

**PSYCHOGRAPHIC PROFILING OF FRUIT AND VEGETABLE CONSUMPTION:  
THE ROLE OF HEALTH ORIENTATION**

Peer Reviewed Mohan J. Dutta-Bergman

**QUERY SHEET**

Q1 Au: Should hypens be inserted in “5 a Day”?

# PSYCHOGRAPHIC PROFILING OF FRUIT AND VEGETABLE CONSUMPTION: THE ROLE OF HEALTH ORIENTATION

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PEER  
REVIEWED | Mohan J. Dutta-Bergman

## ABSTRACT

Based on the empirical evidence that documents the link between fruit and vegetable consumption and a plethora of health outcomes, multiple campaign initiatives have been launched in the past decade seeking to drive the consumption of fruits and vegetables in the U.S. population. A review of the existing literature suggests that most campaign initiatives have taken an episodic approach to the task of increasing fruit and vegetable consumption. This article offers an alternative framework by highlighting the importance of a psychographic approach that emphasizes the treatment of the whole individual. In this case, health orientation is defined and located as the underlying variable that drives a multitude of health-related behaviors including fruit and vegetable consumption. The study results support the notion that an underlying sense of health orientation drives health behaviors such as fruit and vegetable consumption. Specific recommendations are made for campaign initiatives that take a comprehensive and long-term approach to health behavior change.

According to a report published by the National Center for Health Statistics (2000), cancer mortality accounts for approximately 26% of all deaths in the U.S., ranking cancer as the second most frequent cause of death in the country. A large amount of published evidence suggests that risks of cancer are significantly reduced by the consumption of fruits and vegetables (Steinmetz & Potter, 1991). The message for the consumer originating from this line of research is pretty straightforward: Increase the consumption of

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fruits and vegetables. Drawing upon this association between fruit and vegetable consumption and the reduced risk of certain types of cancer, Healthy People 2000 recommended that everyone eat at least five servings of fruits and vegetables per day (U.S. Department of Health and Human Services, 1990).

In the early 1990s, the National Cancer Institute (NCI) launched a series of health campaigns with the goal of increasing the fruit and vegetable intake of the U.S. population. Based on published studies that demonstrated the positive effects of fruit and vegetable intake, NCI recommended an average of five a day in order to prevent cancer. Since the NCI launched the well-known 5-a-Day for Better Health campaign, increased fruit and vegetable intake has been the target of a large number of health campaigns within the U.S. In spite of the increased expenditure and continuous emphasis on 5-a-Day campaigns, the consumption of fruits and vegetables within the U.S. has not significantly increased over the last decade.

Responding to a growing need for an overall psychographic approach in health campaigns research, this project uses psychographics in order to construct a narrative of those individuals who consume fruits and vegetables. This study articulates that the episodic treatment of individual health behaviors (such as consumption of five servings of fruits and vegetables) misses the complete picture and does not really take into account the context of health behaviors surrounding a specific behavior such as eating fruits and vegetables.

This article seeks to address this absence in the broader prevention campaigns literature by introducing the concept of health orientation and by studying it in relationship with the consumption of fruits and vegetables. Health orientation is defined as the overall interest of an individual in issues related to health. This article argues that a broader sense of health orientation underlies a plethora of health-oriented activities, including fruit and vegetable consumption. In addition, a wide variety of healthy activities such as exercising, fruit and vegetable consumption, and other healthy eating behaviors are tied together by this underlying orientation toward health issues.

The manuscript examines the relationship between fruit and vegetable intake and health orientation among a population of college students at a large Midwestern university. The college student data are supplemented by nationally representative data gathered by DDB Needham. DDB Needham is a global advertising agency that works with MarketFacts, a market research firm, to gather the LifeStyle data. Based on the nationally representative data, the relationships between fruit and vegetable intake and a variety of healthy/unhealthy activities (such as exercising, other healthy eating, and alcohol consumption) are studied. The study results provide formative guidelines for comprehensive health campaigns that address a plethora of health behaviors within the rubric of health orientation rather than targeting a specific behavior such as fruit and vegetable intake as embodied in traditional campaigns.

