact that overall the owners/managers perceived that the campaign was easy to implement, several difficulties were noted. These were language barriers, stylists' difficulties discussing the message, as well as problems associated with brochure distribution. A language barrier was observed in some salons where Spanish speaking stylists serviced African-American clients or African hair braiders providing a service to African-Americans. This cultural difference may have hindered not only the dissemination of the information but also the formation of the trusting relationship between clients and stylists that has been noted in studies enlisting hair stylists to deliver health advice to clients of the like ethnicities.^{7:9} Owners/managers also noted difficulties

that arose pertaining to the both the stylists' ability to discuss the campaign messages with their clients and to coordinate the distribution of the brochures with the management of their work. Although the language barriers and the lack of a personal relationship between the stylist and client cannot be ameliorated, a more thorough stylists' training may decrease the barriers stylists were observed to have as indicated by the three previously discussed studies that reported greater successes.^{5;9;89}

In terms of supporting or rejecting the second part of this hypothesis, statistical analysis could not be done as a result of the consistent reports by owners/managers that implementation of the campaign was easy. However, since most of them intended to institutionalize the campaign, this hypothesis was supported. Likewise, the majority of owners/managers reported they would recommend working with the research team to other businesses. Further, all of the owners/managers provided their contact information to the researchers. Thus the final portion of the hypothesis was also supported.

In conclusion three of the four hypotheses pertaining to the owners'/managers' intent to institutionalize the campaign were accepted, at least in part. Two of these three were only partially supported as only one personal motivator, i.e., caring for a child or grandchild, and one variable assessing the owners'/managers' ties to the community, i.e., sponsoring a community event, appeared to relate with their intent to institutionalize the campaign. The perceived ease of implementation, effectiveness of the campaign, and perception of their participation experiences were all related to their intent to institutionalize the campaign which resulted in the research team accepting this

hypothesis in its entirety. Awareness of the prevalence of calcium-deficiency and the resulting health conditions did not appear to relate to the owners'/managers' intent to institutionalize, therefore this hypothesis was rejected.

Intervention within the Interpersonal Realm

Hair Salon Stylists

Hair Stylists' Characteristics

Like the owners and managers, all but two of the stylists were female and all were of either African-American or Hispanic. The prevalence of female stylists was expected as this is primarily a feminine profession as noted earlier.^{7;91} Most stylists reported caring for a child even though their age ranges varied widely. The high rate of African-American female caregivers is consistent with research that has indicated females are the primary caregivers in the majority of African-American homes.^{95;96;97}

It is not surprising that older women cared for children as the number of children that resided in grandparent headed households has increased from 2.2 million in 1970 to 4.5 million in 2000.⁹⁸ Although, the increase in grandparents functioning as caregivers has increased in all families, the greatest increase has been observed in inner-city, non-Caucasian, ethnic homes.⁹⁹ It has been reported that 13% of African-American children and 5.7% of Hispanic children live with grandparents.⁹⁸ Grandmothers are often the primary relative that help care for children when both parents are employed.¹⁰⁰ Recently, African-American married females in dual parent homes were found to be employed more often than white women with children of all ages while Hispanic caregivers were

found to be more likely to work than white women when their children were under age three.¹⁰¹ These findings may account for the large variance of ages found among the stylists included in the study.

When approached regarding participation about the campaign it was clear the stylists were receptive to information pertaining to calcium and were aware of the importance of this nutrient. Most noted having seen or heard about the health benefits of calcium prior to the campaign. As an aside, after the campaign most noted having seen or heard about calcium's health benefits via the campaign brochures. Prior to the intervention, mass media and healthcare settings comprised most of the locations in which stylists had observed the information. This is not surprising since the "Got Milk Campaign" was implemented in 1996,¹⁰¹ and the 3-A-Day Campaign was launched in 2004.¹⁰³

In terms of the stylists' knowledge of calcium needs, adequate knowledge regarding specific recommendations for children's calcium intake was considered to be an important factor. Previous research assessing the development of a social marketing campaign found that the credibility and knowledge of the individuals promoting the recommended behaviors were important.⁶⁵ Prior to the campaign, their knowledge in this area was non-existent. Knowledge of health conditions related to inadequate calcium intake was additionally important. When assessing the stylists' knowledge of the health conditions that may occur as a result of inadequate intake, it became apparent that they had only known the importance of calcium with regard to teeth and bone health pre and post intervention. Clearly, training was in order.

Hair salon stylists often have a loyal clientele and spend a significant amount of time with each individual when providing their services, during which they may discuss a variety of topics including those related to health.^(7;86) The trusting relationships formed in this setting are intensified when the owners, employees, and clients are of the same ethnicity, particularly in African-American and Latino or Dominican salons.^{7;86} Further the average amount of time hair stylists spent with clients is substantial, which may explain the personal nature of their relationships.⁷

As predicted, almost all stylists spoke with their clients regarding food and health-related topics. This re-enforced previously established beliefs that a relationship exists between stylists and clients that extends beyond providing a hair care service.⁹¹ The average frequency of health-related conversations decreased over the course of the campaign; however, the frequency of food-related conversations increased. These results may have indicated that the stylists were disseminating the *Calcium: Select to Protect* information by talking to their clients about which foods were calcium-rich.

Stylists' Campaign Involvement. Several studies have invited, and subsequently involved, stylists in health promotion campaigns targeted toward their clients.^{4;5;6;7;8;9;86}

In the work discussed in this thesis, there was a discrepancy between the number of stylists the owners/managers indicated they intended to give the option of training to and the number of stylists who actually participated in the campaign. These results did not support the hypothesis that those who were allowed to assist in the *Calcium: Select to*

Protect campaign would actually do so. This prediction had been made based on previous research in which stylists had indicated they would be interested in providing health-related information in salons to their clients.⁸ However, the low participation rate of stylists in the *Calcium: Select to Protect* campaign was consistent with a study conducted in urban, African-American communities where only one-third of the stylists employed at the experimental group salons chose to participate in the training and intervention.⁸⁹

The low participation may have resulted from: disinterest, time constraints, heavy workloads, or lack of availability. The actual reason for this low number of stylists that agreed to participate is not known. Yet, it is not surprising in that in another salon intervention, performed with a demographically similar group of stylists, the participation rate was also low despite its provision of payment to stylists, incentives, transportation, and flexible training schedules.⁸⁹

Training and Self Efficacy. The Social Cognitive Theory's construct of self efficacy has been found to increase the likelihood of a participant engaging in the desired behavior.¹⁰⁴ Thus it was hypothesized that personalized training would increase the stylists' perceived self efficacy with regard with disseminating campaign messages and materials. Preliminary results obtained after the stylists' training supported the hypothesis. However, this result was fleeting. When using lay community members to deliver a health-related message, a similar effect was found.⁸³ These decreases in self efficacy over time have been due to a lack of practice during the intervention period.⁸³ This

appeared to be the case in this study because of the minimal number of client logs submitted and the trivial amount of stylists having provided advice to their clients. Further it appears that participation decreased throughout the duration of the campaign as was evidenced by the data collected on the progress logs. Stylists' claimed that the reason why they had fewer calcium-related conversations with their clients was because their clients had already been exposed to the campaign's messages. A similar decrease in participation was reported from another study that worked with demographically similar stylists. Researchers attributed the stylists' decreased participation to the possibilities that the information was too complex for the stylists to deliver or that they had been overwhelmed by the amount of information they were asked to provide. These reasonings can be applied to this study as the stylists' knowledge was not tested post training and there were many calcium-related facts to be discussed under the *Calcium: Select to Protect* umbrella.

Campaign Participation As It Related to Self Efficacy, Expectations of Campaign Outcomes, and Intent to Continue Campaign Involvement. The minimal participation on the part of the stylists was not consistent with other studies that had found that hair stylists were willing to assist in the implementation of health-related programs in their salon^{6;7;9} Post intervention, 86% from the clientele from one study reported that their stylists had spoken to them about the campaign.⁵ It had been hypothesized that those stylists who had reported the greatest participation would be those who had the highest perceived self efficacy, and who had the highest expectations about campaign outcomes.

It had also been hypothesized that stylists who were more willing to continue reinforcing the campaign messages would have reported the greatest participation.

Stylists' self efficacy was assessed by querying them on their level of comfort in discussing health-related issues with their clients, talking about calcium with their clients, and, asking their clients about the amount of calcium-rich foods they eat. However, when all three variables were correlated with their participation, the only significant relationship was found between the stylists' level of comfort in talking to their clients about calcium-rich foods and their campaign participation, as measured via their self reports regarding the degree to which they had provided their clients with advice. Despite this, overall this portion of the hypothesis was rejected.

The Social Cognitive Theory posits that positive expectations and expectancies will increase the likelihood of behavior change.^{80:81} In this campaign the desired behavior change was that the stylists would be more likely to speak with clients about calcium. The stylists' expectations of the clients offering their children more calcium-rich foods if they knew its positive health effects were favorable. However, the stylists' expectation in their ability to foster a change in their clients' behavior was not as strong. This result may have been due to the stylists' lack of training in health promotion as this was not their primary profession. However, another intervention that was delivered by non-professionals, i.e., the lay public, and designed according to the Social Cognitive Theory, found that the educators' expectations regarding their ability to assist in smoking cessation increased immediately after the training but this increase returned to baseline

levels six months post intervention.⁸³ Unfortunately, the stylists' expectations were not measured immediately following the *Calcium: Select to Protect* training. Therefore, it cannot be discounted that the stylists may have originally experienced higher expectations. However, in the absence of successful results, as was the case in the study previously discussed, the expectancies may have decreased. Therefore, the second portion of the hypothesis, i.e., hair stylists with increased expectations would report a greater level of participation, was rejected.

The final portion of the hypothesis was that stylists who had most participated in the study would have greater intentions to continue campaign implementation after the study had been completed. Statistical analysis could not be done since most stylists reported they intended to do so. Therefore, this portion of hypothesis should not be rejected based on these finding. However, researchers' return visit to the intervention sites eight months after the campaign's conclusion demonstrated otherwise. Thus this hypothesis has been rejected. It is possible that the stylists had not been willing to continue disseminating the material but where reporting what they believed the researchers wanted to hear.

Campaign Participation and Behavioral Capability. The stylists' behavioral capability was comprised of their knowledge of children's calcium requirements and the health conditions that may result from their inadequate intake as well as stylists' skills in fulfilling their role in the campaign's intervention. The research team had hypothesized participation in the *Calcium: Select to Protect Campaign* would increase the stylists' behavioral capability pre to post campaign. For the purposes of this hypothesis only,

“participation” is not defined in terms of the previous variables used, but instead it is used to define those stylists that took part in the *Calcium: Select to Protect* training and is suggested that they had taken part in the campaign.

Pre to post campaign results from the open-ended questions measuring changes in stylists’ knowledge pertaining to children’s daily calcium intake recommendations as expressed in milligrams did not advance. Nor did the stylists knowledge of the negative health effects associated with inadequate calcium intake. Additionally, behavioral capability was measured by the following proxies assessing the stylists’ pre to post perceptions of: the number of clients to whom they had provided advice; the quantity of clients they had used their advice; and the frequency with which the clients had used the advice. Although the qualitative data suggested this hypothesis should be rejected; statistical analysis of the proxies suggested otherwise, as improvement was evidenced on all three measures, with their perceptions of the number of clients who use their advice improving significantly.

Self efficacy is a personal determinant and behavioral capability is a behavioral one. Reciprocal determinism, a primary component of the Social Cognitive Theory, predicts that behavioral, personal, and environmental determinants affect one another in promoting behavior change.^{80;81} Although there were no environmental determinants measured in this study, the results supported this concept as a significant relationship was evidenced between the personal and behavioral determinants. Thus, either the stylists became more comfortable speaking about calcium as a result of clients’ receptiveness to

the information or the stylists may have perceived the clients to be using the advice more as the stylists became more comfortable in their ability to address the topic of calcium.

Their Own and Their Children's Calcium Intake. Interestingly, the stylists' mean dairy intake was suboptimal both at the start and conclusion of the study; however, their children's mean intake increased by the study's conclusion, indicating the campaign may have prompted them to offer their children more calcium-rich foods. Although, again, it should be noted that there is a possibility the clients may have over-reported their children's dairy intake to impress the researchers.

The results of this study led to the acceptance of two hypotheses that had been put forth regarding the interpersonal realm. These were that personalized training would increase the stylists' self efficacy and that participation in the campaign would increase the stylists' behavioral capability. All other hypotheses with regard to this realm of the intervention were rejected.

