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Reaching Unhealthy Eaters: Applying a Strategic Approach to Media Vehicle Choice

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Founded upon the argument that unhealthy eaters need to be reached through strategic choices that are driven by adequate formative research, this article examines the media consumption patterns of unhealthy eaters. Based on an analysis of the 1999 Lifestyle data, the article points out that healthy and unhealthy eaters differ systematically in their media choices. While television news is the most effective channel for reaching healthy eaters, television sports and entertainment-oriented Internet are the two major media categories consumed by the unhealthy eater. Also, healthy eaters are more likely to be drawn to print media, suggesting that print-based healthy eating campaigns are unlikely to reach the at-risk group. The article recommends the exploration of alternative entertainment-oriented channels and content strategies to effectively reach the unhealthy eater.

An improvement in what consumers eat is pivotal to the prevention of disease and to the optimization of productivity in the United States (Dutta & Youn, 1999; Frazao, 1995). Although an exponentially growing number of healthy eating campaigns have been launched in the last few years (Albrecht & Bryant, 1996; Dutta & Youn, 1999; Maibach, Maxfield, Ladin, & Slater, 1996; Swenson & Wells, 1995), the American society is plagued by population gaps between healthy and unhealthy consumers (Viswanath & Finnegan, 1995; Viswanath, Finnegan, Hannan, & Luepker, 1991). Clearly, unhealthy eaters need to be reached through strategic campaigns that are informed by adequate formative research. Based on the social marketing model of audience segmentation

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(Andreasen, 1997; Dutta & Youn, 1999; Kotler & Roberto, 1989; Swenson & Wells, 1995), this article examines the media consumption patterns of unhealthy eaters and suggests strategic media delivery choices for social marketers working on changing diet-related behavior.

Typically, health communicators send out messages to everyone through mass media, assuming that the per-person costs of mass media are low (Dutta & Youn, 1999). Much of the media-based elements of existing health campaigns have primarily focused on the use of the print medium (Farquhar et al., 1985; Potter et al., 2000; Schooler, Chaffee, Flora, & Roser, 1998). By demonstrating the media consumption patterns of unhealthy eaters, this article argues that the choice of print advertisements and print news stories to generate campaign awareness misses the at-risk target population—the unhealthy eater. Using the concept of "reach," this article articulates that inappropriate targeting lies at the heart of the increasing knowledge and behavioral gaps between healthy and unhealthy eaters noted across multiple campaigns (Schooler et al., 1998).

To help campaign planners better place their messages on media outlets, the study directly addresses the media consumption patterns of unhealthy eaters (Dutta & Youn, 1999; Swenson & Wells, 1995). Building on previous research on unhealthy eating (Dutta & Youn, 1999; Maibach et al., 1996), it identifies demographic and trait-level reflectors of the unhealthy eater and answers the fundamental question: *Who is the unhealthy eater?* Subsequently, it develops a theoretical framework for the media consumption of the unhealthy eater based on these underlying demographic and trait-level constructs.

INDIVIDUAL DIFFERENCE VARIABLES UNDERLYING UNHEALTHY EATING

Demographic Variables

Demographic variables play a key role in explaining consumers' healthy eating behaviors (Andersen & DiDomenico, 1992; Dutta & Youn, 1999). In a study conducted by Dutta and Youn (1999), age, gender, education, and income cumulatively explained the16% variance in healthy eating. Past research has demonstrated that age has a positive effect on health consciousness and interest in nutrition (Dutta & Youn, 1999; Kearney, Kelly & Gibney, 1998; Lahmann & Kumanyika, 1999). Dutta and Youn (1999) observed a final β of .24 in the realm of age and healthy eating. In Dutta and Youn's (1999) study,($\beta = .24$) gender emerged as yet another variable that is strongly associated with healthy eating (ADA Report, 1997; Dutta & Youn, 1999). Women are more likely to engage in healthy eating and health-related information gathering than men (Dutta and Youn, 1999; Neumark-Sztainer, Story, Resnick, and Blum, 1998, 1996). Also, engagement in healthy eating behavior increases with an

increase in the level of education and income of the respondent (Dutta & Youn, 1999; Neumark-Sztainer et al., 1998, 1996).

Trait-Level Variables

In addition to the traditional demographic variables, extant research points out important trait-based variables that are associated with unhealthy eating. Risk taking has been typically found to be positively correlated with unhealthy eating practices (Maibach et al., 1996; Swenson and Wells, 1995). Unhealthy eaters are more likely to seek out sensory gratification than healthy eaters (Maibach et al., 1996; Swenson and Wells, 1995); they are also likely to hold liberal attitudes toward high-risk sexual activity (Dutta & Youn, 1999; Neumark-Sztainer et al., 1998, 1996), providing further evidence for their sensation seeking orientation. The demographic and trait-level variables discussed here will be introduced into the media choice framework to build hypotheses for the media consumption of the unhealthy eater.