130 **5-A-DAY CAMPAIGNS: AN**  
**Q1 OVERVIEW**

Based upon a nationally representa-  
 tive survey conducted in 1991 that  
 demonstrated that median fruit and  
 135 vegetable intake among U.S. adults was  
 3.6 servings per day and building upon  
 the evidence that linked fruit and vege-  
 table intake to the risk of cancer, NCI  
 launched the 5-a-Day for Better Health  
 140 Program that operated through partner-  
 ships at state and local levels. The  
 national program launched by NCI inclu-  
 ded nine research projects that developed,  
 implemented and evaluated 5-a-Day  
 145 prevention campaigns in different geo-  
 graphical regions of the country (Havas  
 et al., 1994).

According to an evaluation of the  
 5-a-Day for Better Health program con-  
 150 ducted by Potter et al. (2000), the total  
 consumption of fruits and vegetables  
 increased by 0.12 servings per day, an  
 increase that was not statistically sig-  
 nificant. An overall summary of the 5-a-  
 155 Day, Behavioral Risk Factor Surveillance  
 System (BRFSS) and Continuous Survey of  
 Food Intake by Individuals (CSFII) data  
 suggest that the 5-a-Day program has had  
 a small but steady influence on the overall  
 160 consumption of fruits and vegetables in  
 the U.S. (Potter et al., 2000). The ques-  
 tion therefore is: How could existing and  
 new campaigns targeting fruit and vege-  
 table intake possibly offer communicative  
 165 strategies that would lead to greater  
 changes in the fruit and vegetable intake  
 in the population? This article offers  
 a psychographic approach to profiling  
 fruit and vegetable consumption,  
 170 constructing a descriptive narrative of  
 the behavior. The goal of this endeavor is  
 to assist developers of 5-a-Day campaigns  
 in message targeting by constructing  
 a profile of fruit and vegetable  
 175 consumption.

**A PSYCHOGRAPHIC APPROACH**

Psychographic factors are related to  
 the activities, interests, and opinions of  
 consumers and are typically clustered  
 together to construct the narrative of the  
 180 consumer segment (Dutta & Youn, 1999;  
 Dutta-Bergman, 2004; Maibach, Maxfield,  
 Ladin, & Slater, 1996). Traditionally,  
 psychographic variables have been found  
 to exert significant influences on different  
 185 consumption activities in the realm of  
 commercial marketing, thus offering  
 guidelines for the construction of cam-  
 paign strategy (Townsend, 1987). For  
 many marketers, a comprehensive set of  
 190 psychographic factors including activities,  
 interests, and opinions are often more  
 effective than demographics in under-  
 standing consumer behavior and in  
 constructing communication strategy for  
 195 campaigns (Bellenger & Valencia, 1982;  
 Heath, 1996; Maibach et al., 1996; Riche,  
 1989; Townsend, 1987).

The central theoretical notion here  
 is cognitively oriented and is based on  
 200 the premise that individuals maximize  
 the consistency among their attitudes  
 directed at different objects (product  
 categories and brands) and issues  
 (Dutta & Youn, 1999). According to the  
 205 cognitive framework of lifestyle study  
 suggested by Grunert, Bruns and Bisp  
 (1997), cognitive structures are made of a  
 system of cognitive categories, their  
 associations, and scripts (Grunert et al.,  
 210 1997). These cognitive categories and  
 their associations result from lifelong  
 learning and manifest themselves in  
 enduring dispositions to behave, creating  
 repositories of related activities, inter-  
 215 ests, and opinions that get enacted within  
 a particular cognitive mind frame or are a  
 part of specific cognitive categories and  
 associations (Dutta & Youn, 1999; Shrum,  
 McCarty, & Lowrey, 1995; Swenson &  
 220 Wells, 1995).

## HEALTH ORIENTATION

A key component in the explanation of health behaviors, health orientation taps into the systematic differences within the population with respect to the level of motivation consumers feel in issues of health (Burns, 1992; Dutta-Bergman, 2004; Janz & Becker, 1984; MacInnis, Moorman, & Jaworski, 1991; Maibach et al., 1996; Moorman & Matulich, 1993; Park & Mittal, 1985). Health orientation is reflective of the degree of interest consumers have in issues related to health. Drawing upon the impressive body of research on the roles of motivation and ability in shaping human consumer behavior, Moorman and Matulich (1993) proposed that health orientation taps into the motivation component in the realm of health-related behaviors. An indicator of the consumers, overall interest in issues of health, health orientation demonstrates the extent to which the consumer is intrinsically involved in health-related issues. It is important to note that health orientation is conceptualized as an intrinsic interest rather than an interest that is prompted by situational factors in the environment of the consumer. The greater this intrinsic interest in health-related issues, the stronger the likelihood of engaging in a plethora of health-related behaviors (Burns, 1992; Janz & Becker, 1984; MacInnis, Moorman, & Jaworski, 1991; Moorman & Matulich, 1993; Park & Mittal, 1985).