Results of Implementing the *Calcium: Select to Protect* Campaign in the Individual Realm

As previously indicated, the original focus of this intervention had been to measure the impact of the *Calcium: Select to Protect* campaign on the clients' knowledge of children's calcium requirements, as well as health conditions that children with inadequate intake may be at higher risk for, as well client changes regarding various aspects of Health Belief Model, e.g., their perceived severity associated with their children's inadequate calcium intake. However, as a result of the extremely low client

campaign recognition at the end of the study, the discussion of the individual realm, i.e., the clients, is limited to the descriptive statistics of those who had noticed the campaign materials as opposed to those who had not.

Client Characteristics and Campaign Recognitions

Not surprisingly, the majority of both groups were female; however, a larger percentage of males observed the materials compared to the group that had not. This may be a result of males not going to hair salons for the social aspects as women had been observed to do.⁹¹ This finding was in opposition to what researchers had predicted on the basis that women are the primary caregivers of children.

Those who exhibited campaign recognition were notably younger than those who had not. This was the only variable with a great enough difference to prompt statistical analysis; results approached significance. Younger clients may have been more uncertain about their knowledge regarding their children's calcium needs, which may have prompted them to be more attentive to the campaign. On the other hand, older caregivers, who were likely older parents or grandparents, may have believed they were more familiar with their children's needs, they may have been more interested socializing with friends, or they may have had physical limitations such as impaired hearing or vision, which would have made them less likely to see or hear the campaign messages. In terms of the amount of time that clients spent in the intervention salons, as expected, the clients who had recognized the campaign spent more time in and visited the salons more often.

Health Belief Model

Upon review of those aspects of the Health Belief Model that were examined in this study, some interesting findings emerged. The primary constructs of the Health Belief Model are perceived susceptibility, perceived severity, perceived barriers, and perceived self efficacy. According to the health belief model, when perceived susceptibility, severity, or self efficacy is high, and/or perceived barriers are low, the likelihood of a behavior change increases. In this study the behavior of interest was campaign recognition.

In alignment with the principles set forth in the Health Belief Model, a larger percent of those clients who reported campaign recognition believed their children were not getting enough calcium and were more worried about the adequacy of their children's intake. With regard to self efficacy, they were more confident in their ability to obtain calcium-rich foods and to get their children to eat them. However, contrary to the model's predictions, they were less confident in their ability to choose calcium-rich foods and to use the food label to do so, they believed the severity of calcium deficiency was lower, and more reported barriers to their children's calcium intake, e.g., having children who avoided dairy foods.

Although these findings were interesting the small sample of people who had recognized the campaign precluded statistical analysis. Further, a visual assessment did not point to any striking differences among these two client groups.

Study limitations

There were multiple unexpected limitations observed throughout the implementation of the *Calcium: Select to Protect* campaign. Neither the owners/managers nor the salon stylists followed through with the agreed upon responsibilities of campaign participation. This section will discuss all these limitations that had not been previously presented in this thesis since they had not been anticipated.

Recruitment and Training. During the initial recruitment phase, owners/managers seemed agreeable and excited by the campaign. One manager even volunteered to supply refreshments for the stylists' training. However, their enthusiasm waned throughout the course of the study, despite the apparent intent to participate expressed during the initial salon recruitment. As previously discussed, during recruitment they had been told their responsibilities included: 1.) to allow posters and brochures to be displayed; 2) to allow stylists to be trained; and 3) to allow researchers access to clientele to conduct pre and post surveys. They were never asked to encourage the stylists to speak to clients or to prompt the clients to read the brochures; researchers had expected they would do so independently.

Another limitation to this study was that the training could only be offered once at each salon due to both the study's as well as the stylists' time restraints. Although, the research team had used the owners'/managers' responses as to when they would be able to reach the most stylists when selecting the training days, it is possible that all of the stylists were not present due to vacation, personal days, or illness. It is possible that the

owners/managers had reported the total number of stylists employed at the salon as opposed to the number of employees that would be present on the preferred days of the training. A limitation in the training design was the failure to assess the constructs of the Social Cognitive Theory immediately after the session was complete. Without this information the research team was not able to determine if the training was effective in increasing the stylists' knowledge, skills, expectations, and willingness to reinforce campaign messages during the course of the intervention.

Although a control group for clients had been included in the studies design, a limitation was the neglect to include a control group of owners/managers and stylists. Personal characteristics as well as community and client relationships were believed to have the potential to prompt either the owners/managers or the stylists to participate in the campaign. Evaluating these variables in those who chose not to participate would have allowed for researchers to determine any differences.

Intervention. The owners/managers were given limited responsibilities concerning campaign implementation, i.e., they were only asked to ensure the *Calcium: Select to Protect* campaign materials were displayed in visible locations. Despite these instructions, researchers often noticed the brochure holders were filled with other items, e.g., business cards for the salon or other businesses and advertisement flyers, and the posters had been taken down. Further, it appeared that some of the materials may have been discarded or misplaced within the salon, as opposed to having been taken by the clients.

A major limitation to this study was that neither the owners/managers nor the stylists followed the study protocols, i.e., campaign materials were not always displayed correctly and stylists did not deliver campaign messages, as instructed. Potential solutions will be discussed in the thesis conclusions.

Summary

The results of this study do not support previous finding that found hair salons were viable venues to promote a community health campaign and that stylists were effective mediators who helped to disseminate the information, as only four of the eight hypotheses were accepted, some only partially. Many factors, either personal, interpersonal, or in relations to the respective models and theories, appeared to affect participation or lack of, in both realms. However, some could not be appropriately evaluated. The end results, the owners'/managers' failure to institutionalize the campaign and the stylists' failure to fulfill their roles as mediators disseminating the *Calcium: Select to Protect* materials, suggested the campaign had not been effective on both the institutional/organizational and interpersonal realms of the Socio-Ecological Model.

CHAPTER SIX: CONCLUSIONS

The *Calcium: Select to Protect* campaign pilot in Newark, NJ hair salons failed to be successfully implemented. These results suggested that hair salons in low income, urban, minority neighborhoods, and the stylists employed by them, may not be the most appropriate venues for promoting health-related messages. The campaign's failure prompted the work presented in this thesis to be primarily focused on the research examining the salon owners/managers and the stylists in an attempt to develop possible explanations for the intervention's failure.

The reasons it had been anticipated that hair salons would be viable venues for the campaign promotion was based on both previous research findings in which stylists had promoted intervention messages, qualitative data gleaned from focus groups that had been conducted previously with the target audience. The former rationale was based on the fact that previous findings had shown positive results; and, the latter rationale was the result of the target audience specifically indicating that salons would be a successful campaign venue. Researchers should take note when using the findings from focus group research that participants may report what they intend to do, as opposed to what they will actually do. Smaller scale pilot studies should be done to test any hypothesis derived from focus group results.

Summary of Study Findings

Of the eight hypotheses tested, only four were accepted. Caring for a child or grandchild was the only personal motivating factor that related to the owners/managers intent to

institutionalize the campaign. This was likely because the campaign was centered on children's calcium intake, a factor that was pertinent in their lives. No matter what intervention delivery venue is chosen, future researchers should seek to enlist caregivers to be involved in campaign delivery when the campaign messages promote a component pertaining to children's health.

In considering the effect strong community and client relations had on intent to institutionalize the campaign, having previously sponsored a community event was found to be weakly related to increased intent. Perhaps calling upon community leaders to help identify owners/managers who have demonstrated this type of community involvement, would allow for community health campaigns to be implemented in more locations, and would therefore support the campaign in its potential for creating greater awareness.

All three of the variables that reflected owners'/managers' perceptions and experiences regarding the campaign implementation were overall very positive; and, in most cases owners/managers intended to institutionalize the campaign. Clearly researchers should continue to develop interventions that require owners/managers to do as little as possible; should invest time convincing owners/managers of the programs' effectiveness; and, should make the owners'/managers' experiences as enjoyable as possible to increase the chances of program institutionalization.

It had been predicted that the personalized training provided in this intervention would increase the stylists' self efficacy, resulting in increased campaign participation and their

improved behavioral capability. The findings from this research supported this prediction. Yet, despite these positive results, other research findings pointed to the concept that future campaigns should include more thorough training sessions, during non-work hours.

Challenges and Their Potential Solutions for Similar Interventions

Recruiting the lay public, both within the institutional/organizational realm and the interpersonal realm, was one of the greatest challenges the research team had to overcome. After utilizing multiple methods to recruit hair salon owners/managers for campaign implementation, researchers concluded that personal meetings and flexibility were keys to their success.

The stylists' training proved to be an imperative factor in participation. A more extensive training session was not feasible due to the time constraints of the study, as well as the stylists' availability and preferences. Offering the training multiple times in one salon or providing the stylists with literature to read at home prior to the intervention may have helped increase participation. One major limitation in this study was failure to test the stylists' knowledge and skills in delivering the *Calcium: Select to Protect* information, in other words there were no measures of their training's success. Future studies involving stylists will need to provide more thorough information pertaining to the topics to be addressed, and also have stylists' practice delivering the message, and, most importantly, measure the effects of the training.

Hair salon stylists' lack of participation in campaign material dissemination was inconsistent with previous research; however, there were many differences between the work reported in this thesis and those studies that had elicited greater participation.^(9;5;89) Most of the stylists employed in the traditional salons included in this study had formed the trusting relationships with their clients that had been deemed to be imperative to the success of their roles in health promotions; however, stylists employed in doobie shops and braiding salons did not appear to have these strong relationships. Perhaps if these operations had been excluded from the study, the campaign's success may have been greater.

The low rate of stylists' voluntary participation was unfortunate for this campaign. As noted throughout this thesis, other similar studies that have involved stylists had reported greater success. These campaigns, however, had been focused on cancer prevention messages, two of which had addressed breast cancer prevention. It was believed that the lack of participation in this study may have been a result of many stylists' trivial worries regarding their children's health being compromised due to calcium deficiency. Future researcher should more strongly evaluate the perceptions of the individuals who will be implementing the campaign. Also, since conversations pertaining to calcium had not been reported as having been discussed regularly in salons prior to the intervention, perhaps stylists should be trained to deliver health promotion message within the context of the most common topics that typically arise naturally between hair salon stylists and their clients. Future studies should test this message dissemination technique.

The extremely low reported campaign recognition by the clients indicated that not only were the stylists not fully participating in the intervention, but that the materials may not have been effective at “grabbing” their attention. Campaign materials had been developed based on recommendations made during focus groups conducted with the target audience. However, these results may not have been reliable. That is not to say that health-promotion materials should be developed in the absence of the insights of those who it is intended for, but again, smaller, less expensive pilot interventions using the materials will confirm their acceptability and effectiveness. For example, these materials had been well-liked when they were not in competition with reading materials such as popular press magazines. When displayed in “real life” settings, they may not be as “attention grabbing” and they may serve as a lesser choice for entertaining the public.

Implications for Future Research

Although, overall, this intervention was not effective, hair salons and stylists should not be discounted in terms of their potential role in the delivery of health-promotion campaigns targeting low-income, minority communities. The potential to create a successful intervention employing these owners/managers and stylists of urban African-American and Hispanic hair salons remains, but additional small-scale research should be undertaken before larger interventions are initiated.

The findings of this study suggested the owners/managers intent to institutionalize the campaign was related to their involvement in the community. It would be interesting to compare the rate of community involvement among business owners who take an interest

in participating in health promotion campaigns, as opposed to those who do not. Also, research should be done to assess what responsibilities owners/managers are willing to take on when implementing a campaign in their operations. Since the perceived effectiveness of a campaign was another factor related to the owners'/managers' intent to institutionalize the campaign, studies assessing which campaign methods owners/managers believe would be most effective, may be useful in developing intervention programs that will be delivered in their establishments.

Research should be done to evaluate the viability of campaign delivery in the three different salon settings included in this work, i.e., traditional salons, doobie shops and braiding salons. Research should focus on evaluating the varying depths of stylist-client relationships, as well as the feasibility of stylists' effectively disseminating educational information and materials within their usual workflow. As stated above, future research should note the topics that arise frequently between the stylists and clients, and test various tailored health promotion messages that are built around these topics.

Researchers were surprised that a larger percent of the clients who had reported material recognition were either younger and/or males. Studies should be done to evaluate why the materials better attracted the younger clients, and examine the need for and acceptance of nutrition-related education among grandparents who function as caregivers, i.e., the older women included in this work. More males may have noticed the campaign materials because males they do not participate in the socializing that occurs among females in the salons. It would be beneficial for future researchers to examine how often

males visit hair salons, either for personal services or to accompany a female. Then research should be done to evaluate materials better targeted toward males and/or test the materials' recognition by women in locations that are not typified by the socializing aspects of the hair salon, i.e., nail salons, bus stops, and waiting rooms in health care facilities.

