

Predictors of Social Support for Healthy Nutrition Behaviors Among African American Adolescents

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Abstract

We examined family influences on social support for healthy nutrition behaviors among 35 African American adolescents aged 10 to 15. Summary scores from measures assessing emotional, instrumental and total social support for fruit/vegetable intake and low-fat dairy intake were used. Internal reliabilities for each measure were assessed by Cronbach's coefficient alpha and Pearson correlations identified dependent variable covariates. Lastly, ANOVA and ANCOVA modeling was conducted. Mother's Employment had significant effects on instrumental social support for fruit/vegetable intake ($P=0.0459$) as well as instrumental social support for low-fat dairy intake ($P=0.0092$). Adolescents with mothers who worked part-time or did not work had higher instrumental social support for fruit/vegetable scores and instrumental social support for low-fat dairy scores compared to adolescents with working mothers. Family influences play an important role in the development of health behaviors among adolescents. This study highlights the relationships between instrumental social support for healthy eating, work and family.

Key Words: African American, adolescent, nutrition, social support, family

Introduction

The Department of Agriculture reports that the diet quality of most children ages two to nine is less than optimal (Center for Nutrition Policy and Promotion 2001). Because the diet quality for children decreases with age older children have the unhealthiest diets. Literature based on national samples have revealed that only one percent of children and adolescents aged two to 19 meet all the guidelines specified by USDA's MyPyramid and 16 percent of young people do not meet any of those recommendations (Munoz et al. 1997). Poor diets effect adolescent populations in many ways, including low energy levels and decreased cognitive development (Centers for Disease Control and Prevention 1996), increased risk of obesity in adulthood (Wardle et al. 2001), increased bone fractures in girls (Wyshak and Frisch 1994), and many other negative health outcomes.

Little is understood about the efficacy of interventions and specific intervention components to promote healthy eating among minority children and adolescents (Ammerman et al. 2002). Because children and adolescents spend so much time with family members, family social support interventions may be an effective avenue for promoting healthy eating among adolescents. Social relationships and their association with disease, well-being, and health promotion have been studied by researchers in a wide variety of behavioral and medical disciplines. Research has revealed that individuals with more social support and those who have higher levels of social integration are less likely to have heart attacks, or develop upper respiratory illness, and are more likely to survive breast cancer (Cohen, Gottlieb, and Underwood 2000). Social support is defined as aid and assistance exchanged through social relationships and interpersonal transactions (Heaney and Israel 1997). House (1981) has identified four specific types of social support: Emotional (expressions of empathy, love, trust, and caring); Instrumental (help through tangible services or aid); Informational (advice, suggestions, and information); Appraisal (feedback useful for self-regulation). The study described in this paper focuses on emotional and instrumental social support for healthy eating among African American adolescents.

A number of family factors faced by today's families can impact the provision of social support. Over the past few decades, changes in society have occurred which have increased the numbers of people who have significant responsibilities at both home and work. Brief and Nord (1990) listed the changes: a) an increase in divorce rates which led to a greater number of single parents; b) increased labor force participation among women, increasing by 22 percent since 1983 (Fullerton 1995); c) more part-time work; d) greater mobility among workers, increasing the distance between them and social support from nuclear and extended families; e) changed worker expectations regarding greater interest in the quality of life outside of work; and f) increasing social value placed on fathers' involvement in the home. Due to these changes, the interaction between work and family have become of even greater concern both practically and

theoretically (Clark 2000). Work/family border theory was created in an attempt to explain this interaction and to predict when conflict would occur and provide a framework for attaining balance. This theory addresses the fact that people shape their environments and are, in turn, shaped by them (Clark 2000). Work/family border theory is a relatively new theory proposed by Clark that is designed to fill the gaps of previous research on work and family. It attempts to explain how people manage and negotiate the spheres of work and family life and the borders between the two in an effort to attain balance. Integral to this theoretical perspective is the notion that work and family are two different domains (or spheres) that influence one another. In this paper we also examine the associations between family-level factors and emotional and instrumental social support for healthy eating among African American adolescents.