Motivation in health-related issues taps into the overall orientation toward health rather than serving as an indicator of one particular set of health behaviors. Extant research points out three distinct segments of the population in the realm of health orientation. Whereas some individuals show a positive orientation toward health, others demonstrate a

neutral stance. Yet others report a negative orientation. In their model of preventive health behaviors of consumers, Moorman and Matulich (1993) articulate that the motivation to be healthy is indicative of the extent to which an individual is willing to take care of his/her health, defining health orientation as "a goal-directed arousal to engage in preventive health behaviors" (Moorman & Matulich, 1993, p. 210). Therefore, health orientation triggers a wide variety of healthy behaviors that are intertwined by this commitment toward maintaining one's health, given the ability of the consumer to engage in these behaviors based on accessibility to resources, behavioral skills, self-efficacy, response efficacy, etc.

Published scholarship on consumer processing of information and subsequent decision making points out that motivation triggers an individual's intrinsic interest in a particular issue or topic, thus leading to active engagement in cognitions and behaviors related to the specific issue or topic (Bloch, 1984; Petty & Cacioppo, 1986). In other words, motivation activates consumer engagement in information processing, decision making, and adoption of behavioral choices that are in line with the particular issue/topic being considered. A high level of motivation increases the attention paid by the individual to relevant information and the comprehension of such material. Extrapolation of motivation to the realm of health suggests that a health-motivated consumer actively participates in health-related issues and actively searches out relevant health information, provided the presence of other factors such as accessibility of resources, proper behavioral skills, etc. (Ardell, 1977; Bloch, 1984; Celsi & Olson, 1988; Kraft & Goodell, 1993; MacInnis et al., 1991; Moorman &

315 Matulich, 1993; Park & Mittal, 1985). One  
of the critical aspects of the motivation-  
based model is its emphasis on the con-  
sumer's interest in health as a global  
construct instead of narrowing down on a  
certain aspect of health.

320 In developing their model of con-  
sumer health behavior, Moorman and  
Matulich (1993) pointed out the lack of a  
comprehensive model of consumer health  
behavior in the existing literature. Much  
325 of the existing research, theorization, and  
application development on healthy  
behaviors have selected a particular  
behavior and examined the correlates of  
that behavior in developing interventions  
330 (such as healthy eating). In doing so,  
much of the published scholarship has  
taken an episodic approach (that focuses  
on a single, isolated behavior without  
connecting it to other behaviors) to the  
335 study of health behaviors, isolating them  
in separate categories and treating  
them as independent entities.

This project seeks to question  
the treatment of health behaviors as  
340 episodic entities and instead locate them  
in the realm of a general orientation  
toward issues of health: health orienta-  
tion. The fundamental theoretical premise  
offered here is that an overall orientation  
345 toward making healthy choices and being  
actively involved in issues of health  
manifests itself in a plethora of health  
behaviors. Therefore, an overall orienta-  
tion toward being healthy is likely to be  
350 correlated with a stronger orientation  
toward eating fruits and vegetables. The  
manifestation of health orientation in  
healthy eating behaviors may be examined  
at attitudinal, cognitive, and behavioral  
355 levels, and result in the following  
hypotheses:

H1: Health orientation will positively  
predict attitude toward eating fruits  
and vegetables.

H2: Health orientation will positively 360  
predict behavioral intention toward  
eating fruits and vegetables.

H3: Health orientation will positively  
predict the consumption of fruits and 365  
vegetables.

In addition to the positive relation-  
ship of health orientation with fruit and  
vegetable consumption, it may also be  
argued that the consumption of fruits and  
vegetables will be interlinked with a range 370  
of other preventive behaviors (Maibach  
et al., 1996). In addition, fruit and  
vegetable consumption may be expected  
to be negatively related with those  
behaviors that reflect an unhealthy 375  
orientation. Underlying this framework is  
the notion of inter-correlations among  
disparate health-oriented behaviors,  
driven by an underlying health  
orientation. Hence, the following 380  
hypotheses are proposed:

H4: Fruit and vegetable consumption will  
be positively related with exercising.

H5: Fruit and vegetable consumption will  
be positively related with healthy 385  
eating.

H6: Fruit and vegetable consumption will  
be negatively correlated with alcohol  
consumption.