In conclusion, hair salons, and the stylists employed in them, were not effective venues or mediators for promoting the *Calcium: Select to Protect* campaign in urban communities; however, many limitations in this intervention were addressed as potential reasons for the limited success, and future endeavors may result in better success.

Appendix I

Authorization from Non-Rutgers Sites

I will allow Rutgers researchers to recruit and survey adults at my site to find out about them, what they eat and other dietary concerns. I know that you will recruit my clientele who meet the study guidelines to complete your survey.

I am responsible for this site and have read a copy of the study protocol.

I know that if I have any questions about this work I can contact any of these people:

**Dr. Debra Palmer Keenan
(732) 932-9853**

**Audrey Adler
(732) 932-0532**

**Alison Bigwood
(732) 932-3779**

**Diana Cangemi
(732) 932-3779**

**Located at:
Rutgers University
Dept. of Nutritional Sciences
Davison Hall, 26 Nichol Ave
New Brunswick, NJ 08901-2882**

If any problems arise, I may also contact:

**The Office of Research and Sponsored Programs
Rutgers University
ASB III, 3 Rutgers Plaza
New Brunswick, NJ 08901
(732) 932-0150 ext. 2104
Email: humansubjects@orsp.rutgers.edu**

Site Name and Location:

Printed Name and Title:

Signature: _____ Date _____

Appendix II

Memorandum of Understanding - Full Participation**“Calcium Select to Protect” Social Marketing Campaign**

Studies have shown that African American and Hispanic children do not get enough calcium. This problem prompted Rutgers to develop brochures and posters targeted to African American and Hispanic caregivers. They are printed in English and in Spanish.

The “Calcium Select to Protect” brochures and posters were made to teach caregivers of children these calcium facts:

- Why a child needs it
- How much a child needs every day
- Foods that have a lot of it
- How to find out how much is in a food
- How to deal with problems that may keep a child from getting enough of it

A study is being done by Rutgers to find out if beauty parlors are a good place to reach people who would be helped by reading these brochures and posters. If you agree to take part in this study you will be asked to:

- Hang **at least** one “Calcium Select to Protect” poster at all times. It must be hung in an area that clients can see.
- Put out **at least** 20 brochures at all times. They should be in an area that clients can see and get to.
- Allow your employees to take part in a training session where they will learn about calcium and how they can aid in distributing the brochures.
- Authorize your business as a site for researchers to come in and do in person interviews with your clients.

The study will take at least 6 months after which a researcher will check the progress. A researcher will visit the beauty parlor every 2 weeks for the first 2 months to check if you need more brochures and posters and to work with you to solve any difficulties. If the beauty parlor runs out of supplies before this time, someone should call a researcher **within 24 hours** so that more can be given.

Site: _____

Phone #1: _____ Phone #2: _____

Address: _____

Contact: _____ Title: _____

Signature: _____ Today's Date: _____

Appendix III

Memorandum of Understanding - Modified Participation**“Calcium Select to Protect” Social Marketing Campaign**

Studies have shown that African American and Hispanic children do not get enough calcium. This problem prompted Rutgers to develop brochures and posters targeted to African American and Hispanic caregivers. They are printed in English and in Spanish.

The “Calcium Select to Protect” brochures and posters were made to teach caregivers of children these calcium facts:

- Why a child needs it
- How much a child needs every day
- Foods that have a lot of it
- How to find out how much is in a food
- How to deal with problems that may keep a child from getting enough of it

A study is being done by Rutgers to find out if beauty parlors are a good place to reach people who would be helped by reading these brochures and posters. If you agree to take part in this study you will be asked to:

- Hang **at least** one “Calcium Select to Protect” poster at all times. It must be hung in an area that clients can see.
- Put out **at least** 20 brochures at all times. They should be in an area that clients can see and get to.
- Authorize your business as a site for researchers to come in and do in person interviews with your clients

The study will take at least 6 months after which we will check on the progress. A researcher will visit the beauty parlor every 2 weeks for the first 2 months to check if you need more brochures and posters and to work with you to solve any difficulties. If the beauty parlor runs out of supplies before this time, someone should call a researcher **within 24 hours** so that more can be given.

Site: _____

Phone #1: _____ Phone #2: _____

Address: _____

Contact: _____ Title: _____

Signature: _____ Today's Date: _____



Cooperating Agencies: Rutgers, The State University of New Jersey; U.S. Department of Agriculture; and County Boards of Chosen Freeholders. The U.S. Department of Agriculture (USDA) prohibits discrimination in all programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Rutgers Cooperative Research & Extension is an Equal Opportunity Program Provider and Employer.

Appendix IV

Consent Form for Hair Salon Owners - Full Participation

Rutgers is doing a campaign to increase the calcium intake of your clients and their children. If you are reviewing this consent form:

- The campaign has already been discussed with you
- You have signed a memorandum of understanding indicating
 - Make sure **at least** one “Calcium Select to Protect” poster is hanging in your beauty parlor at all times. It must be hung in an area that clients can see.
 - Put out **at least** 20 brochures at all times. They should be in an area that clients can see and get to.
 - Allow your employees to take part in a training session where they will learn about calcium and how they can aid in distributing the brochures.
- You are willing to authorize your business as a site for researchers to come in and do in person interviews with your clients

This consent form seeks your approval for your participation in a survey. If you agree to take part you will be asked about.

- You and your business
- Your awareness of calcium and health
- Your participation and experience with the campaign

The survey will be done in 2 parts. The first part will be done before the campaign begins. The second part will be given at the end. Each part of the survey will take about 10-15 minutes. Your answers will be kept confidential. No one will see your answers except the people who are part of this project. There is no risk to you because you answer the survey questions. **You can stop at any time.**

If you have any questions about this survey you may contact any of these people:

Dr. Debra Palmer Keenan
(732) 932-9853

Audrey Adler
(732) 932-0532

Alison Bigwood
(732) 932-3779

Diana Cangemi
(732) 932-3779

Participants Initials_____

Located at:
Rutgers University
Dept. of Nutritional Sciences
Davison Hall, 26 Nichol Ave
New Brunswick, NJ 08901-2882

If you have any questions about your rights as a research subject, you may contact:

The Office of Research and Sponsored Programs
Rutgers University
ASB III, 3 Rutgers Plaza
New Brunswick, NJ 08901
(732) 932-0150 ext. 2104
Email: humansubjects@orsp.rutgers.edu

I agree to participate in the study outlined above:

Participant's signature: _____ Date: _____

Researcher's signature: _____ Date: _____

Appendix V

Consent Form for Hair Salon Owners – Modified Participation

Rutgers is doing a campaign to increase the calcium intake of your clients and their children. If you are reviewing this consent form:

- The campaign has already been discussed with you
- You have signed a memorandum of understanding indicating
 - Make sure **at least** one “Calcium Select to Protect” poster is hanging in your beauty parlor at all times. It must be hung in an area that clients can see.
 - Put out **at least** 20 brochures at all times. They should be in an area that clients can see and get to.
- You are willing to authorize your business as a site for researchers to come in and do in person interviews with your clients

This consent form seeks your approval for your participation in a survey. If you agree to take part you will be asked about.

- You and your business
- Your awareness of calcium and health
- Your participation and experience with the campaign

The survey will be done in 2 parts. The first part will be done before the campaign begins. The second part will be given at the end. Each part of the survey will take about 10-15 minutes. Your answers will be kept confidential. No one will see your answers except the people who are part of this project. There is no risk to you because you answer the survey questions. **You can stop at any time.**

If you have any questions about this survey you may contact any of these people:

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Participant's initials: _____

If you have any questions about your rights as a research subject,
you may contact:

The Office of Research and Sponsored Programs
Rutgers University
ASB III, 3 Rutgers Plaza
New Brunswick, NJ 08901
(732) 932-0150 ext. 2104
Email: humansubjects@orsp.rutgers.edu

I agree to participate in the study outlined above:

Participant's signature: _____ Date: ____

Researcher's signature: _____ Date: ____

Appendix VI

Initial Survey for Hair Owners - Full Participation**Demographic Questions:**

1. Gender: ☐ Male ☐ Female
2. How do you identify yourself? (Check all that apply.)
☐ American Indian ☐ Asian/Pacific Islander ☐ Black (non-Hispanic)
☐ Hispanic ☐ White (non-Hispanic) ☐ Other
3. Do you have any children or grandchildren?
☐ Yes ☐ No
4. Have you been told you have any health condition or disease that is related to what you eat?
☐ Yes ☐ No
5. How health conscious do you consider yourself to be?
___ Not conscious at all
___ Somewhat conscious
___ Very conscious
___ Don't know
___ Refuse to answer
6. Have you ever done any volunteer work?
☐ Yes ☐ No

If yes, please describe:

7. Has your business acted as a sponsor for anything within the community?

☐ Yes

☐ No

8. Do you recognize and talk with your clients?

☐ Yes

☐ No

If yes, how often

___ Never

___ Not often

___ Sometimes

___ Often

___ Very often

___ Don't know

___ Refuse to answer

9. What is the ethnic background of the clients who come to your beauty parlor?

10. What is your role in this business (check all that apply):

☐ Owner

☐ Manager

☐ Other

11. If you are the owner, how many beauty parlors do you own? ___

12. How many people are on your payroll? _____

13. Please name some foods that are high in calcium. (Ask for specific foods.)

14. Do you believe that most children get enough calcium each day?

☐ Yes

☐ No

15. Please list some health conditions children may be at risk for if they do not get enough calcium.

16. Do you believe that putting our brochures and posters out for your clients to read will make them want to give their child more calcium?

___ Completely disagree

___ Somewhat disagree

___ Not sure

___ Somewhat agree

___ Completely agree

___ Don't know

___ Refuse to answer

17. Do you believe that beauticians can influence their client's feelings about giving calcium rich food to their children?

___ Completely disagree

___ Somewhat disagree

___ Not sure

___ Somewhat agree

___ Completely agree

___ Don't know

___ Refuse to answer

18. How easy do you feel it will be to keep these brochures and posters on display?
- ☐ Very hard
 - ☐ Hard
 - ☐ Not sure
 - ☐ Easy
 - ☐ Very easy
 - ☐ Don't know
 - ☐ Refuse to answer
19. Are you willing to allow the beauticians in your beauty parlor to take part in a training to learn the calcium facts in our brochure and to have them share what they learn with clients?
- ☐ Yes ☐ No
20. How many beauticians will be given the choice to join the training? _____
21. What is the best day of the week for the training? _____
22. What is the best time of day for the training? _____
- ☐ AM ☐ PM
23. Are you willing to allow the beauticians to talk to their clients about the calcium facts they learn?
- ☐ Yes ☐ No
24. Are you willing to allow the beauticians to give each client our brochure?
- ☐ Yes ☐ No
25. How willing do you think the beauticians in your beauty parlor will be to talk to their clients about calcium?
- ☐ Completely unwilling
 - ☐ Somewhat unwilling
 - ☐ Neither willing or unwilling
 - ☐ Somewhat willing
 - ☐ Completely willing
 - ☐ Don't know
 - ☐ Refuse to answer

Appendix VII

Initial Survey for Hair Owners – Modified Participation**Demographic Questions:**

1. Gender: ☐ Male ☐ Female
2. How do you identify yourself? (Check all that apply.)
☐ American Indian ☐ Asian/Pacific Islander ☐ Black (non-Hispanic)
☐ Hispanic ☐ White (non-Hispanic) ☐ Other
3. Do you have any children or grandchildren?
☐ Yes ☐ No
4. Have you been told you have any health condition or disease that is related to what you eat?
☐ Yes ☐ No
5. How health conscious do you consider yourself to be?
___ Not conscious at all
___ Somewhat conscious
___ Very conscious
___ Don't know
___ Refuse to answer
6. Have you ever done any volunteer work?
☐ Yes ☐ No

If yes, please describe:

7. Has your business acted as a sponsor for anything within the community?

☐ Yes

☐ No

8. Do you recognize and talk with your clients?

☐ Yes

☐ No

If yes, how often

___ Never

___ Not often

___ Sometimes

___ Often

___ Very often

___ Don't know

___ Refuse to answer

9. What is the ethnic background of the clients who come to your beauty parlor?

10. What is your role in this business (check all that apply):

☐ Owner

☐ Manager

☐ Other _____

11. If you are the owner, how many beauty parlors do you own? _____

12. How many people are on your payroll? _____

13. Please name some foods that are high in calcium. (Ask for specific foods.)

14. Do you believe that most children get enough calcium each day?
☐ Yes ☐ No
15. Please list some health conditions children may be at risk for if they do not get enough calcium.
-
-
-
-
-
-
16. Do you believe that putting our brochures and posters out for your clients to read will make them want to give their child more calcium?
- ☐ Completely disagree
☐ Somewhat disagree
☐ Not sure
☐ Somewhat agree
☐ Completely agree
☐ Don't know
☐ Refuse to answer
17. How easy do you feel it will be to keep these brochures and posters on display?
- ☐ Very hard
☐ Hard
☐ Not sure
☐ Easy
☐ Very Easy
☐ Don't know
☐ Refuse to answer

Appendix VIII

Post Survey for Owners - Full Participation

1. Did your clients take the brochures?
☐ Yes ☐ No ☐ Don't know
2. Did you or your staff see people looking at the posters?
☐ Yes ☐ No ☐ Don't know
3. How easy was it to keep the calcium materials on display?
___ Very hard
___ Hard
___ Not sure
___ Easy
___ Very Easy
___ Don't know
___ Refuse to answer
4. Please describe any difficulties you had:

5. Please describe any changes that were made in how or where the posters and brochures were displayed or given out:

6. Did your beauticians talk to their clients about the calcium facts in the brochures?

☐ Yes

☐ No

☐ Don't know

If yes, how often?