Few studies have focused on how social support impacts nutrition among low-income or African American populations (Ammerman et al. 2002). Several studies by Wilson and colleagues have consistently observed differing physiological and behavioral effects of social support on adolescent African American males and females. In one study, males demonstrated significantly lower blood pressure reactivity in response to the instrumental social support condition than to the emotional support or no support conditions (Wilson, Kliever, and Bayer 1996). In another study, after controlling for baseline blood pressure, body mass index, physical activity level, parent education and family history of essential hypertension and stroke, males who reported high levels of emotional support demonstrated greater cardiovascular reactivity scores (e.g., larger increases in heart rate and blood pressure in response to stressors) than males who reported low levels of emotional support (Wilson et al. 1999). A third, family-based study was undertaken to examine the role of social support and gender differences in healthy diet compliance among 184 African American adolescent boys and girls (Wilson and Ampey-Thornhill 2001). These adolescents participated in a five-day low-sodium diet, emphasizing fruit and vegetable intake. A modified version of the Social Support for Eating Scale was used to assess family emotional social support for fruit and vegetable intake (Sallis et al. 1987). Study results revealed that girls who were compliant reported significantly higher levels of family dietary support than boys who were compliant. Boys who were compliant also reported significantly lower levels of family dietary support than boys who were not compliant. The results of this study suggests higher levels of emotional social support from family members are associated with better short-term adherence to eating fruits and vegetables among African American girls as compared to boys.

Based on these studies, consistent gender differences are observed in response to specific type of social support provided to African American males and females (Wilson, Kliever, and Bayer 1996; Wilson et al. 1999; Wilson and Ampey-Thornhill 2001). Extending this idea to specific nutrition behaviors, this cross-sectional study was conducted to examine gender differences in emotional and instrumental social support in a sample of African American adolescents. Baseline data from an intervention study were used in the analyses (Wilson et al. 1004). In this paper,

emotional and instrumental social supports for fruit/vegetable and low-fat dairy behaviors among African American adolescents are examined. Based on this previous research, we wished to answer two broad research questions: Research question #1: Are significant gender differences in emotional and instrumental social support for fruit and vegetable and low-fat dairy intake observed in our sample? Research question #2: What family-level factors are associated with emotional and instrumental social support for fruit and vegetable and low-fat dairy intake in our sample? Our overall aim was to add to the current knowledge base for tailoring specific types of nutrition behavior promotion interventions with African American adolescents.

Description of the study

This study involves analysis of baseline data collected from a larger study involving a community-based nutrition (DASH-style diet) and physical activity intervention with African American families (Wilson et al. 2004). This cross-sectional secondary data analysis was approved by the University of South Carolina Institutional Review Board. Participants for the intervention study were recruited from adolescents involved in general health screenings at community- and church-based centers. Eligibility requirements included being between the ages of 10 and 15 years of age, weighing less than or equal to the 95th percentile body mass index (BMI) for age and gender, self-reported African American race, with normal blood pressure, and not taking medications known to affect blood pressure. Through initial health screenings, adolescents were invited to participate in the study after a phone call solicitation to their parents. In total, 39 African American adolescents were recruited into the study. All parents/guardians completed an IRB approved parental consent form, and all participants completed an IRB approved assent form. During the study, mothers and adolescents completed demographic surveys. Adolescents also completed a measure of social support administered in small groups using one-to-one assistance as needed. Trained staff measured adolescents' height and weight.

Measures

Modified versions of the Social Support for Eating Scale (Sallis et al. 1987) and the Inventory of Socially Supportive Behaviors (Barrera, Sandler, and Ramsay 1981) developed by the first author (Williams, 2004) were used to measure emotional social support and instrumental social support, respectively. In addition, two versions of each measure were modified to assess social support for fruit/vegetable intake and low-fat dairy intake, respectively.

Emotional Social Support for Fruit/Vegetable and Emotional Social Support for Low-Fat Dairy Intake measures.