For this project, two different studies 390  
were conducted, using two different  
datasets collected over two different  
time frames. The use of these two differ-  
ent datasets that draw from two different  
populations was based on the rationale 395  
that the use of these diverse populations  
to test the hypotheses would lead to the  
convergent validity of the project.  
Whereas study one dealt with a student  
sample to study the link between health 400  
orientation and fruit and vegetable con-  
sumption, study two built on study one to

examine the existence of correlations  
among disparate health behaviors within  
405 the broader population.

## STUDY ONE

### DATA AND MEASURES

To test hypotheses one through three,  
data were gathered from 246 college  
410 students enrolled in a large Midwestern  
university who participated in exchange  
for extra credits in the fall and spring of  
2001. After signing an informed consent  
form, subjects were asked questions about  
415 their attitudes, interests, opinions, and  
behaviors related to a plethora of health  
issues including fruit and vegetable  
consumption. The mean age of the  
sample was 20.68 (2.63). The sample was  
420 comprised of 43% men and 57% women.

#### Attitude Toward Fruits and Vegetables

According to Ajzen & Fishbein  
(1974), overall attitude toward an  
object/issue is built upon two elements:  
425 the belief-based component and the nor-  
mative component. Belief-based attitude  
toward fruit and vegetable consumption  
was measured by the summation of the  
products of the beliefs and feelings of the  
430 respondents regarding the beliefs (see  
Ajzen & Fishbein, 1974; O'Keefe, 2002;  
Potter et al., 2000 for attitude measures  
specific to fruit and vegetable consump-  
tion). The beliefs were measured by 15  
435 items such as "Eating fruits and vege-  
tables will lead to better body image,"  
"Eating fruits and vegetables will lead to  
lower risk of cancer," "Eating fruits and  
vegetables will lead to a healthier physical  
440 appearance," etc. measured on a 1 to 7  
scale with 1 reflecting "extremely unli-  
kely" and 7 reflecting "extremely likely" in  
response to the instruction, "Please indi-  
cate the extent to which you think that  
445 the consumption of fruits and vegetables  
is likely to lead to the following

outcomes." Fifteen affective measures  
toward the beliefs such as "Greater  
enjoyment of food is important," "Lower  
risk of heart attack is important," etc. 450  
were measured on a 1 to 7 scale with 1  
reflecting "not at all important" and 7  
representing "highly important" in  
response to the question, "How important  
are the following outcomes to you?" The 455  
normative component of the attitude  
was also measured by probabilistic and  
evaluative components measured with  
respect to items such as "approval of my  
doctor," "approval of my family," and 460  
"approval of my friends." The overall  
attitude toward fruits and vegetables  
was measured by the summation of the  
belief-based and normative components.

#### Behavioral Intentions Toward Fruits and Vegetables 465

Behavioral intention toward fruit and  
vegetable consumption was measured by  
the items, "I intend to eat fruits and  
vegetables," "I am likely to eat fruits and 470  
vegetables," and "I will try to eat fruits  
and vegetables" borrowed from extant  
scholarship (see Dutta-Bergman, 2003a)  
and measured on a 1 to 7 scale. Principal  
component factor analysis with Varimax 475  
rotation produced a single factor with  
loadings ranging from .88 to .95, and the  
Eigenvalue of the factor was 2.59. Cron-  
bach's alpha of the scale was high (.92).  
The items were aggregated to produce the 480  
behavioral intention scale.

#### Fruit and Vegetable Consumption

The actual intake of fruits and vege-  
tables was drawn from published scholar-  
ship that measures fruit and vegetable 485  
consumption (Potter et al., 2000). Seven  
items such as "100% orange juice or  
grapefruit juice," "100% fruit juices, not  
counting fruit drinks," "servings of vege-  
tables, not counting salads or potatoes," 490  
etc. were used to measure fruit and

vegetable consumption on a 1 to 9 scale with 1 reflecting "never," and 9 reflecting "5 times per day." Participants were provided the following instruction: "In this section, you will be asked about your typical consumption of fruits and vegetables . . . Remember, a serving is a "helping," or what you are usually served at home."

**Demographics**

The two key demographic variables measured in this study were age and gender. Participants were asked to report their exact age. Also, they were asked to report whether they were male or female. Given the limited variance in income and education within this population, these variables were omitted from the study.