___ Never

___ Not very often

___ Some of the time

___ Often

___ Very often

___ Don't know

___ Refuse to answer

7. Please describe any difficulties you noticed:

8. Please describe any changes that were made in how or when the beauticians talked to their clients about our brochure:

9. Will you leave the posters up?

☐ Yes

☐ No

10. Will you continue to display the brochures?
☐ Yes ☐ No
11. Will you continue to encourage the beauticians to talk to their clients about the calcium facts in the brochures?
☐ Yes ☐ No
12. Will you continue to encourage the beauticians to give each client a brochure?
☐ Yes ☐ No
13. Would you recommend working with us to other businesses?
☐ Yes ☐ No

Why or why not?

Appendix IX

Post Survey for Owners - Modified Participation

1. Did your clients take the brochures?
☐ Yes ☐ No ☐ Don't know
2. Did you or your staff see people looking at the posters?
☐ Yes ☐ No ☐ Don't know
3. How easy was it to keep the calcium materials on display?
___ Very hard
___ Hard
___ Not sure
___ Easy
___ Very Easy
___ Don't know
___ Refuse to answer
4. Please describe any difficulties you had:

5. Please describe any changes that were made in how or where our posters and brochures were displayed or given out:

6. Did your beauticians talk to their clients about the calcium facts in the brochures?

☐ Yes

☐ No

☐ Don't know

If yes, how often?

☐ Never

☐ Not very often

☐ Some of the time

☐ Often

☐ Very often

☐ Don't know

☐ Refuse to answer

7. Will you leave the posters up?

☐ Yes

☐ No

8. Will you continue to display the brochures?

☐ Yes

☐ No

9. Would you recommend working with us to other businesses?

☐ Yes

☐ No

Why or why not?

Appendix X

Consent Form for Hair Salon Stylist's Initial Survey

Rutgers is doing a study to learn about your relationship with your clients, what you know about calcium and how much you can help your clients give their children more calcium. If you agree to take part in this study you will be given a survey that asks questions about:

- How many clients you service and what you talk about;
- The importance of calcium in the diet and typical calcium-rich foods; and
- Your willingness to discuss calcium with your clients.

The survey will take about 20-30 minutes. Your answers will be kept confidential. No one will see your answers except the people who are part of this project. There is no risk to you because you answer the survey questions. **You can stop at any time.**

You will be asked to take part in a short training to learn the facts printed in the calcium brochures. For the rest of the study, you will be asked give a brochure to your clients who have children, offer to talk to them about the facts in the brochure, and write down any time you talk to your client about the calcium brochure.

If you have any questions about this survey you may contact any of these people:

Dr. Debra Palmer Keenan
(732) 932-9853

Audrey Adler
(732) 932-0532

Alison Bigwood
(732) 932-3779

Diana Cangemi
(732) 932-3779

Located at:
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If you have any questions about your rights as a research subject, you may contact:

The Office of Research and Sponsored Programs
Rutgers University
ASB III, 3 Rutgers Plaza
New Brunswick, NJ 08901
(732) 932-0150 ext. 2104
Email: humansubjects@orsp.rutgers.edu

I agree to participate in the study outlined above:

Participant's signature: _____ Date: _____

Researcher's signature: _____ Date: _____

Appendix XI

Name: _____

Salon Name:_____

Initial Survey for Hair Salon Stylists

1. How many hours per week do you work at this beauty parlor?__
2. How many days per week do you work at this beauty parlor?__
3. How much time do you spend with each client, on average?
(Please answer in hours OR minutes)

_____ Minutes

_____ Hours

4. Do your clients bring their children with them when they come for services?

☐ Yes☐ No

5. Do you talk to your clients while you provide a service?

☐ Yes☐ No

6. Do you give advice to any of your clients?

☐ Yes*☐ No

If Yes*, How many of your clients do you give advice to?

___Very few

Half of all clients

☐ Most of your clients

☐ All of your clients

7. How many of your clients use your advice?

___ Very few

Half of all clients

 Most of your clients

☐ All of your clients

8. Have you given health advice to your clients?

☐ Yes

☐ No

If yes, please describe what topics and what advice you gave

9. Have you ever helped a client make healthier lifestyle choices?

☐ Yes

☐ No

If yes, please describe

10. How often do health related topics come up when you are talking with your clients? (please give one answer)

- _____ times a day
- _____ times a week
- _____ times a month
- _____ times a year
- _____ never

11. How often do food related topics come up when you are talking With your clients? (please give one answer)

_____ times a day
_____ times a week
_____ times a month
_____ times a year
_____ never

12. Have you seen or heard about the benefits of dairy products or calcium?

☐ Yes*

☐ No

If Yes*, Please tell me what you saw and where you saw it:

13. How many dairy servings do you eat or drink a day (for example, 1 cup of milk, 1 oz of cheese, or 8 oz of yogurt)? ____

14. Do you have children?

☐ Yes*

☐ No

If Yes*, how many dairy servings do you give your child each day (for example, 1 cup of milk, 1 oz of cheese, or 8 oz of yogurt)? _____

15. What foods are high in calcium?

16. Do you believe that most children get enough calcium each day?

☐ Yes

☐ No

17. What health conditions might they be at risk for if they do not get enough calcium each day?

18. How much calcium do children ages 1-3 need each day? _____

19. How much calcium do children ages 4-8 need each day? _____

20. How much calcium do children ages 9-18 need each day? _____

21. What do you think increasing a child's calcium intake will do?

22. Do you feel that clients will offer more calcium rich foods to their children if they know the health benefits?

☐ Yes

☐ No

23. How sure are you that you can help your clients get their children to eat more calcium?

- ☐ Not sure
- ☐ A little sure
- ☐ Somewhat sure
- ☐ Very sure
- ☐ Completely sure
- ☐ Don't know
- ☐ Refuse to answer

24. How comfortable are you giving your clients health-care related information?

- ☐ Not comfortable
- ☐ A little comfortable
- ☐ Somewhat comfortable
- ☐ Very comfortable
- ☐ Completely comfortable
- ☐ Don't know
- ☐ Refuse to answer

25. How comfortable are you talking to your clients about calcium and why it is good for their children?

- ☐ Not comfortable
- ☐ A little comfortable
- ☐ Somewhat comfortable
- ☐ Very comfortable
- ☐ Completely comfortable
- ☐ Don't know
- ☐ Refuse to answer

26. How often do clients use the information or advice you provide?

- ☐ Never
- ☐ Occasionally
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time
- ☐ Don't know
- ☐ Refuse to answer

27. How comfortable are you in asking your clients about the amount of calcium-rich foods they eat?

- ☐ Not comfortable
- ☐ A little comfortable
- ☐ Somewhat comfortable
- ☐ Very comfortable
- ☐ Completely comfortable
- ☐ Don't know
- ☐ Refuse to answer

28. Are you willing to give your clients information on calcium for them to read at home?

- ☐ Yes ☐ No

Demographic Questions:

29. Age: _____

30. Gender: ☐ Male ☐ Female

31. How do you identify yourself? Check all that apply
☐ American Indian ☐ Asian/Pacific Islander ☐ Black (non-Hispanic)

☐ Hispanic ☐ White (non-Hispanic) ☐ Other

32. Are you employed? ☐ Yes* ☐ No
*If yes, what is your income (please answer how you get paid)

_____ hourly for _____ hours each week
_____ weekly
_____ monthly
_____ yearly for _____ months a year

33. Do you get food stamps?
☐ Yes ☐ No

If yes, how much a month _____

For how many people _____

34. Are you on WIC?
☐ Yes ☐ No

35. Are you the primary caregiver of one or more children?
☐ Yes ☐ No

36. What are the ages of the children you are responsible for?

Appendix XII

Hair Stylist's *Calcium: Select to Protect* Training Script**Training Script Instructions**

The first part of this training will help the hair stylist become comfortable with the brochure and the information found in it.

The training is designed to be read like a script. DO NOT read the italicized font.

During the label exercise, if you are only speaking to one hair stylist, only use one label. If you are talking to more than one hair stylist, give each stylist a label and let each work separately.

During the second part of the training, the hair stylists are asked to help think of ways to give the brochures to their clients. Make sure the hair stylists understand how important they are in this project and what a great service they are doing by informing their clients about the importance of calcium in their children's diets. Strongly encourage the hair stylists to answer the questions with as much detail as possible. Ensure that you record the answers of all hair stylists on the training sheet so we can share their ideas with hair stylists in other salons.

At the end of the training the hair stylist should know:

- That half or more of the children in Newark do not get enough calcium in their diets
- Calcium reduces children's risk for high blood pressure, lead poisoning, and for osteoporosis later in life
- Dairy foods are high in calcium
- Canned fish eaten with the bones in them and some leafy green vegetables like collards, turnip and mustard greens are high in calcium
- Calcium fortified foods that say excellent source of calcium, good source of calcium or calcium fortified, are high in calcium
- How to use the food package and label to identify calcium-rich foods, and find the amount of calcium in each servings (this implies they are understand how to find the serving size as well)
- Some reasons why children do not get enough calcium
- People who do not eat dairy foods, either because these foods make them sick or they do not like the taste, need to take a LOT of extra care to make sure they get enough calcium

The questions at the end of the session should help the hair stylists begin thinking about how they will carry out their role in this campaign.

Your name: _____

Name(s) of Stylists

Trained: _____

Salon's

Name: _____

Training Sketch

Good morning (name(s) of hair stylist), I came here today to talk to you about two things. First, I would like to share with you some important information about calcium. Then I would like your input on the best ways to get this information to your clients.

Half or more of the children in Newark do not get enough calcium. The amount of calcium a child needs goes up as they get older, but many children eat less, not more calcium. For example, most teenagers, 9 out of 10 teenage girls, do not get enough.

It is very important that children get enough calcium. Children who do not get the amount they need from food or vitamins are at greater risk for high blood pressure and lead poisoning. They are also at greater risk of getting osteoporosis later in life.

Anybody, at any age, can develop high blood pressure. If it is not controlled, high blood pressure can cause heart attacks, stroke and death. Lead poisoning causes children to have poor growth and learning problems. Both of these problems occur less in children who are protected by eating calcium-rich diets.

Osteoporosis is a disease that develops later in life. It causes a person's bones to become weak. A lot of people do not know this, but childhood is the only time in a person's life when they can build bone enough that osteoporosis will not set in later. Making sure a child gets enough calcium during their growing years helps to protect them from getting this disease that causes older people to break their hips and bones, and often causes them to need to go into nursing homes or other places where they can get constant care. (It still helps for older people to get enough calcium. It helps because it keeps them from losing as much bone as they would otherwise. But again, it does NOT help them BUILD bone; bones can only be built when people are young.)

So now I have told you why we need to do everything we can to make sure children get enough calcium but how can we do this?

There are many calcium rich foods available. The first calcium-rich foods that you may think of are foods from the milk group, like milk, cheese, yogurt, pudding, rice pudding and ice cream.

Some vegetables, like collard greens, turnip greens, mustard greens and kale are high in calcium. Many of the other green leafy vegetables like cabbage, spinach and lettuce do not have as much calcium that can be used by the body.

Canned salmon is high in calcium if you prepare it and eat it with the bones still in it, because all of the calcium is in the bones of the fish. If you pick out the bones, you will lose all the calcium.