A modified version of the Social Support for Eating Scale (Sallis et al. 1987) was used to assess emotional social support for fruit/vegetable intake as well as low-fat dairy intake. These

measures emphasize positive and negative emotional social support. Using a five-point Likert-type scale, ranging from 1 (none) to 5 (very often), respondents answered how often family and friends did what was described in each item during the past month. Responses to all items on a given measure were added together to produce a summary score for that measure. Wilson and Ampey-Thornhill (2001) demonstrated test-retest reliability correlations of $r=.60$ to $r=.84$ for the family social support for FV scale with a sample of 148, 13 to 16 year old African American adolescents. The 16-item measure used by Wilson and Ampey-Thornhill is the same emotional social support for fruit and vegetable (Emotional SS FV) measure used in the present study. An alternate version of that measure, worded for low-fat dairy was also used in the present study to assess emotional social support for low-fat dairy (Emotional SS LFD), by replacing the words 'fruit and vegetable' with 'low-fat dairy', and replacing the words 'junk food' with 'high-fat dairy', respectively.

Instrumental Social Support for Fruit/Vegetable and Instrumental Social Support for Low-Fat Dairy Intake measures.

A review of the literature failed to reveal the existence of instrumental social support measures specific to fruit and vegetable intake (Instrumental SS FV) or low-fat dairy intake (Instrumental SS LFD) measures validated with adolescents. Therefore, items from an existing measure designed to assess general instrumental social support (Barrera, Sandler, and Ramsay 1981) were modified to create two separate measures; one reflecting instrumental social support for fruit/vegetable intake and one reflecting social support for low-fat dairy. As with the two emotional social support measures, the "mirror" instrumental social support measures were achieved by replacing the words 'fruit and vegetable' with 'low-fat dairy', and replacing the words 'junk food' with 'high-fat dairy', respectively. Both instrumental social support measures contain 17 items. Using a five-point Likert-type scale, ranging from 1 (never) to 5 (about every day), respondents answered how often during the past month family members did specific activities with/for them. Responses to all items on a given measure were added together to produce a summary score for that measure. After receiving parental consent and adolescent assent using IRB approved forms, the instrumental social support measures were pilot-tested with 30 African American adolescents (15 males, 15 females).

Analyses

All analyses were performed using SAS version 9.2. Statistical significance for the study was set at the $\alpha = 0.05$ level. Descriptive statistics were computed to describe the sample. The internal consistency reliability for each measure was also assessed using Cronbach's coefficient alpha. Child age and BMI were assessed as potential confounders (covariates) by examining their inter-correlations with the dependent variables (i.e., social support scores). SAS PROC GLM, commonly used with "unbalanced" data (in this case $n = 18$ boys and $n = 17$ girls being

compared) and quasi-experimental designs (Little et al., 2002), was used to simultaneously examine main and interaction effects of child gender and family-level characteristics (mother's employment status, mother's education, mother's marital status, annual family income).

Results

The pilot test of the social support measures was conducted with African American adolescents aged 10 to 15 ($M = 12.0$, $SD = 1.1$) who were recruited from a community-based weekend basketball physical activity program to give feedback on the modified Instrumental SS FV and Instrumental SS LFD measures regarding readability, format and content relevance. The feedback led to the addition of a sentence indicating that some items refer to meals and some to snacks; this addition was included for the study described in this paper. In the larger study, one adolescent was greater than the 95th percentile BMI for age and gender, thus the initial study sample was reduced to 38. Males and female participants did not differ statistically with regard to demographic, biological, or psychosocial variables (Table 1 and Table 2). There were no differences in the following continuous variables: age ($t = -0.80$, $P = 0.4322$), BMI ($t = -0.80$, $P = 0.4322$), Emotional SS for FV ($t = -0.49$, $P = 0.6250$), Emotional SS for LFD ($t = 0.89$, $P = 0.3791$), Instrumental SS for FV ($t = 0.12$, $P = 0.9089$), or Instrumental SS for LFD ($t = 0.83$, $P = 0.4126$). Further, no differences were found in the following categorical variables: mother's education level ($X^2 = 7.44$, $P = 0.1144$), mother's marital status ($X^2 = 2.57$, $P = 0.2762$), mother's employment status ($X^2 = 2.69$, $P = 0.4423$), or annual family income level ($X^2 = 5.33$, $P = 0.5023$).