**Health Orientation**

Health orientation was measured by six items borrowed from existing literature (Dutta-Bergman, 2004). The items were "I think a lot about my health," "I try to do things to stay healthy," "I actively look for health information," "I actively seek the most recent information about health," "I consider myself to be knowledgeable about health issues," and "My health is important to me." When

subjected to a principal component factor analysis with Varimax rotation, a single factor emerged with Eigenvalue greater than 1. The Cronbach's alpha of the scale was .88. The items were aggregated to generate the health orientation scale.

**RESULTS**

H1 through H3 predicted the relationship between health orientation and attitudinal, cognitive, and behavioral outcomes associated with health orientation. In order to test the hypotheses, separate regression analyses were conducted. In order to control for the effect of demographic variables, these variables were entered into the first block and the health orientation variable was entered into the second block. Gender was related with attitude toward eating fruits and vegetables, such that women were more likely to hold a stronger attitude as compared to men. H1 stated that health orientation will positively predict attitude toward eating fruits and vegetables (see Table 1); the hypothesis was supported by the data, with health orientation being positively correlated with attitude toward eating fruits and vegetables.

H2 predicted that health orientation will be positively related with behavioral

**TABLE 1**  
**Hierarchical Multiple Regression Explaining Attitude toward Fruit and Vegetable Intake**

Attitude toward Fruit and Vegetable Intake		
	Final Beta	R <sup>2</sup>
Demographics		.058***
Gender	.23***	
Age	.09	
Health Orientation	.33***	.110***
Total R <sup>2</sup>		.168***

\*\*\*p < .001

**TABLE 2**  
Hierarchical Multiple Regression Explaining Behavioral Intention toward Fruit and Vegetable Intake

Behavioral Intention of Fruit and Vegetable Intake		
	Final Beta	R <sup>2</sup>
Demographics		.017
Gender	.13***	
Age	.04	
Health Orientation	.30***	.087***
Total R <sup>2</sup>		.104***

\*\*\* $p < .001$

550 intention toward eating fruits and  
vegetables. The hypothesis was supported  
by the data, demonstrating that above  
and beyond the demographic variables,  
health orientation explained additional  
555 variance in behavioral intention toward  
fruits and vegetables (see Table 2). In  
addition, women were more likely to  
hold stronger behavioral intentions  
toward fruit and vegetable intake as  
560 compared to men.

H3 posited that health orientation  
will positively predict the consumption of

fruits and vegetables. The regression  
analysis was conducted with fruit and  
vegetable consumption as the dependent 565  
variable; demographic variables and  
health orientation were entered as inde-  
pendent variables (see Table 3). Health  
orientation was positively related with  
fruit and vegetable consumption, demon- 570  
strating support for the hypothesis.

In summary, health orientation was a  
strong positive predictor of attitude,  
behavioral intention and self-reported  
behavior with respect to fruit and 575

**TABLE 3**  
Hierarchical Multiple Regression Explaining Fruit and Vegetable Intake

Fruit and Vegetable Intake		
	Final Beta	R <sup>2</sup>
Demographics		.001
Gender	.02	
Age	.02	
Health Orientation	.27***	.069***
Total R <sup>2</sup>		.070***

\*\*\* $p < .001$

vegetable consumption. Study two built on study one to examine the existence of inter-correlations among diverse health behaviors driven by an overall health orientation.

## STUDY TWO

### DATA AND MEASURES

LifeStyle data gathered by DBB Needham were used for the second part of the study to examine the correlation among health behaviors. Having been used and validated in a large number of studies, the LifeStyle data are nationally representative (see Dutta & Youn, 1999 for details). Five thousand questionnaires were mailed to the panel members in the spring of 1995. A total response of 3,613 responses were received and served as the database of the study. The response rate was 72.26%, which is acceptable for a consumer panel mailing (see Dutta-Bergman, 2003b, 2004). Respondents in the database varied in ages from 18 to 91. The mean age was 47.80. The sample was comprised of 45.7% men and 54.3% women; 79.8% Whites, 9.6% Blacks, 7.7% Hispanics, and 2.9% others.

### Fruit and Vegetable Consumption

The consumption of fruits and vegetables was measured by a single item, "the number of servings of fruits and vegetables you ate/drank yesterday."