Calcium fortified foods are foods that have calcium added to them. Fortifying foods can make them good sources of calcium, especially for people that do not eat foods from the milk group.

My Pyramid recommends that every person eat three servings of foods from the dairy group each day. Eating three servings will help a person get about 900 mg of calcium each day. People that do not eat the foods from the milk group need to eat other foods to meet their calcium requirements. This is not easy to do unless people pay attention!

To do this the food label can be checked to find the amount of calcium in a food. Calcium is listed on the bottom by the vitamins. A percentage is next to it. If you drop the percent sign and add a zero you see how many milligrams of calcium is in one serving of the food you are looking at.

Show the hair stylists the milk label, if they cannot figure out the amount of calcium tell them how you drop the percentage, add a zero and you can see that there is 300 mg of calcium in one serving.

How much calcium is in one serving of milk? Remember, the goal is to eat three times that much (or at least 900 mg) to replace that if you do not eat dairy foods.

Another way to see if a food is calcium-rich is to look at the package. Some packages of foods that are high in calcium or have calcium added to them will say: excellent source of calcium; good source of calcium or calcium fortified.

Now you know how children can get the calcium they need with food, especially from the milk group, but there are some barriers that stop children from meeting their calcium needs.

- Children may prefer sugared beverages at meals.
- Children may dislike the taste of milk or other foods in the milk group.
- Children or caregivers may avoid dairy products if they are lactose intolerant.
- Calcium fortified products cost more money.

People that are lactose intolerant should only drink small amounts of milk at one time, if they are able or willing to drink milk. Hard cheeses and yogurts may not give them a stomach ache. All people that avoid food from the milk group for any reason can also add calcium fortified foods into their diet to make sure they get enough calcium.

I know I have just given you a lot of information but you can find everything I just told you in the brochure.

Take a few minutes to show the hair stylist each page of the brochure. Tell them:

Page 2 tells them how many children do not get enough calcium and how many milligrams children of different ages need each day.

Page 5 gives has tips to make sure that lactose intolerant people get enough calcium.

Page 6 lists all the diseases that children that do not get enough calcium may be at risk for. This page also gives a list of calcium-rich foods.

Page 7 tells you how to use the food package and label to see how much calcium is in a food.

Please take a few minutes to read the brochure. I will be happy to answer any questions you may have about the information in it.

Give the hair stylist(s) a few minutes to look over the brochure. Encourage questions and answer them. If you do not know the answer(s) to the question(s), promise to get back to them, and do, or let Diana know and she will.

Now move on to the next section of the training.

Let the stylist know the following: Your role is very important in this. Often hair stylists and their clients have a trusting relationship. This relationship gives you the chance to provide your clients with useful information to benefit their child's health. Our goal for this campaign is for you, the hair stylist, to help make your client aware that many children, possibly their own, do not get enough calcium and what they can do to fix this problem.

You are the expert on your relationship with your client and your work schedule. I need your input on the best ways to reach your clients for this to be successful.

I am going ask you a few questions about your feelings on giving this information to your clients. I will write down your responses in order not to forget them. All of the ideas and concerns that come up will be put together and shared with all of the participating hair stylists.

1. How do you see yourself bringing up the topic of calcium and children to your clients?

2. What do you feel is the best way to give the brochure to your clients and why?

-
3. How do you expect your clients to react to you when you tell them about calcium during an appointment?

4. What problems do you expect to come up when you try to teach your clients how important calcium is for their children?

5. What can you do to manage these problems?

6. Right now we are using brochures, posters and aprons to make your clients aware of the program. Is there anything else you can think of that we can do to grab the attention of your clients? All of your suggestions are very helpful. We plan to combine all ideas and work to make this program better.

Show the stylists the client log.

This is a client log. I know how busy you are, and I am sorry to ask you to do this, but it is very important for us to get some information so we can report how many people we have reached with this campaign. If we show this information to people, we can keep getting money to fund this campaign and to teach people this very important information. Hopefully we have made this simple for you. Our goal is for you to check yes or no for each column after each client. By doing this you will help us keep track of how many people are noticing our message and if the materials are well liked.

Every few weeks I will stop by to ask you a few questions about the program. This will help me understand how easy or difficult your role in this program is and any problems you encountered and how you dealt with them.

Thank you for spending time with me here. If there are any questions please call the numbers at the bottom of the consent form.

Please fill out the training session evaluation. This will help learn how we can improve for later sessions.

2% Milk

Nutrition Facts	
Serving Size 1 cup (240 mL)	
Servings per Container about 8	
Amount per Serving	
Calories 130	Calories from Fat 45
% Daily Value*	
Total Fat 5g	8%
Saturated Fat 3g	15%
Trans Fat 0g	
Cholesterol 20mg	7%
Sodium 125mg	5%
Total Carbohydrate 13g	4%
Dietary Fiber 0g	0%
Sugars 12g	
Protein 8g	
Vitamin A 10% • Vitamin C 2%	
Calcium 30% • Iron 0% • Vitamin D 25%	
* Percent Daily Values are based on a 2,000 calorie diet	

Appendix XIII

Hair Stylists' Opinions on the Implementation on the Calcium Select To Protect Campaign

The *Calcium: Select to Protect* training was designed to incorporate participatory action research as to gain insight on the best ways to implement the campaign from the stylists' perspectives. The stylists' plans to introduce the topic of calcium; when they believed the brochure should be distributed; their beliefs about how the clients would react to them providing health-related information; the barriers they expected to encounter; and other methods they believed would help increase clients' awareness to the campaign are presented below.

Stylists' Plans to Introduce the Topic of Calcium. Most stylists planned to use the brochure to segue into introducing the topic of calcium, either by asking if the client saw the materials (n=2; 9%) or by handing a brochure to the client (n=9; 41%). One stylist (5%) planned to point to the poster and another (5%) was going to first tell the clients about the researchers that visited the salon and then introduce the topic of calcium. If the stylists did not intend to use the brochure as a tool, they planned to ask the clients what they already knew about calcium (n=2; 9%) or ask about the clients' diets (n=2; 9%).

Stylists' Beliefs on the Timing of Brochure Distribution. The stylists had mixed opinions regarding the best time to give the clients the brochures. Seven stylists (32%) felt it was best to give the brochures out when the clients were waiting or at the start of the service because they would have time to read it and ask questions. Two stylists (9%) agreed

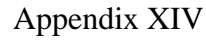
their salon would introduce the brochure in the middle of the appointment after they “get a feel” for the client. One stylist (5%) felt it would be best to let the clients look at the brochures when they were sitting under the dryer.

Stylist’s Perceived Reaction of Clients During the Intervention. Researchers queried the stylists to understand how they believed their clients would react to them providing healthcare-related information. The stylists of twelve of the thirteen participating salons believed the clients would be interested in the information. Three stylists (14%) thought clients might be surprised that they were providing information pertaining to calcium, one (5%) expected clients to ask “what are you talking about?” and another (5%) said, “they may wonder what I’m doing, but most clients are open.” One salon’s employees (n=2; 9%) expected their clients to laugh at them and not listen. The stylists at two of the salons (n=2; 9%) expected only some of the clients to be receptive to the information.

Stylists’ Perceived Barriers to Implementing the Campaign. Eight stylists (36%) did not expect any problems to arise when implementing the campaign but four (18%) felt the only barrier would be the clients’ disinterest. Ideas to overcome the difficulties included: letting those clients that were not interested leave with the brochure and ask them if they looked at it when they came for their next appointment (n=1; 5%); provide clients with the information more than once so it “sinks in” and possibly give demonstrations (n=1; 5%); talk to them slowly (n=1; 5%); or, just leave those who were not interested alone (n=1; 5%). One stylist (5%) was concerned her clients may think she is getting personal by talking about their children. To alleviate this barrier she would have to “break the ice”

and get them to come back and talk. Another stylist (5%) felt the clients may wonder why he was talking about calcium when he was a hairdresser. Two stylists (9%) at one salon noted that clients are difficult because they think they know everything about calcium but they intended to use the brochure to convince them. Another problem pertained to teaching clients who had children that were picky eaters. To help educate these clients, one stylist (5%) felt she would find out which foods the children preferred and tell them which of those foods have calcium.

Stylists' Ideas on Methods to Increase Clients' Awareness to the Campaign. Most of the stylists felt the brochures, posters, and aprons were adequate and would attract the clients' interest as well as increase their awareness to the campaign. Additional items stylists suggested the research team offer included: free pins (n=1; 5%); key chains (n=2; 9%); pens with the *Calcium: Select to Protect* logo (n=2; 9%); samples of calcium-rich foods (n=3; 14%); and clothing such as t-shirts, tank-tops, baby sleepers and bibs with a message that promote calcium such as "I'm a calcium baby, I got good bones" (n=1; 5%). Other suggestions to increase awareness were to create a toll free number for clients to call if they had questions (n=1; 5%) or show films about calcium (n=1; 5%).



Client Log for Hair Salon Stylists

Name: _____ Beauty Parlor Name: _____ Date: _____

[illegible]

Appendix XV

Progress Log for Hair Salon Stylists

Date _____ Name of Beauty Parlor _____
 Name of Beautician _____

1. What are the main topics you and your clients talked about?
 Please tell us about any questions or problems that were talked
 about and any answers you or the client came up with.

2. How well do your clients like the brochures?

___ Disliked
 ___ Not liked a lot
 ___ Not liked or disliked
 ___ Liked somewhat
 ___ Liked very much
 ___ Don't know
 ___ Refuse to answer

3. How well do your clients like the posters?

___ Disliked
 ___ Not liked a lot
 ___ Not liked or disliked
 ___ Liked somewhat
 ___ Liked very much
 ___ Don't know
 ___ Refuse to answer

Appendix XVI

Evaluation for Hair Salon Stylist's Training

Name _____

Beauty Parlor _____

1. How comfortable do you think you will be talking to your clients about the calcium facts you learned today?

___ Not comfortable
___ A little comfortable
___ Somewhat comfortable
___ Very comfortable
___ Completely comfortable
___ Don't know
___ Refuse to answer

2. What topics are you unsure about?

3. How can we help you understand the calcium facts better?

4. Please tell us what you will say to your clients about calcium:

Appendix XVII



You Can Help Your Clients Make Sure Their Children Get Enough Calcium

We know it may be awkward to bring up the topic of calcium with your clients but the facts in the brochure are good for everyone to know. We have asked many of you working with us what you feel are the best way to share the information. Here are your thoughts:

Try giving your client a brochure:

- When they are under the dryer. They will be there for some time and can flip through it.
- When they first walk in. This gives them a chance to read it while they wait for you.
- When they sit down in your chair. This will help you bring up the topic of calcium.

We asked you for some opening-lines to use to when you start talking about calcium and got some great answers back!

Some of you felt you should ask a question first:

- “Do you know anything about calcium?”
- “Have you learned about calcium?”
- “Do you have children? What type of food do they eat?”
- “Do you know the importance of having calcium every day?”



**RUTGERS COOPERATIVE EXTENSION
N.J. AGRICULTURAL EXPERIMENT STATION
RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY
NEW BRUNSWICK**

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Some felt you should tell first tell your clients why we need calcium:

- “Calcium is important for the children because if they don’t have it they won’t be able to calcify their bones”
- “You need calcium for bone health and it is in milk products.”
- “Calcium is important for children’s bones to develop.”
- “I would like to share some information about calcium that you need to know.”
- “Girl, I didn’t know how important calcium was!”
- “I just learned this and I am so excited. I want to share it with you, and then you can share it with others.”
- “Calcium is beneficial, especially for our children – Select to Protect!”
- “Look what you can do for your children.” Hand the client a brochure
- “Look these girls are doing a campaign about calcium because many people don’t know that you only build bones during adolescents.”



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Appendix XVIII

Post Survey for Hair Salon Stylists

1. How many hours per week do you work at this beauty parlor?

2. How many days per week do you work at this beauty parlor?

3. How much time do you spend with each client, on average?
(Please answer in hours OR minutes)

_____ Minutes

_____ Hours

4. Do your clients bring their children with them when they come for services?

☐ Yes

☐ No

5. Do you talk to your clients while you provide a service?

☐ Yes

☐ No

6. Do you give advice to any of your clients?

☐ Yes*

☐ No

If Yes*, How many of your clients do you give advice to?