Table 1. Male Participant Characteristics (n=18)

<u>Male Characteristics</u>		Mean (SD)
Age (in years)		12.4 (1.14)
Body Mass Index		20.8 (2.8)
Emotional SS FV Score		50.6 (7.4)
Emotional SS LFD Score		51.4 (6.7)
Instrumental SS FV Score		48.4 (16.0)
Instrumental SS LFD Score		46.0 (15.3)
<u>Mothers' Characteristics</u>		n (percent)
<u>Marital Status:</u>	Married	8 (55.6%)

	Single, Never Married, Separated, or Divorced	10 (44.4%)
<u>Highest Grade Attained:</u>	High School Graduate or Less	9 (50.0%)
	Some College College Graduate, or Graduate School/Professional School Graduate	9 (50.0%)
<u>Employment Category:</u>	Full-time	12 (66.7%)
	Part-time or Less	6 (33.3%)
<u>Total Family Income:</u>	Less than \$19,999	6 (33.3%)
	\$20,000 – \$29,999	8 (44.4%)
	\$30,000 or greater	4 (22.2%)

Table 2. Female Participant Characteristics (n=17)

<u>Female Characteristics</u>		Mean (SD)
Age (in years)		12.8 (1.5)
Body Mass Index		21.5 (4.3)
Emotional SS FV Score		51.9 (9.2)
Emotional SS LFD Score		49.4 (6.7)
Instrumental SS FV Score		47.7 (19.4)
Instrumental SS LFD Score		41.1 (19.6)
Mothers' Characteristics		n (percent)
<u>Marital Status:</u>	Married	8 (44.4%)
	Single, Never Married, Separated, or Divorced	9 (52.9%)
	High School Graduate or Less	9 (52.9%)

<u>Highest Grade Attained:</u>	Some College, College Graduate, or Graduate School/Professional School Graduate	8 (47.1%)
<u>Employment Category:</u>	Full-time	9 (52.9%)
	Part-time or Less	8 (47.1%)
<u>Total Family Income:</u>	Less than \$19,999	5 (29.4%)
	\$20,000 – \$29,999	6 (35.3%)
	\$30,000 or greater	5 (29.4%)
	Missing	1 (5.9%)

Items from each of the four study measures (Emotional SS for FV, Emotional SS for LFD, Instrumental SS for FV, and Instrumental SS for LFD) are listed below. Again, the reader should note that the item stems for both Emotional SS measures are identical except that the words ‘fruits and vegetables’ are replaced with ‘low-fat dairy’ and the words ‘junk food’ are replaced with ‘high-fat dairy’, respectively. Further, the item stems for the Instrumental SS measures are also identical and use the same word replacement protocol.

List of Emotional Social Support Measure Items:

During the past month how often did people in your family do the following with you or for you?

1. Complemented me on eating fruits and vegetables (LOW-fat dairy foods).
2. Encouraged me to eat fruits and vegetables (LOW-fat dairy foods) when I am tempted no to.
3. Discussed my fruits and vegetables (LOW -fat dairy food) eating habits with me.
4. Reminded me to eat fruits and vegetables (LOW-fat dairy foods).
5. Offered me fruits and vegetables (LOW-fat dairy foods) when I visited their home.
6. Ate junk (HIGH-fat dairy foods) in front of me.

7. Brought home junk (HIGH-fat dairy foods).
8. Asked me for ideas on how they could eat more fruits and vegetables (LOW-fat dairy foods).
9. Requested junk (HIGH -fat dairy foods).
10. Told me eating fruits and vegetables (LOW-fat dairy foods) is a waste of time.
11. Commented if I went back to eating junk (HIGH-fat dairy foods).
12. Offered me junk (HIGH-fat dairy foods).
13. Complained that I spent too much money on fruits and vegetables (LOW-fat dairy foods).
14. Refused to eat fruits and vegetables (LOW-fat dairy foods).
15. Got angry when I encouraged them to eat fruits and vegetables (LOW-fat dairy foods).
16. Made negative comments when I went back to junk (HIGH-fat dairy) food

List of Instrumental Social Support Measure Items:

During the past month how often did people in your family do the following with you or for you?