### Demographics

Age was measured by a single item that simply asked the respondent to report his/her exact age in number of years. Respondents reported their gender on a single-item dichotomous variable that asked them whether they were male or female. Education was measured by a single item, "education level of respondent." The scale ranged from 1 to 7 with 1 representing "attended elementary," 2

representing "graduated from elementary," 3 representing "attended high school," 4 representing "graduated high/trade school," 5 representing "attended college," 6 representing "graduated college," and 7 representing "post-graduate school." Finally, income was measured by the question, "Last year, that is in 1994, what was your total family income from all sources, before taxes?" The item was measured on a 1 to 8 scale with 1 representing "less than \$10,000," 2 representing "\$10,000 to \$20,000," 3 representing "\$20,000 to \$30,000," 4 representing "\$30,000 to under \$40,000," 5 representing "\$40,000 to under \$50,000," 6 representing "\$50,000 to under \$75,000," 7 representing "\$75,000 to under \$100,000," and 8 representing "\$100,000 or more."

### Health Orientation

Health orientation comprised three components: healthy eating, exercising, and alcohol consumption (see Table 4). Eighteen items representing the three dimensions were identified from the Activities-Interests-Opinions section of the Lifestyle data. Each of these items was measured on a 1 to 6 scale ranging from "definitely disagree," to "definitely agree." The items were subjected to a Principal Axis factor analysis with Varimax rotation. Three factors with Eigenvalues greater than 1 were generated, representing each of the three components of health orientation.

## RESULTS

H4 through H6 hypothesized the relationship between fruit and vegetable consumption and a plethora of health-related activities. To test these hypotheses, a regression analysis was conducted. Demographic variables were entered into the first block, and the health-related

**TABLE 4**  
Factor Loadings and Reliabilities of Health Orientation Measures

Factor	Item	Loading	Eigen value	Cronbach's Alpha
1	<b>Healthy Eating</b>		5.59	.89
	Try to avoid foods that are high in fat	.76		
	Try to avoid foods that are high in cholesterol	.75		
	Nutrition information determines what I buy	.67		
	Make a special effort to get enough fiber	.66		
	Am concerned about how much sugar I eat	.66		
	Try to avoid foods with a high salt content	.64		
	Try to select food fortified with vitamins	.62		
	Use a lot of low calorie products	.60		
	Try to avoid foods with high additives	.59		
	Careful what I eat to keep weight in control	.55		
	Am concerned about getting enough calcium	.55		
2	<b>Alcohol Consumption</b>		2.90	.74
	Had a cocktail or drink before dinner	.91		
	Went to a bar or tavern	.58		
	Had wine with dinner	.55		
3	<b>Exercising</b>		1.53	.60
	Exercised at home	.62		
	Walked more than 1 mile for exercise	.52		
	Jogged	.45		
	Rode a bicycle	.41		

variables were entered into the second block (see Table 5). Gender, education, and age were positively correlated with fruit and vegetable consumption such that older, more educated women were more likely to eat fruits and vegetables. According to H4, fruit and vegetable consumption was positively related with exercising, which was supported by the data. The results also supported H5, with healthy eating being positively related with fruit and vegetable consumption. H6 was not supported, with alcohol consumption not significantly related with fruit and vegetable consumption.

## DISCUSSION

Drawing from psychographic research, this article establishes the importance of taking a comprehensive approach to the examination of health behaviors. It argues that health behaviors are inter-related with each other, and these inter-correlations are driven by an underlying commitment to living a healthy life. In other words, an overall orientation toward issues of health drives the formation of healthy attitudes, health-oriented beliefs, and ultimately health-related behaviors such that a plethora of health-related behaviors tend to co-occur within a certain segment of the population.

**TABLE 5**  
**Hierarchical Multiple Regression Explaining Fruit and Vegetable Intake**

Fruit and Vegetable Intake		
	Final Beta	R <sup>2</sup>
Demographics		.084***
Gender	.11***	
Education	.12***	
Age	.24***	
Income	.02	
Health Orientation		.071***
Health Orientation – Exercise	.16***	
Health Orientation – Healthy Eating	.24***	
Health Orientation – Alcohol Consumption	-.01	
Total R <sup>2</sup>		.175***

\*\*\*  $p < .001$

695 Individuals who are oriented toward  
 issues of health are more likely to seek out  
 health-related information and hold  
 positive attitudes toward a wide range of  
 health-related behaviors. This research  
 700 suggests that health behaviors are not  
 episodic entities that exist in distinct  
 categories independent of other health  
 behaviors, as conceptualized by planners  
 of most health campaigns who target and  
 705 focus on a single health behavior.  
 Instead, health behaviors are most likely  
 to exist in interlinked networks, in con-  
 junction with other health behaviors,  
 drawing upon an underlying orientation  
 710 toward health.