___ Very few

___ Half of all clients

___ Most of your clients

___ All of your clients

7. How many of your clients use your advice?

___ Very few

___ Half of all clients

___ Most of your clients

___ All of your clients

8. Have you given health advice to your clients?

☐ Yes

☐ No

If yes, please describe what topics and what advice you gave

9. Have you ever helped a client make healthier lifestyle choices?

☐ Yes

☐ No

If yes, please describe

10. How often do health related topics come up when you are talking with your clients? (please give one answer)

- _____ times a day
- _____ times a week
- _____ times a month
- _____ times a year
- _____ never

11. How often do food related topics come up when you are talking with your clients? (please give one answer)

_____ times a day
_____ times a week
_____ times a month
_____ times a year
_____ never

12. Have you seen or heard about the benefits of dairy products or calcium?

☐ Yes*

☐ No

If Yes*, Please tell me what you saw and where you saw it:

13. How many dairy servings do you eat or drink a day (for example, 1 cup of milk, 1 oz of cheese, or 8 oz of yogurt)? ____

14. Do you have children?

☐ Yes*

☐ No

If Yes*, how many dairy servings do you give your child each day (for example, 1 cup of milk, 1 oz of cheese, or 8 oz of yogurt)? _____

15. What foods are high in calcium?

16. Do you believe that most children get enough calcium each day?

☐ Yes

☐ No

17. What health conditions might they be at risk for if they do not get enough calcium each day?

18. How much calcium do children ages 1-3 need each day? _____

19. How much calcium do children ages 4-8 need each day? _____

20. How much calcium do children ages 9-18 need each day? _____

21. What do you think increasing a child's calcium intake will do?

22. Do you feel that clients will offer more calcium rich foods to their children if they know the health benefits?

☐ Yes

☐ No

23. How sure are you that you can help your clients get their children to eat more calcium?
- ☐ Not sure
 - ☐ A little sure
 - ☐ Somewhat sure
 - ☐ Very sure
 - ☐ Completely sure
 - ☐ Don't know
 - ☐ Refuse to answer
24. How comfortable are you giving your clients health-care related information?
- ☐ Not comfortable
 - ☐ A little comfortable
 - ☐ Somewhat comfortable
 - ☐ Very comfortable
 - ☐ Completely comfortable
 - ☐ Don't know
 - ☐ Refuse to answer
25. How comfortable are you talking to your clients about calcium and why it is good for their children?
- ☐ Not comfortable
 - ☐ A little comfortable
 - ☐ Somewhat comfortable
 - ☐ Very comfortable
 - ☐ Completely comfortable
 - ☐ Don't know
 - ☐ Refuse to answer

26. How often do clients use the information or advice you provide?

- ☐ Never
- ☐ Occasionally
- ☐ Some of the time
- ☐ Most of the time
- ☐ All of the time
- ☐ Don't know
- ☐ Refuse to answer

27. How comfortable are you in asking your clients about the amount of calcium-rich foods they eat?

- ☐ Not comfortable
- ☐ A little comfortable
- ☐ Somewhat comfortable
- ☐ Very comfortable
- ☐ Completely comfortable
- ☐ Don't know
- ☐ Refuse to answer

28. Are you willing to give your clients information on calcium for them to read at home?

- ☐ Yes ☐ No

29. Do you feel your clients are giving their children more calcium-rich foods?

- ☐ Yes ☐ No

30. Will you continue to talk to your clients about calcium?

- ☐ Yes ☐ No

31. Will you continue to give your clients the calcium brochures to read at home?

- ☐ Yes ☐ No

Demographic Questions:

32. Age: _____
33. Gender: ☐ Male ☐ Female
34. How do you identify yourself? Check all that apply
☐ American Indian ☐ Asian/Pacific Islander ☐ Black (non-Hispanic)
☐ Hispanic ☐ White (non-Hispanic) ☐ Other
35. Are you employed? ☐ Yes* ☐ No
 *If yes, what is your income (please answer how you get paid)
 _____ hourly for _____ hours each week
 _____ weekly
 _____ monthly
 _____ yearly for _____ months a year
36. Do you get food stamps?
☐ Yes ☐ No
 If yes, how much a month _____
 For how many people _____
37. Are you on WIC?
☐ Yes ☐ No
38. Are you the primary caregiver of one or more children?
☐ Yes ☐ No
39. What are the ages of the children you are responsible for?

Appendix XIX

Consent Form for Hair Salon Stylist's Post Survey

Rutgers is doing a study to learn about your relationship with your clients, what you know about calcium and how much you can help your clients give their children more calcium. If you agree to take part in this study you will be given a survey that asks questions about:

- How many clients you service and what you talk about;
- The importance of calcium in the diet and typical calcium-rich foods; and
- Your willingness to discuss calcium with your clients.

The survey will take about 20-30 minutes. Your answers will be kept confidential. No one will see your answers except the people who are part of this project. There is no risk to you because you answer the survey questions. **You can stop at any time.**

If you have any questions about this survey you may contact any of these people:

Dr. Debra Palmer Keenan
(732) 932-9853

Audrey Adler
(732) 932-0532

Alison Bigwood
(732) 932-3779

Diana Cangemi
(732) 932-3779

Located at:
Rutgers University
Dept. of Nutritional Sciences
Davison Hall, 26 Nichol Ave
New Brunswick, NJ 08901-2882

If you have any questions about your rights as a research subject, you may contact:

The Office of Research and Sponsored Programs
Rutgers University
ASB III, 3 Rutgers Plaza
New Brunswick, NJ 08901
(732) 932-0150 ext. 2104
Email: humansubjects@orsp.rutgers.edu

I agree to participate in the study outlined above:

Participant's signature: _____ Date: _____

Researcher's signature: _____ Date: _____

Appendix XX

Consent Form for Hair Salon Client's Survey

Rutgers is doing a survey to learn what you know about calcium and how much calcium you and your family eat. If you agree to take part in this study you will be asked questions about:

- the importance of calcium
- types of calcium rich foods you and your child eat
- anything you feel may stop you from eating or providing foods high in calcium to your family.

The survey will take about 15-20 minutes. Your answers will be kept private. No one will see your answers except the people who are part of this project. There is no risk to you because you answer the survey questions. **You can stop at any time.**

If you have any questions about this survey you may contact any of these people:

Dr. Debra Palmer Keenan
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Rutgers University
ASB III, 3 Rutgers Plaza
New Brunswick, NJ 08901
(732) 932-0150 ext. 2104
Email: humansubjects@orsp.rutgers.edu

I agree to participate in the study outlined above:

Participants signature: _____ Date: _____

Researchers signature: _____ Date: _____

Appendix XXI

Hair Salon Client's Survey

1. Is this your first time visiting this beauty parlor?

☐ Yes

☐ No

If "No": How often do you come to this beauty parlor? _____

2. Please think about the total amount of time you spend here when you come, including time waiting for your appointment, time spent getting a service, extra time you spend talking with friends, time spent waiting on a ride, etc.. What is the average amount of time you spend here each time you come? _____

3. Have you seen any billboards, brochures, posters or have you been given anything from your doctor that talks about calcium?

☐ Yes

☐ No

☐ Don't know

If "Yes": Please describe the material.

If "Yes": Where and when did you see this material?

4. Do you take care of child or children regularly?

☐ Yes

☐ No*

***If No, thank him/her for their time and terminate the survey**

5. Ages of the children you are responsible for: _____

6. How do you think getting enough calcium helps your child?

7. How worried are you that one or more of your children are not getting enough calcium?

___ Not worried at all

___ Don't know

___ Slightly worried

___ Refused to answer

___ Worried sometimes

___ Worried

___ Very Worried

8. Do you think not getting enough calcium is harmful?

___ Not harmful

___ Don't know

___ Slightly harmful

___ Refused to answer

___ So harmful that you
need a doctor's care

___ So harmful that you
need to go to the
hospital

___ So harmful that you
might die

9. Do you believe that your child gets enough calcium each day?

☐ Yes

☐ No

☐ Don't know

10. Please describe what you think is enough calcium for a child each day?

How many of your children do you think do not get enough calcium each day?

☐ Don't know

11. How many milligrams of calcium do you think a child between the ages 1 to 3 need each day? _____

12. How many milligrams of calcium do you think a child between the ages 4-8 need each day? _____

13. How many milligrams of calcium do you think a child between the ages 9-18 need each day? _____

14. What health conditions may your child be at risk for if they do not get enough calcium?

15. Do you have any trouble making sure your child gets enough calcium?

☐ Yes

☐ No

☐ Don't know

"If Yes": Please describe what problems

16. Do you know how to find out how much calcium is in a food?

☐ Yes

☐ No

If "Yes": Please describe how you do this

17. Do you avoid food from the milk group?

☐ Yes

☐ No

If "Yes", go to question 18, If "No", go to question 19.

18. What foods do you avoid from the milk group and why?

19. Do any of your children avoid foods from the milk group?

☐ Yes ☐ No

If “Yes”, go to question 20 and 21. If No, go to question 22

20. How many of your children avoid foods from the milk group?

21. What foods does your child/ do your children avoid from the milk group and why?

For the next 5 questions I will ask you about choosing calcium-rich foods for your child/children. For each question you can choose from 4-5 answers.

22. How sure are you that you are able to choose calcium-rich foods? Would you say that you are:
- | | |
|--|--|
| <input type="checkbox"/> Not sure | <input type="checkbox"/> Don't know |
| <input type="checkbox"/> A little sure | <input type="checkbox"/> Refused to answer |
| <input type="checkbox"/> Somewhat sure | |
| <input type="checkbox"/> Very sure | |
| <input type="checkbox"/> Completely sure | |
23. How sure are you that you are able to use the food label to choose calcium-rich foods? Would you say that you are:
- | | |
|--|--|
| <input type="checkbox"/> Not sure | <input type="checkbox"/> Don't know |
| <input type="checkbox"/> A little sure | <input type="checkbox"/> Refused to answer |
| <input type="checkbox"/> Somewhat sure | |
| <input type="checkbox"/> Very sure | |
| <input type="checkbox"/> Completely sure | |
24. How sure are you that you are able to obtain calcium-rich foods? Would you say that you are:
- | | |
|--|--|
| <input type="checkbox"/> Not sure | <input type="checkbox"/> Don't know |
| <input type="checkbox"/> A little sure | <input type="checkbox"/> Refused to answer |
| <input type="checkbox"/> Somewhat sure | |
| <input type="checkbox"/> Very sure | |
| <input type="checkbox"/> Completely sure | |
25. How sure are you that you are able to get your child to eat calcium-rich foods? Would you say that you are:
- | | |
|--|--|
| <input type="checkbox"/> Not sure | <input type="checkbox"/> Don't know |
| <input type="checkbox"/> A little sure | <input type="checkbox"/> Refused to answer |
| <input type="checkbox"/> Somewhat sure | |
| <input type="checkbox"/> Very sure | |
| <input type="checkbox"/> Completely sure | |

26. How much control do you think you have over whether your child consumes calcium-rich foods? Would you say that you have:

<input type="checkbox"/> None at all	<input type="checkbox"/> Don't know
<input type="checkbox"/> A little	<input type="checkbox"/> Refused to answer
<input type="checkbox"/> Some	
<input type="checkbox"/> A lot	
<input type="checkbox"/> Complete	

Demographic Questions:

27. Age: _____

28. Gender: ☐ Male ☐ Female

29. How do you identify yourself? Check all that apply

<input type="checkbox"/> American Indian	<input type="checkbox"/> Asian/Pacific Islander	<input type="checkbox"/> Black (non-Hispanic)
<input type="checkbox"/> Hispanic	<input type="checkbox"/> White (non-Hispanic)	<input type="checkbox"/> Other

30. Are you on WIC?

☐ Yes ☐ No

31. Do you receive food stamps?

☐ Yes ☐ No*

If yes, how much a month _____

For how many people _____

If "No" ask:

Are you interested in finding out about getting food stamps? I / We have a flyer that will help you figure out if you can get them.

☐ Took flyer ☐ Did not take flyer

32. Where do you shop for most of your food? Please give the name of store and it's location:

For open-ended questionnaires skip questions 33 and 34 and ask questions 35 and 36.

For closed-ended questionnaires continue with questions 33 and 34. Skip questions 35 and 36.

For Closed-Ended Food Frequency Questionnaire Only:

33. Please name all the calcium-rich foods that you can think of:

34. These next questions are about the foods your child usually eats or drinks. Please tell me how often your child eats or drinks each food listed, for example, everyday, twice a week, or once a month. Include all the foods your child eats or drinks at home and away from home.

Read each food listed on the “Calcium Questionnaire”. Record how often the child eats the food and also note kinds/brands for starred items.

After completing the “Calcium Questionnaire” thank the participant for his/her time and end the survey.