MEDIA USE FRAMEWORK

This article explores the underlying demographic and trait-level variables that predict healthy eating to construct a media use narrative. Underlying the proposed hypotheses is the concept of selective exposure, articulating that individuals accomplish certain goals through their consumption of media (Zillman & Bryant, 1985). Selective exposure theory is founded on the proposition that individuals orient their attention to specific stimuli in their environment (Zillman & Bryant, 1985). Exposure is defined as "an act of choice in which an individual selects from a range of possible activities or messages" (Webster & Wakshlag, 1985, p. 37). Selective exposure theory is typically placed within a social psychological framework, suggesting that a person's predisposition to act a certain way interacts with his or her situation to produce the exposure to particular media activities.

The role of audience predisposition in media choice has been extensively investigated in the domain of audience exposure to violent television material (Atkin, 1973, 1985; Atkin, Greenberg, Korzenny, & McDermott, 1979). In support of the notion of audience selectivity in program choice, study results indicate that individual aggressiveness is associated with the viewership of violent television programming (Atkin, 1985; McIntyre & Teevan, 1972; Robinson & Bachman, 1972). Selective exposure effects documenting the link between a particular predisposition and the exposure to media content that matches the disposition are also observed in the area of prosocial behavior (Atkin, 1985). Additional support for the observation that audience members have a tendency to find media content that matches their orientation comes from the domain of political and moral values

(Atkin, 1973, 1985; Mashkin & Volgy, 1975). In all these cases, individuals choose media stimuli that match their existing values, beliefs, and dispositions.

Selective exposure effects may also be expected in the domain of healthy eating based on a match between the underlying traits and the media vehicles that are consumed. It may be argued that healthy and unhealthy eaters, based on their respective demographic and trait-level identifiers, will have different psychological motivators for media use, and will consume different forms of media to satisfy different goals. The next section will address the media use pattern of unhealthy eating consumers.

Media Usage Pattern of Unhealthy Eaters

Unhealthy eaters are younger than their healthy eating counterparts (Dutta & Youn, 1999). While older consumers tend to consume more print-based media, younger consumers are more likely to consume radio, television and the Internet (Shah, McLeod, & Yoon, 2001; Simmons, 1998; Stempel, Hargrove, & Bernt, 2000). Also, entertainment-oriented media vehicles draw younger consumers in comparison to the information-based media vehicles that draw older consumers (Dutta, 2000; Simmons, 1998; Stempel, Hargrove, & Bernt, 2000).

The literature discussed in the earlier section also points out that unhealthy eaters have lower education levels than healthy eaters. Once again, the media literature provides clear guidelines about the impact of education on media consumption. Less educated consumers are less likely to consume print media as compared to their more educated counterparts (Anderson, Meissner, & Portnoy, 1989; Moorman & Matulich, 1993; Stempel, Hargrove, & Bernt, 2000). However, they are more likely to be drawn to television. While education is positively correlated with the consumption of information-oriented media, it is negatively associated with entertainment-oriented media (Anderson et al., 1989; Moorman & Matulich, 1993). The observation that unhealthy eaters are sensation seeking and harbor liberal attitudes toward sex-related issues further supports the notion that unhealthy eaters would consume entertainment-oriented media and media containing sex (Dutta & Youn, 1999; Maibach et al., 1996; Swenson & Wells, 1995). Linking the underlying demographic and trait-level identifiers of unhealthy eating with the media consumptions of these identifiers suggests the following hypothesis regarding the media choices of unhealthy eaters:

H1. Healthy eating will be positively related with the consumption of print media.
H2. Healthy eating will be negatively related with the consumption of television.
H3. Healthy eating will be negatively related with the consumption of radio.

H4. Healthy eating will be negatively related with the consumption of the Internet.
H5. Healthy eating will be positively related with the consumption of information-oriented media.
H6. Healthy eating will be negatively related with the consumption of entertainment-oriented media.

Gender is yet another underlying dimension that has a significant effect on unhealthy eating. Men are more likely to eat unhealthily than are women (Dutta & Youn, 1999; Swenson & Wells, 1995). Extending this demographic marker to the media choices of unhealthy and healthy eaters suggests that unhealthy eaters will consume male-oriented media vehicles to a greater extent than healthy eaters (Atkin, 1973; Atkin, 1985; Zillman & Bryant, 1985). On the other hand, healthy eaters will consume female-oriented media vehicles more than unhealthy eaters. Finally, selective exposure theory would suggest that healthy eaters, based on their greater levels of involvement in health issues (Moorman & Matulich, 1993), would seek out health-oriented media (containing health information) more than unhealthy eaters.

H7. Healthy eating will be negatively related with the consumption of male-oriented media.
H8. Healthy eating will be positively related with the consumption of female-oriented media.
H9. Healthy eating will be positively related with the consumption of health-oriented media.