More specifically, this article exam-  
 ines the role of health orientation in the  
 realm of attitudes, behavioral intentions,  
 and behaviors related to fruit and vege-  
 715 table consumption. Supporting the notion  
 of an underlying sense of health orienta-  
 tion, the study results pointed out that  
 health orientation was a positive predictor  
 of attitude toward fruit and vegetable

consumption. Similarly, health orienta- 720  
 tion positively predicted behavioral  
 intention with respect to fruit and vege-  
 table consumption. Finally, health orien-  
 tation was a positive predictor of the  
 725 actual consumption of fruits and vege-  
 tables. In all three realms – attitude,  
 intention, and behavior – the consump-  
 tion of fruits and vegetables was driven by  
 an underlying commitment to living a  
 730 healthy life. The percentage of variance in  
 fruit and vegetable consumption  
 explained by health orientation ranged  
 from 6% to 10%, suggesting that the  
 findings of this research are limited. Other  
 components of consumption beyond 735  
 health orientation ought to be explored in  
 future scholarship to further understand  
 the socio-psychological processes under-  
 lying fruit and vegetable consumption.

The second study followed up the link 740  
 between health orientation and fruit and  
 vegetable consumption to study the rela-  
 tionship between fruit and vegetable  
 consumption and other indicators of

745 (un)healthy behaviors. Based on an ana-  
 750 lysis of nationally representative data  
 gathered by DDB Needham, the study  
 pointed out that fruit and vegetable  
 consumption was positively correlated  
 with healthy eating and exercising.  
 Whereas the first part of this study  
 focused on the link between health  
 orientation and fruit and vegetable  
 consumption, the second part of the  
 755 study documented the linkage among  
 a plethora of indicators of health  
 orientation, demonstrating that health  
 behaviors do indeed occur in inter-related  
 groups. These findings suggest the  
 760 importance of adopting a comprehensive  
 approach to health oriented lifestyles in  
 campaign planning. Specific health  
 behaviors need to be located in a  
 contextual environment and treated in  
 765 conjunction with other health behaviors  
 as a lifestyle package.

This study suffers from some critical  
 limitations. In its examination of the  
 relationship between health orientation  
 770 and fruit and vegetable consumption, this  
 research focuses on a student sample.  
 Future scholarship ought to examine the  
 relationship between health orientation  
 and the consumption of fruits and vege-  
 775 tables in other populations. Also, the  
 strong correlations between health ori-  
 entation and the various measures of audi-  
 ence response to fruit and vegetable  
 consumption might have been a product  
 780 of common method bias, social desir-  
 ability bias, or consistency bias. Future  
 research ought to examine actual fruit and  
 vegetable consumption longitudinally and  
 use other measures of healthy behavior  
 785 beyond self-reports. Research may also  
 explore alternative methods such as  
 experimental designs that examine  
 pre-post differences in health orientation  
 after exposure to health campaign  
 790 messages. Also, the offering of extra  
 credit is likely to have introduced

response bias in the student sample. The  
 use of the Lifestyle data for the second  
 part of the study seeks to complement the  
 study sample drawn from the student 795  
 population by providing convergent  
 validity. Since the two studies draw  
 from distinctly different populations,  
 they are likely to provide greater support  
 for the phenomenon under question to 800  
 the extent they reinforce the findings  
 generated from the different populations.  
 The use of different time frames in this  
 project and the existence of the con-  
 sistent health linkages in these distinctly 805  
 different time frames, irrespective of  
 the presence or immediate absence of  
 the 5-a-Day campaign, attests to the  
 global role of health orientation. In the  
 second study, fruit and vegetable con- 810  
 sumption was measured by a single item.  
 Also, the measure was a self-reported  
 indicator of the number of servings of  
 fruits and vegetables consumed. This  
 raises critical questions about the validity 815  
 and reliability of the data. Future efforts  
 may complement the self-reported  
 measures of the behavior with other  
 indicators.