For Open-ended Food Frequency Questionnaire Only:

35. Name all the calcium-rich foods that your child eats or drinks.
For each food please tell me how often he or she eats the food
for example everyday, twice a week or once a month. Include
all the foods your child eats at home and away from home.

**Record answers on “Calcium Questionnaire”, do not read the
foods listed.**

Foods	Kind/Brand Name (indicate for starred** items)	# of times/day	# of times/week	# of times/month	# of times/year
Milk (any type)**					
Ice cream					
Yogurt (fresh or frozen)**					
Pudding (any type)					
Cheese (any type)**					
Macaroni and cheese					
Pizza with cheese					
Broccoli					
Graham or animal crackers that are calcium-fortified**					
Bread that is calcium-fortified**					

Foods	Kind/Brand Name (indicate for starred** items)	# of times/day	# of times/week	# of times/month	# of times/year
Canned and instant pasta that is calcium-fortified**					
Cereal that is calcium fortified **					
Cereal bars that are calcium fortified**					
Waffles that are calcium fortified**					
Pancakes that are calcium fortified**					
Juice that is calcium fortified**					
Canned salmon with the bones in					
Soy or rice milk that is calcium fortified**					
Multivitamins with calcium**					
<u>Do not read if they identified themselves as Hispanic:</u> Collard or turnip greens					
<u>Do not read if they identified themselves as Black (non-Hispanic):</u> Instant rice that is calcium fortified**					

36. Please name any other calcium-rich foods you can think of that your child does not eat (**record answers on lines below**):

Thank participant for his or her time and end the survey.

Appendix XXII



Everyday people use food stamps every day. Food stamps can help you eat in a more healthy way.

What are food stamps?

Food stamps help people buy food. If you are eligible, you will receive a plastic card, called an EBT card, which you can use like cash at a grocery store or supermarket to buy healthy foods.

How do I know if I can get food stamps?

To find out if you can get food stamps:

- Call 1-800-687-9512 or
- Visit the Website at www.mynjhelps.org or
- Visit the local food stamp office located at:

Essex County Department of Citizen Services
Division of Welfare
18 Rector Street, 9th Floor
Newark, NJ 07102
973-733-3000

What will I need to tell them?

- The ages and health of the people who live with you
- How much money everyone in your house makes each month
- How much money you have saved
- If you own any cars
- Any medical and child care costs you pay each month
- If you or anyone in your house is a US citizen, has a green card, or is a legal immigrant

Appendix XXIII



Everyday people use food stamps every day. Food stamps can help you eat in a more healthy way.

What are food stamps?

Food stamps help people buy food. If you are eligible, you will receive a plastic card, called an EBT card, which you can use like cash at a grocery store or supermarket to buy healthy foods.

How do I know if I can get food stamps?

To find out if you can get food stamps:

- Call 1-800-687-9512 or
- Visit the Website at www.mynjhelps.org or
- Visit the local food stamp office located at:

Hudson County Division of Social Services
100 Newkirk Street
Jersey City, NJ 07306
201-420-3000

What will I need to tell them?

- The ages and health of the people who live with you
- How much money everyone in your house makes each month
- How much money you have saved
- If you own any cars
- Any medical and child care costs you pay each month
- If you or anyone in your house is a US citizen, has a green card, or is a legal immigrant

Bibliography

1. Santagata CM. The Use of Focus Groups with Caregivers to Identify Factors Affecting Calcium Consumption among Limited-Resource African-American Children. New Brunswick, NJ: Rutgers, The State University of New Jersey; 2003. Thesis.
2. Novotny R, Boushey C, Bock M, Peck L, Auld G, Bruhn C, et al. Calcium Intake of Asian, Hispanic and White Youth. *Journal of the American College of Nutrition*. 2003;22:64-70.
3. Storey ML, Forshee RA, Anderson PA. Association of Adequate Intake of Calcium with Diet, Beverage Consumption, and Demographic Characteristics among Children and Adolescents. *Journal of the American College of Nutrition*. 2004;23:18-33.
4. Hendricks CS. Fostering Healthy Communities @ Hair Care Centers. The South Carolina Nurse: *The Official Publication of the South Carolina Nurses Association*. 1999;6:16.
5. Howze EH, Broyden RR, Impara JC. Using Informal Caregivers to Communicate With Women About Mammography. *Health Communications*. 1992;4:227-244.
6. Forte DA. Community-based Breast Cancer Intervention Program for Older African American Women in Beauty Salons. *Public Health Reports*. 1995;110:179-183.
7. Delgado M. Alcoholism Services and Community Settings: Latina Beauty Parlors as Case Examples. *Alcoholism Treatment Quarterly*. 1998;16:71-83.
8. Linnan LA, Kim AE, Wasilewski, Y. Working with Licensed Cosmetologists to Promote Health: Results from the North Carolina BEAUTY and Health Pilot Study. *Preventative Medicine*. 2003;33:606-612.
9. Linnan LA, Ferguson YO, Wasilewski Y. Using Community-Based Participatory Research Methods to Reach Women With Health Messages: Results From the North Carolina BEAUTY and Health Pilot Project. *Health Promotion Practice*. 2005;6:164-173.
10. Food and Nutrition Board, Institute of Medicine. DRI Dietary Reference Intakes for *Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride*. Washington, D.C. National Academy Press. 1997.
11. Dietary Calcium Intakes of Urban Children at Risk of Lead Poisoning. *Environmental Health Perspectives*. 1999;107:431-435.
12. Children's Blood Lead Levels in the United States. CDC; <http://www.cdc.gov/nceh/lead/research/kidsBLL.htm>; July 19, 2007; accessed March 20, 2007.
13. Rothman NL, Lourie R, Gaughan J, White N. A Community-Developed, Community-Based Lead Poisoning Prevention Program: Lead Awareness North Philly Style. *Holist Nurs Pract*. 1999;14(1):47-58.
14. Markowitz ME, Sinnott M, Rosen J. A Randomized Trial of Calcium Supplementation for Childhood Lead Poisoning. *Pediatrics*. 2004;113:34-39.
15. Healthy People 2010. Available at <http://www.healthypeople.gov/Document>. Accessed March 20, 2008.

16. Ballew C, Bowman B. Recommending Calcium to Reduce Lead Toxicity in Children: A Critical Review. *Nutrition Reviews*. 2001; 1:71-79.
17. Chuang H, Tsai S, Chao K, et al. The Influence of Milk Intake on the Lead Toxicity to the Sensory Nervous System in Lead Workers. *Neurotoxicity*. 2004;25:941-949.
18. Appel LJ, Brands MW, Daniels SR, Karanja N, Elmer PJ, Sacks FM. Dietary Approaches to Prevent and Treat Hypertension A Scientific Statement From the American Heart Association. *Hypertension*. 2006;47:296-308.
19. Luma GB, Spiotta RT. Hypertension in Children and Adolescents. *Am Fam Physician*. 2006;73:1158-68.
20. Sorof JM, Eissa M, Bernard L, Portman RJ. High Hypertension Prevalence and the Relationship of Body Mass Index (BMI) to Blood Pressure in Ethnic Minority Children [oral]. *AJH*. 2001;14:14A.
21. Kramer H, Han C, Post W, Goff D, et al. Racial/Ethnic Differences in Hypertension and Hypertension Treatment and Control in the Multi-Ethnic Study of Atherosclerosis (MESA). *AJH*. 2004;17:963-970.
22. Ruidavets J, Bongard V, Simon C, et al. Independent Contribution of Dairy Products and Calcium Intake to Blood Pressure Variations at a Population Level. *J Hypertens*. 2006;24:671-681.
23. Alonso A, Beunza JJ, Delgado-Rodriguez M, Martinez JA, Martinez-Gonzalez MA. Low Fat Dairy Consumption and Reduced Risk of Hypertension: the Seguimiento Universidad de Navarra (SUN) Cohort. *Am J Clin Nutr*. 2005;82:972-979.
24. Morikawa Y, Nakagawa H, Okayama A, et al. A Cross-sectional Study on Association of Calcium Intake with Blood Pressure in Japanese Population. *Journal of Human Hypertension*. 2002;16:105-110.
25. Miller GD, DiRienzo DD, Reusser ME, McCarron DA. Benefits of Dairy Production Consumption on Blood Pressure in Humans: A Summary of the Biomedical Literature. *Journal of the American College of Nutrition*. 2000;19(suppl):147S-164S.
26. U.S. Department of Health and Human Services. Your Guide to Lowering Your Blood Pressure with the DASH Eating Plan. NIH Publication No. 06-4082. 1998. Revised April 2006.
27. Steffen LM, Kroenke CH, Yu X, et al. Associations of Plant food, dairy product, and meat intakes with 15-y incidence of elevated blood pressure in young black and white adults: the Coronary Artery Risk Development in Young Adults (CARDIA) Study. *Am J Clin Nutr*. 2005;82:1169-1177.
28. Moore LL, Singer MR, Bradlee ML, et al. Intake of Fruits, Vegetables, and Dairy Products in Early Childhood and Subsequent Blood Pressure Change. *Epidemiology*. 2005;16:4-11.
29. Elmarsafawy SF, Jain NB, Schwartz J, Sparrow D, Nie H, Hu H. Dietary Calcium as a Potential Modifier of the Relationship of Lead Burden to Blood Pressure. *Epidemiology*. 2006;17:531-537.
30. Henderson SO, Haiman CA, Mack W. Multiple Polymorphisms in the Renin-Angiotensin-Aldosterone System (ACE, CYP11B2, AGTR1) and Their

- Contribution to Hypertension in African Americans and Latinos in the Multiethnic Cohort. *Am J Med Sci*. 2004;328:266-273.
31. Vaeth PAC, Willett DL. Level of Acculturation and Hypertension among Dallas County Hispanics: Findings from the Dallas Heart Study. *Ann Epidemiol*. 2005;15:373-380.
 32. Population nutrient intake goals for preventing diet-related chronic diseases. WHO. http://www.who.int/nutrition/topics/5_population_nutrient/en/index.html. 2008. Accessed March 20, 2008.
 33. Nieves JW. Osteoporosis: the role of micronutrients. *Am J Clin Nutr*. 2005;81(suppl):1232S-1239S.
 34. Greer FR, Krebs NF, and the Committee on Nutrition. Optimizing Bone Health and Calcium Intakes of Infants, Children, and Adolescents. *Pediatrics*. 2006;117:578-585.
 35. Black RE, Williams SM, Jones IE, Goulding A. Children Who Avoid Drinking Cow Milk Have Low Dietary Calcium Intake and Poor Bone Health. *Am J Clin Nutr*. 2002;76:675-680.
 36. Salamoun MM, Kizirian AS, Tannous RI, et al. Low Calcium and Vitamin D intake in Healthy Children and Adolescents and Their Correlates. *European Journal of Clinical Nutrition*. 2005;59:177-184.
 37. Heaney RP. Long-latency Deficiency Disease: Insights From Calcium and Vitamin D. *Am J Clin Nutr*. 2003;78:912-919.
 38. Lau EMC, Lynn H, Chan YH, Lau W, Woo J. Benefits of Milk Powder Supplementation on Bone Accretion in Chinese Children. *Osteoporosis Int*. 2004;15:654-658.
 39. Goulding A, Rockell JE, Black RE, et al. Children Who Avoid Drinking Cow's Milk are at Increased Risk for Prepubertal Bone Fractures. *J Am Diet Assoc*. 2004;104:250-253.
 40. Kalkwarf HJ, Khoury JC, Lanphear BP. Milk Intake during childhood and adolescence, adult bone density, and osteoporotic fractures in US Women. *Am J Clin Nutr*. 2003;77:257-65.
 41. Geller SE, Derman R. Knowledge, Beliefs, and Risk Factors for Osteoporosis Among African-American and Hispanic Women. *J Natl Med Assoc*. 2001;93:13-21.
 42. Jackson KA, Savaiano DA. Lactose Maldigestion, Calcium Intake and Osteoporosis in African-, Asian-, and Hispanic-Americans. *Journal of the American College of Nutrition*. 2001;20(2)(suppl):198S-207S.
 43. Alam NM, Archer JA, Lee E. Osteoporotic Fragility Fractures in African Americans: Under-Recognized and Undertreated. *J Nal Med Assoc*. 2004;96:1640-1645.
 44. Fulgoni VL, Huth PJ, DiRienzo DB, Miller GD. Determination of the Optimal Number of Dairy Servings to Ensure a Low Prevalence of Inadequate Calcium Intake in Americans. *Journal of the American College of Nutrition*. 2004;23:651-659.
 45. Nicklas TA. Calcium Intake Trends and Health Consequences from Childhood through Adulthood. *Journal of the American College of Nutrition*. 2003;22:340-356.