1. Took you to a place to eat that had fruits and vegetables (low-fat dairy foods).
2. Planned meals that had fruits and vegetables (low-fat dairy foods) you liked.
3. Told you what she/he did to try to eat more fruits and vegetables (low-fat dairy foods).
4. Helped you set a goal to eat more fruits and vegetables (low-fat dairy foods).
5. Gave you information about how to eat more fruits and vegetables (low-fat dairy).
6. Suggested something that you could do to reach your goal of eating more fruits and vegetables (low-fat dairy foods).
7. Gave you money to buy fruits and vegetables (low-fat dairy foods).

8. Gave you information that helped you understand how to eat more fruits and vegetables (low-fat dairy foods).
9. Took you to the store to get fruits and vegetables (low-fat dairy foods).
10. Bought you fruits and vegetables (low-fat dairy foods) that you liked.
11. Said things that made eating more fruits and vegetables (low-fat dairy foods) easier to do.
12. Helped you make fruits and vegetables for a snack (low-fat dairy foods).
13. Showed you how to make fruit and vegetable (low-fat dairy) snacks or meals.
14. Told you how you were doing about eating more fruits and vegetables (low-fat dairy foods).
15. Gave you fruits and vegetables (low-fat dairy foods).
16. Told you something that helped you understand why you did do well when trying to eat more fruits and vegetables (low-fat dairy foods).
17. Helped you make fruits and vegetables (low-fat dairy foods) for a meal.

The Emotional SS FV measure demonstrated moderate internal consistency reliability (Cronbach's $\alpha = .58$). This is an acceptable level and is lower than the range observed in the original Sallis et al. (1987) study (Cronbach's α s = .80 - .87) with young adults. The Emotional SS LFD measure demonstrated low internal consistency reliability (Cronbach's $\alpha = .33$). This is a very low and unacceptable level of reliability. There are no other studies to our knowledge examining emotional social support for low-fat dairy, thus we have no way of making comparisons. Finally, the Instrumental SS FV measure (Cronbach's $\alpha = .95$) and Instrumental SS LFD measure (Cronbach's $\alpha = .96$) both demonstrated high internal consistency reliabilities. Although the Inventory of Socially Supportive Behaviors, from which our instrumental social support items were modeled, was designed to measure general social support (as opposed to nutrition-specific support), the original, long (40-item) ISSB scale developed by Barrera et al. (1981) demonstrated high internal consistency reliability (Cronbach's $\alpha = .90$) with a college-aged sample.

Table 3. Correlations of Measures and Child Characteristics

	BMI	Age	ESSFV	ESSLFD	ISSFV	ISSLFD
BMI	1.0					
Age	0.46**	1.0				
ESSFV	-0.02	-0.25	1.0			
ESSLFD	-0.12	-0.25	0.47**	1.0		
ISSFV	-0.07	-0.43**	0.39*	0.44**	1.0	
ISSLFD	-0.07	-0.38**	0.57**	0.55**	0.85***	1.0

* $P < 0.05$

** $P < 0.01$

*** $P < 0.0001$

ESSFV = Emotional Social Support for Fruits and Vegetables

ESSLFD = Emotional Social Support for Low-Fat Dairy

ISSFV = Instrumental Social Support for Fruits and Vegetables

ISSLFD = Instrumental Social Support for Low-Fat Dairy

Table 3 presents correlations between continuous child-related variables and summary scores for each of the four social support measures. Child BMI was not statistically significantly associated with any of the four social support scores. Child age was significantly correlated with BMI ($r = .45$, $P = 0.0058$). Child age was significantly associated with Instrumental SS for FV ($r = -.4318$, $P = 0.0096$) and with Instrumental SS for LFD ($r = -.3818$, $P = 0.0236$). Because child age was statistically significantly correlated with the instrumental social support scores, we therefore included child age in models predicting those variables in order to control for the effect of child age in the inferential tests.