**APPLICATIONS**

820 Most health campaigns such as 5-a-  
 Day focus on individual behaviors as sites  
 of intervention. The findings of this  
 research suggest that in addition to their  
 focus on individual problems and specific 825  
 behaviors (such as fruit and vegetable  
 consumption), campaigns need to target  
 an overall health orientation which  
 underlies attitudes, beliefs, behavioral  
 intentions, and behaviors in specific 830  
 health domains. Based on the example of  
 fruit and vegetable consumption, it may  
 perhaps be argued that the episodic  
 treatment of health behaviors is an  
 important barrier to the achievement of 835  
 successful outcomes because such episo-  
 dic treatment does not treat the entire

- person and does not take a comprehensive look at the range of his/her behaviors. Campaigns need to engage “lifestyle” or an inter-related group of behaviors with the goal of changing overall health orientation in the community. That a lifestyle-based approach does indeed work in generating overall health orientation was documented by Rimal, Flora, & Schooler (1999) in their examination of the Stanford-Five-City Project that addressed a combination of lifestyle factors such as diet, exercising, and smoking. These researchers demonstrated that exposure to the campaign messages indeed generated an increase in health orientation within the community.
- The case of fruit and vegetable consumption examined in this article suggests that locating specific health behaviors in a contextual environment that attends to the other health behaviors engaged in by the consumer provides the recipe for campaigns that are more comprehensive in orientation and trigger a plethora of healthy activities under a broader theme of health orientation. A psychographic approach to healthy behaviors allows the campaign planner to treat the audience member as a whole, emphasizing the lifestyle narrative of the individual receiver in developing the campaign strategy. This also suggests the need for combining health initiatives and launching them within the broader category of lifestyle factors. In other words, the very conceptualization of the “product” in the social marketing mix needs to shift from an individual behavior such as “fruit and vegetable consumption” to a group of inter-related behaviors located under the umbrella of overall health orientation. For instance, the coordinated school health program emphasizes the well-being of K-12 students and seeks to teach students how to make healthy choices (Cho & Nadow, 2004; Greenberg, Cottrel, & Bernard, 2001). The goal of the program is to foster healthy environments at schools that facilitate the development of healthy citizens through the coordination between parents, schools, and communities.
- Implications regarding the “place” of the social marketing interventions might also be drawn from the findings of this project. Instead of solely emphasizing mass media as channels for delivery of the intervention, the findings perhaps suggest the need for community-based approaches that seek to address the global health of citizens at those sites within the communities where citizens spend most of their time. Health-based prevention efforts may focus on cultivating health orientation in schools, colleges, workplaces, and other organizational scenarios as a part of civic development initiatives within communities. Dutta-Bergman (2004) articulates the importance of having comprehensive programs that seek to foster an active sense of overall commitment to health and society as opposed to an emphasis on a single behavior via simple messages that isolate the behavior and remove it from its contextual environment. Based on a holistic approach to health, wellness programs in schools and workplaces that emphasize comprehensive health and attend to the development of the complete healthy person are perhaps likely to foster specific health behaviors by encouraging a global health orientation. In other words, the cultivation of health orientation through comprehensive education programs is likely to ensure the generation of a wide variety of health behaviors.
- The promotional mix for cultivating an overall health orientation needs to include additional strategies beyond the traditional public service advertisements, press releases, and newspaper inserts.

For instance, education needs to be conceptualized as a key component of promoting health orientation in the community. The development of school-based curricula that address a general orientation toward health might provide an effective strategy to reach individuals early in their lifecycle. Physical education classes need to be developed in coordination with nutrition programs, drug resistance workshops, etc. Health needs to be integrated with other aspects of instruction such as civic education and community awareness through service learning projects in schools and colleges. Similarly, workplaces might consider offering workshops that address overall health orientation. Also, multiple stakeholders within the community need to be engaged in order to create a sustainable environment that fosters health orientation.

Yet another component of the social marketing mix that needs to be considered in the promotion of health orientation is the time span of the campaign. Most health campaigns are short lived and die down at the end of the funding period. Health orientation campaigns need to demonstrate continuity instead of embodying the one-shot approach that is often found in the health campaigns literature. Fostering "health orientation" is an investment that has long-term values for society by producing healthy citizens. Therefore, the campaign messages regarding health orientation need to be incorporated into schools and communities through a continuous period of time such that health orientation becomes embedded in community norms. The importance of continuity needs to be addressed by funding agencies that typically fund episodic, individual behavior-driven campaigns that last over short periods of time (Cho & Nadow, 2004).

## ABOUT THE AUTHOR

**Mohan J. Dutta-Bergman, Ph.D.**, is an Assistant Professor of Health Communication and Public Relations at Purdue University, where he teaches undergraduate and graduate courses on strategic communication, health communication campaigns, cross-cultural issues in health communication, and new media applications. Dr. Dutta-Bergman conducts research in the areas of social marketing, culture and health, technology-based applications in health care settings, and psychographic methods.

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