46. Badenhop-Stevens N, Matkovic V. Calcium Needs in Children. *Orthopedics Nursing*. 2004;23:228-232.
47. Fiorito LM, Mitchell DC, Smiciklas-Wright H, Birch LL. Dairy and Dairy-Related Nutrient Intake During Middle Childhood. *J Am Diet Assoc*. 2006;106:534-542.
48. U.S. Department of Health and Human Services U.S. Department of Agriculture. Dietary Guidelines for Americans 2005. [www.healthierus.gov/dietary guidelines](http://www.healthierus.gov/dietary_guidelines). October 16, 2006. Accessed March 17, 2008.
49. Auld G, Boushey CJ, Bock MA, Brutin C, Gabel K, et al. Perspectives on Intake of Calcium-Rich Foods Among Asian, Hispanic, and White Preadolescent and Adolescent Females. *J Nutr Educ Behav*. 2002;34:242-251.
50. Lee S-K, Keenan DP, Goodman J, Kirn JW. Select to protect! Ethnic differences in calcium consumption among low-income minority children and use of food label by primary caregivers – report on the baseline data for the social marketing campaign. FASEB, Experimental Biology Meeting; San Diego, CA; Apr 2-6, 2005.
51. Lee, S-K, Keenan DP, Goodman J, Kim JW, Park S. Select to Protect: Ethnic differences in factors associated with calcium-rich food feeding behaviors among primary caregivers for low-income minority children. *J of Nutr Educ Behav*. 2005;37(1):S50. Orlando, FL.
52. Looker AC, Loria CM, Carroll MD, McDowell MA, Johnson CL. Calcium intakes of Mexican Americans, Cubans, Puerto Ricans, non-Hispanic whites, and non-Hispanic blacks in the United States. *J Am Diet Assoc*. 1993;93:1274-1279.
53. Dairy Consumption and Related Nutrient Intake in African-American Adults and Children in the United States: Continuing Survey of Food Intakes by Individuals 1994-1996, 1998, and the National Health and Nutrition Examination Survey 1999-2000. *J Am Diet Assoc*. 2007;107:256-264.
54. Xie B, Gilliland FD, Li Yu-Fen, Rockett H. Effects of Ethnicity, Family Income, and Education on Dietary Intake among Adolescents. *Preventative Medicine*. 2003;36:30-40.
55. Song WO, Chun OK, Kerver J, Cho S, Chung CE, Chung S. Ready-to-Eat Breakfast Cereal Consumption Enhances Milk and Calcium Intake in the US Population. *J Am Diet Assoc*. 2006;106:1783-1789.
56. Theobald HE. British Nutrition Foundation. Dietary calcium and health. *British Nutrition Foundation Nutrition Bulletin*. 2005;30:237-277.
57. Gao X, Wilde P, Lichtenstein AH, Tucker KL. Meeting Adequate Intake for Dietary Calcium without Dairy Foods in Adolescents Aged 9-18 Years (National Health and Nutrition Examination Survey 2001-2002). *J Am Diet Assoc*. 2006;106:1759-1765.
58. Read MH, Novotny R, Auld G, Bock MA, Bruhn C, Gustafson D. Differences in Milk Consumption as a Snack and by Eating Occasion. *Top Clin Nutr*. 2002;17:55-62.
59. Dore SJ, Yarbrough D, Fournet R. Calcium Intake and Barriers to Calcium Consumption Among Low-Income African-American Women in Louisiana. *Journal of Nutraceuticals, Functional & Medical Foods*. 2001;3:13-25.

60. Sedlak CA, Doheny MO, Jones SL. Osteoporosis Education Programs: Changing Knowledge and Behaviors. *Public Health Nursing*. 2000;17:398-402.
61. Tussing L, Chapman-Novakofski K. Osteoporosis Prevention Education: Behavior Theories and Calcium Intake. *J Am Diet Assoc*. 2005;105:92-97.
62. Morton JM, Bruhn CM. Development of a Multi-Sensorial Nutrition Education Program for Children and Their Parents: Bone Appetit! And the Calcium Cooking Class Program. Poster. *J Am Diet Assoc*. 2006;106(8)(suppl 2):A-48.
63. Winzenberg TM, Odenburg B, Frendin S, De Wit L, Jones G. A mother-based intervention trial for osteoporosis prevention in children. *Preventative Medicine*. 2006;42:21-26.
64. Grier S, Bryant CA. Social Marketing in Public Health. *Annu. Rev. Public Health*. 2005;26:319-339.
65. Icard LD, Bourjolly JN, Siddiqui N. Designing Social Marketing Strategies to Increase African Americans' Access to Health Promotion Programs. *Health and Social Work*. 2003;28:214-223.
66. Skelly J. Social Marketing: Meeting the Outreach Challenges of Today. *Journal of Extension*. 2005; 43:1. <http://www.joe.org/joe/2005february/iw1.shtml>. Accessed February 6, 2006.
67. White AH, Hyatt KD. New Initiatives to Improve Nutrition Education for Food Stamp Recipients. American Dietetic Association. Presentation. Food & Nutrition Conference & Expo. 2007.
68. Andreasen A. Social Marketing: Its Definition and Domain. *Journal of Public Policy and Marketing*. 1994;13:108-114.
69. Palmer Keenan D, Heacock PM. The Design, Implementation, and Evaluation of Social Marketing Campaigns in Nutrition. *J Community Nutrition*. 2003;5:218-229.
70. Guthrie JF, Lin B, Ploeg M, Frazao E. Can Food Stamps Do More to Improve Food Choices? USDA. Economic Information Bulletin. 2007. Number 29-1.
71. Esters O, Montgomery D, Oakland M. A Formative Evaluation of the Pick A Better Snack Campaign: Results of Parent Focus Groups. Poster. *J Am Diet Assoc*. 2007;107:A93.
72. Boulanger PM, Perez-Escamilla R, Himmelgreen D, Segura-Millan S, Haldeman L. Determinants of nutrition knowledge among low-income, Latino caretakers in Hartford, Conn. *J Am Diet Assoc*. 2002;102:978-981.
73. Perez-Escamilla R, Himmelgreen D, Bonello H, Peng Y, Mengual G, Gonzalez A, Mendez I, Cruz J, Phillips LM. Marketing nutrition among urban Latinos: The ¡Salud! campaign. *J Am Diet Assoc*. 2000;100:698-701.
74. Snow G, Benedict J. Using Social Marketing to Plan a Nutrition Education Program Targeting Teens. *Journal of Extension*. 2003;41:6. <http://www.joe.org/joe/2003december/a4.shtml>. Accessed February 6, 2006.
75. Wong F, Huhman M, Heitzler C, Asbury L, Bretthauer-Mueller R, McCarthy S, Londe P. VERB™ – A Social Marketing Campaign to Increase Physical Activity Among Youth. *Prev Chronic Dis*. 2004. Available at http://www.cdc.gov/pcd/issues/2004/jul/04_0043.htm. Accessed March 13 2006.
76. Bauman A. Commentary in the VERB™ Campaign – Perspectives on Social Marketing to Encourage Physical Activity Among Youth. *Prev Chronic Dis*.

2004. Available at http://www.cdc.gov/pcd/issues/2004/jul/04_0054.htm. Accessed March 13, 2006.
77. Achterberg C, Miller C. Is One Theory Better than Another in Nutrition Education? A Viewpoint: More Is Better. *J Nutr Educ Behav*. 2004;36:40-42.
 78. Gregson J, Foerster SB, Orr R, Jones L, Benedict J, Clarke B, Hersey J, Lewis J, Zotz K. System, Environmental, and Policy Changes: Using the Social-Ecological Model as a Framework for Evaluating Nutrition Education and Social Marketing Programs with Low-Income Audiences. *J Nutr Educ*. 2001;33 (suppl):S4-S15.
 79. Glanz K, Rimer BK, Lewis FM, ed. *Health Behavior and Health Education*. 3rd ed. San Francisco, CA: Jossey-Bass; 2002.
 80. Sharma, Manuj. Enhancing the Effectiveness of Alcohol and Drug Education Programs through Social Cognitive Theory. Editorial. *Journal of Alcohol and Drug Education*. 2005.
 81. Bandura A. Health Promotion by Social Cognitive Means. *Health Education and Behavior*. 2004;31:143-164.
 82. Huitt, W Social cognition. *Educational Psychology Interactive*. Valdosta, GA: Valdosta State University. 2006. Available at <http://chiron.valdosta.edu/whuitt/col/soccog/soccog.html>. Accessed on March 2007.
 83. Sullivan TA, Sharma M, Stacy R. Effects of a Brief Training Program for Lay Health Volunteers to Facilitate Smoking Cessation among African Americans. *Journal of Alcohol and Drug Education*. 2002;47:4-17.
 84. Department of Health and Community Services. Strategies for Health Promotion. Public Health Bush Book. 1999. Available at http://www.nt.gov.au/health/healthdev/health_promotion/bushbook/bushbook_toc.shtml. Accessed on March 3, 2008.
 85. Dutta-Bergman M. Theory and Practice in Health Communication Campaign: A Critical Interrogation. *Health Communications*. 2005;18:103-122.
 86. Solomon FM, Linnan LA, Wasilewski Y, Lee AM, Katz ML, Yang J. Observational Study in Ten Beauty Salons: Results Informing Development of the North Carolina BEAUTY and Health Project. *Health Education and Behavior*. 2004;3:790-807.
 87. Dennis WJ. Raising Response Rates in Mail Surveys of Small Business Owners: Results of an Experiment. *Journal of Small Business Management*. 2003;41:278-295
 88. Curtin R, Presser S, Singer E. Changers in Telephone Survey Nonresponse Over the Past Quarter Century. *Public Opinion Quarterly*. 2005;69:87-98.
 89. Wilson TE, Fraser-White M, Feldman J, et al. Hair Salon Stylists as Breast Cancer Prevention Lay Health Advisors for African American and Afro-Caribbean Women. *Journal of Health Care for the Poor and Underserved*. 2008;19:216-226.
 90. Overview: Breast Cancer. American Cancer Society. http://www.cancer.org/docroot/CRI/CRI_2_1x.asp?dt=5. Sept. 26 2007. Accessed May 10, 2008.
 91. Willet JA. *Permanent Waves The Making of the American Beauty Shop*. New York and London: New York University Press;2000.

92. Larson KL, Kittleson MJ. An Exploratory Study of Manufacturing Employee Interest in Health Promotion Activity in a Rural Region. *American Journal of Health Studies*. 2005;20:92-98.
93. Divine RL. Determinants of Small Business Interest in Offering a Wellness Program to Their Employees. *Health Marketing Quarterly*. 2005;22:43-58.
94. Macaskill L, Dwyer JJ, Uetrecht C, et al. An evaluability assessment to develop a restaurant health promotion program in Canada. *Health Promotion International*. 2000;15:57-69.
95. Danziger SK, Radin N. Absent Does Not Equal Uninvolved: Predictors of Fathering in Teen Mother Families. *Journal of Marriage and the Family*. 1990;52:636-642.
96. Bello M. Goals for black America not met. USA Today. Available at http://www.usatoday.com/news/nation/2008-02-28-kerner-commission_N.htm. February 2008. Accessed on April 10, 2008.
97. Cain DS, Combs-Orme T. Family Structure Effects on Parenting Stress and Practices in the African American Family. *Journal of Sociology and Social Welfare*. 2005;32:19-40.
98. Jimenez J. History of Grandmothers in the African-American Community. *Social Service Review*. 2002;524-551.
99. Burnette, D. Grandmother Caregivers in Inner-City Latino Families: A descriptive Profile and Informal Social Support. In: Anderson G, Ryan A, Leashore B. *The Challenge of Permanency Planning in a multicultural Society*. Hawthorn Press; 1997:122
100. Presser HB. Some Economic Complexities of Child Care Provided by Grandmothers. *Journal of Marriage and the Family*. 1989;51:581-591.
101. Leibowitz A, Waite LJ, Witsberger C. Child Care for Preschoolers: Differences By Child's Age. *Demography*. 1998;25:205-220.
102. Got Milk? Campaign. Milk Delivers.org. Available at <http://www.milkdelivers.org/gotmilk/success.cfm>. 2005. Accessed on May 10 2008.
103. 3-A-Day of Dairy Campaign Receives Top Honors. National Dairy Council. Available at <http://www.3aday.org/Pages/Welcome.aspx>. 2007. Accessed on May 10, 2008.
104. Haas BK. Focus on Health Promotion: Self-Efficacy in Oncology Nursing Research and Practice. *Oncol Nurs Forum*. 2000;27:89-97.