The final analytic sample size for inferential analyses included 35 adolescents due to missing data from three study participants. Separate Two-Way Analysis of Variance (ANOVA) models were run with child gender, and each of the four family-level characteristics (mother's employment status, mother's education, mother's marital status, annual family income) to test

for gender as a main effect predicting Emotional SS for FV, and Emotional SS for LFD, and to examine the main effects of each of the four family-level characteristics. Next, separate Analysis of Covariance (ANCOVA) models were run, controlling for child age, with child gender, and each of the four family-level characteristics (mother's employment status, mother's education, mother's marital status, annual family income) to test for gender as a main effect predicting Emotional SS for FV, and Emotional SS for LFD, and to examine the main effects of each of the four family-level characteristics.

Table 4. Overall Significance Tests for Models Examining the Effects of Child and Family-Level Factors on Each Type of Social Support

Family-Level Factor	Type of Support	F	P
Mother's Employment	ESSFV	2.12	0.1180
	ESSLFD	0.84	0.4832
	ISSFV	3.63	0.0159
	ISSLFD	4.61	0.0051
Mother's Education	ESSFV	0.62	0.6061
	ESSLFD	0.31	.08200
	ISSFV	1.79	0.1631
	ISSLFD	1.66	0.1858
Mother's Marital Status	ESSFV	0.34	0.7987
	ESSLFD	0.43	0.7302
	ISSFV	2.20	0.0933
	ISSLFD	1.61	0.1986
Annual Family Income	ESSFV	0.55	0.7376
	ESSLFD	0.40	0.8420
	ISSFV	1.12	0.3781

	ISSLFD	1.09	0.3947
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ESSFV = Emotional Social Support for Fruits and Vegetables

ESSLFD = Emotional Social Support for Low-Fat Dairy

ISSFV = Instrumental Social Support for Fruits and Vegetables

ISSLFD = Instrumental Social Support for Low-Fat Dairy

Table 4 presents the overall F-test and corresponding p-values for each of those models. The model including mother's employment status as a predictor of Instrumental SS for FV was statistically significant and explained 32.59% of the variance in that type of social support. The model including mother's employment status as a predictor of Instrumental SS for LFD was also statistically significant and explained 38.06% of the variance in that type of social support.

Table 5. Analysis of Covariance Models Examining the Effects of Child Gender and Mother's Employment Status on Instrumental SS for FV and Instrumental SS for LFD

Model	Parameter Estimates		Test statistic and P-value	
Instrumental SS for FV	B	SE(B)	t	P
Mother's Employment	-15.51	7.45	-2.08	0.0459
Gender	-1.25	8.61	-0.15	0.8852
Interaction	3.83	10.92	0.35	0.7281
Child Age	-3.77	1.92	-1.96	0.0594
Model	Parameter Estimates		Test statistic and P-value	
Instrumental SS for LFD	B	SE(B)	t	P

Mother's Employment	-19.84	7.13	-2.78	0.0092
Gender	3.33	8.24	0.40	0.6890
Interaction	4.90	10.45	0.47	0.6427
Child Age	-2.59	1.84	-1.41	0.1720

B = parameter estimate (beta)

SE(B) = standard error of beta

t = t-statistic

P = p-value

Main effects and interaction tests for these two models are presented in Table 5. There was no main effect observed for child gender on Instrumental SS for FV, nor was there an interaction between mother's employment status and child gender. A main effect for mother's employment was observed for Instrumental SS for FV ($B = -15.51$, $SE(B) = 7.45$, $t = -2.08$, $P = 0.0459$).

Children with mothers who worked full time reported lower levels of Instrumental SS for FV ($M = 41.28$, $SD = 14.20$) compared to children with mothers who worked part-time or did not work ($M = 58.18$, $SD = 17.40$). Similarly, no main effect observed for child gender on Instrumental SS for LFD, nor was there an observed interaction between mother's employment status and child gender. A main effect for mother's employment was observed for Instrumental SS for LFD ($B = -19.84$, $SE(B) = 7.13$, $t = -2.78$, $P = 0.0092$). Children with mothers who worked full time reported lower levels of Instrumental SS for LFD ($M = 36.09$, $SD = 12.09$) compared to children with mothers who worked part-time or did not work ($M = 54.99$, $SD = 17.55$).

Discussion and implications

There are several weaknesses to consider when interpreting the findings of this study. The sample size was relatively small, which reduces statistical power. Additionally, the lower internal consistency reliability for Emotional SS LFD may have impacted the findings, although the internal consistency reliability for Emotional SS FV is similar to that reported in another study with African American adolescents, using the same measure (Wilson and Ampey-Thornhill 2001). Longitudinal and intervention studies may be more likely to show expected differences. This study failed to replicate previous findings regarding gender differences with

respect to type of social support (Wilson, Kliewer, and Bayer 1996; Wilson et al. 1999; Wilson and Ampey-Thornhill 2001). We found that mother's employment had a significant effect on Instrumental SS FV and Instrumental SS LFD but not on Emotional SS FV and Emotional SS LFD. The low internal consistency reliability for the Emotional SS for LFD measure (Cronbach's $\alpha = .33$) indicates a low level of reliability and may explain this finding. It is also possible that families of these children do not provide significant levels of emotional support for low-fat dairy intake. Minorities tend to be more lactose intolerant, in general, which could also affect low-fat dairy intake and associated social support.

Family influences play an important role in the development of health behaviors among children and adolescents (Sandefur and Moseley 1997). Social support from family members may enhance one's ability to reach nutrition behavior goals or to enable and reinforce dietary change (Wilson and Ampey-Thornhill 2001). In this sample, adolescents whose mother worked less than full time or did not work at all reported receiving higher levels of nutrition-related instrumental social support. Perhaps mothers who worked full-time were too busy, tired, or physically unavailable to provide the same level of social support compared to mothers who worked part-time or did not work. This finding illustrates the relevance of work/family border theory and how a parent's work influences various aspects of family life.

Clark (2000) explained that although many aspects of work and home are difficult to alter, individuals can shape to some degree the nature of their home and work domains as well as the borders and bridges between them to create a balance between the two. Clark defined this balance as "satisfaction and good functioning at work and at home, with a minimum of role conflict" (p. 751). Findings from the current study illustrate the influence of a parent's work on their family life, particularly on their child's nutrition. An awareness of the impact of work on family members' health should be considered by FCS educators as they teach and encourage parents.

Working mothers generally experience what Hochschild (1997) refers to as the time bind; they have a full-time job in the workplace and then come home to another full-time job of caring for their home and family. More research is needed to better understand the influences of parental work on family life specifically on nutrition behaviors within the family unit. Family and Consumer Science (FCS) educators can work with parents to help them recognize the impact their work schedule has on their children's eating habits. FCS educators have, for many years now, taught parents how to make more informed choices about food purchasing and how to prepare healthy and nutritious options for their families. This study highlights the importance of the provision of social support by mothers and how social support, specifically instrumental social support, should be encouraged as a potentially effective approach to encouraging their children to eat healthier. Instrumental social support is defined as tangible aid and assistance, meaning that it is a "hands on" type of support. Although work schedules and other time

demands are external factors, mothers likely also have internal barriers (e.g., lack of confidence in providing instrumental social support, fatigue) that influence their instrumental social support behaviors.

In applying lessons learned from this analysis, FCS educators could:

- Express to mothers the importance of taking the time to involve children in the planning of healthy meals and snacks.
- Encourage mothers to attempt to engage their children more directly in the preparation of healthy foods – not only as a way to promote healthy eating but also to support positive family interactions and to aid them in preparing meals and snacks.
- Create opportunities for families to practice “hands on” interactions related to healthy food preparation – this can be done in any of the numerous contexts in which agents encounter families: in schools, at churches, or in other community settings.

References

Ammerman, A.S., C.H. Lindquist, K.N. Lohr, and J. Hersey. 2002. The efficacy of behavioral interventions to modify dietary fat and fruit and vegetable intake: A review of the evidence. *Preventive Medicine* 35:25-41.

Barrera, M., I.N. Sandler, and T.B. Ramsay. 1981. Preliminary development of a scale of social support: Studies on college students. *American Journal of Community Psychology* 9:435-447.

Brief, A., and W.F. Nord. 1990. Work and the family. In A. Brief and W.R. Nord (Eds.), *Meanings of Occupational Work* (pp. 203-232). Lexington, MA: Lexington books.

Centers for Disease Control and Prevention. 1996. Guidelines for school health programs to promote lifelong healthy eating. *Morbidity and Mortality Weekly Report* 14:1-41.

Center for Nutrition Policy and Promotion. 2001. Report Card on the Diet Quality of Children Ages 2 to 9. U.S. Department of Agriculture. Available from:
URL: <http://www.usda.gov/cnpp/Insight/Insight25.pdf>.

Clark, S.C. 2000. Work/family border theory: A new theory of work/family balance. *Human Relations* 53(6):747-770.

Cohen, S., B.H. Gottlieb, and L.G. Underwood. 2000. Social relationships and health. In: *Social Support Measurement and Intervention* (pp. 3-25). Oxford University Press: New York.

Fullerton, N.H. 1995. The 2005 labor force: Older and larger. *Monthly Labor Review* 118(11):29-44.

Heaney, C.A., and B.A. Israel. 1997. Social networks and social support. In: *Health Behavior and Health Education* (pp. 179-205). Jossey-Bass Publishers: San Francisco.

Hochschild, A.R. 1997. *The Time Bind: When Work Becomes Home and Home Becomes Work*. New York: Henry Holt and Company.

House J.S. 1981. *Work Stress and Social Support*. Addison-Wesley: Reading, MA.

Kleinbaum, D.K., L.L. Kupper, K.E. Muller, and A. Nizam. 1998. *Applied Regression Analysis and Other Multivariate Methods*. Pacific Grove, CA: Brooks/Cole Publishing Company.

Little, R.C., W.W. Stroup, and R.J. Freund. 2002. *SAS for Linear Models*. Cary, NC: SAS Institute, Inc.

Munoz, K.A., S.M. Krebs-Smith, R. Ballard-Barbash, and L.E. Cleveland. 1997. Food intakes of US children and adolescents compared with recommendations. *Pediatrics* 100:323-329.

Owen, S.V., and R.D. Froman. 1998. Uses and abuses of the analysis of covariance. *Research in Nursing and Health* 21:557-562.

Sallis, J.F., R. M. Grossman, R.B. Pinski, T.L. Patterson, and P.R. Nader. 1987. The development of scales to measure social support for diet and exercise behaviors. *Preventive Medicine* 16:825-836.

Sandefur, G.D., and J. Moseley. 1997. Family structure, stability, and the well-being of children. In: *Indicators of Children's Well-Being* (pp. 328-344). Russell Sage Foundation: New York.

Wardle, J., C. Guthrie, S. Sanderson, L. Birch, and R. Plomin. 2001. Food and activity preferences in children of lean and obese parents. *International Journal of Obesity and Related Metabolic Disorders* 25:971-977.

Williams, J.E. 2004. Social support and adolescent nutrition behaviors in African-American families. Dissertation Abstract International. 65(8), 3979B (UMI No. AAT 3142867).

Wilson, D.K., and G. Ampey-Thornhill. 2001. The role of gender and family support on dietary compliance in an African American adolescent hypertension prevention study. *Annals of Behavioral Medicine* 23:59-67.

Wilson, D.K., A.E. Evans, J.E. Williams, J. Praphul, J. Buck, and M. Ehlers. 2004. Effects of a family-based intervention on diet and physical activity in African American children. Third Annual Conference of the International Society of Behavioral Nutrition and Physical Activity Conference, Washington, DC.

Wilson, D.K., W. Kliever, and L. Bayer. 1996. Cardiovascular reactivity in black adolescents: Influences of gender and emotional social support. *Journal of Gender, Culture, and Health* 1:37-50.

Wilson, D.K., W. Kliever, L. Bayer, D. Jones, A. Welleford, M. Heiney, and D.A. Sica. 1999. The influence of gender and emotional versus instrumental support on cardiovascular reactivity in African American adolescents. *Annals of Behavioral Medicine*. 21:235-243.

Wyshak, G., and R.E. Frisch. 1994. Carbonated beverages, dietary calcium, and dietary calcium phosphorus ratio, and bone-fractures in girls and boys. *Journal of Adolescent Health* 15:210-215.