METHOD

Data

The 1999 DDB Needham Lifestyle Study conducted by Market Facts and sponsored by DDB Needham, (DDB Needham, 1999) an annual standing-panel mail survey, was used for this study. The DDB Needham Lifestyle surveys have been used in multiple studies (see for instance Dutta & Youn, 1999; Maibach et al., 1996; Shah et al., 2001) and have been validated against the General Social Survey and Roper Poll (Shah et al., 2001). After initially acquiring the names and addresses of a large number of Americans from commercial list brokers, Market Facts sent out letters to list members asking them for their willingness to participate and requesting basic demographic information. Demographically balanced samples were then drawn from the more than 500,000 people that agreed to participate. The sample was drawn to approximate actual distributions within the 9 census divisions of household income,

population density, panel member's age, and household size (Shah et al., 2001). Usable data were provided by 3,388 (67.76% response rate) individuals. The sample was weighted to compensate for nonresponse and self-selection and to match the demographic composition of the U.S. population. The sample was constituted of 1,527 males and 1,861 females. The mean age of the sample was 48.25 (*SD* = 16.08). The sample comprised of 2,688 (79.3%) Whites, 338 Blacks (10%), 257 (7.6%) Hispanics, and 105 (3.1%) respondents from other races.

Factor Analysis of Healthy Eating

Ten items reflecting healthy eating were measured on a 1 to 6 Likert-type scale, 1 reflecting strongly disagree and 6 reflecting strongly agree. The ten items were factor analyzed using principal components analysis, with a Varimax rotation (see Table 1). This analysis yielded a single factor with an Eigenvalue of 4.67. The factor accounted for 46.7% of the variance, with factor loadings ranging from .57 to .79. The scale had a high reliability with a Cronbach's alpha of .87. Aggregated scores were used for the analysis. The mean healthy eating score of the sample was 3.70 (*SD* = 1.02) and the variable reported a normal distribution.

Media Use

Overall media use was measured by the question "How much time do you spend on each of the following media on an average day?" Responses ranged from 1 through 6, 1 representing "don't use," 2 representing "less than 30 min," 3 representing "30 min to one hr," 4 representing "1 to 2 hr," 5 representing "3 to 4 hr," and 6 representing "5+ hr." Time spent was measured for TV, magazine, newspaper, and Internet. Specific media vehicle choice was measured by dichotomous "Yes/No" responses to items representing individual newspapers, newspaper sections, maga-

TABLE1
Healthy Eating Single Factor Structure

Items	*Factor loading*
I try to avoid foods that are high in fat.	.79
I try to avoid foods that are high in cholesterol.	.79
I try to avoid foods with a high salt content.	.69
I am concerned about how much sugar I eat.	.69
I make a special effort to get enough fiber in my diet.	.68
I use a lot of low calorie or calorie reduced products.	.67
I try to select foods that are fortified with vitamins and minerals.	.66
I am careful about what I eat in order to keep my weight under control.	.65
I try to avoid foods that have additives in them.	.61
I am concerned about getting enough calcium in my diet.	.57

Note. Variance = 46.7 %. α = .87.

zines, and television programs. The following instruction was provided: "Below is a list of media vehicles. Please 'X' each vehicle that you read/watch/listen to most or all issues of." Individual media categories were aggregated scores of the media vehicles consumed within that category.[1]

Print information readership was measured by three items (news section, business section, and editorial section) and thus the index ranged from 0 ("does not read any of the information sections") to 3 ("reads all three sections measured"). Print entertainment readership was measured by four items (such as sports and entertainment sections). The readership of four magazines (such as *Business Week*, *Newsweek*, etc.) was aggregated to build the information-oriented weekly magazine readership; four magazines (*Sports Illustrated*, *Entertainment Weekly*, etc.) constituted entertainment-oriented weekly magazine readership. Male-oriented magazine readership was aggregated from four items (such as *Playboy* and *Penthouse*) while female-oriented magazine readership was measured by twelve items (including *Better Homes and Gardens*, *Family Circle*, etc.). Health media readership was measured by the readership of *Health* and *Prevention*.

Information-oriented television viewership was measured by five items (including evening network news, local news, etc.); sports viewership was comprised of four items (such as Monday night pro football, auto racing, etc.). Five items (including prime-time movies and mini-series) were added to measure movie viewership; fifteen items (for instance, *NYPD Blue*, *Party of Five*, *Chicago Hope*, etc.) constituted drama viewership; and twenty items (such as *Friends*, *Frasier*, *The Simpsons*, and *Mad About You*) measured comedy viewership. Information-based Internet use was measured by four items (for instance, searched for information before making a purchase, searched for information for business reasons) and entertainment-based Internet use was measured by two items (explored an interest or hobby and played a game).

RESULTS

H1–H4 posited the relationships between the consumption of specific media types and healthy eating. To test the hypotheses, a regression analysis was conducted with all the media use variables being entered into one block.[2] Media use explained 5.3% of the variance in healthy eating. Supporting H1, the results

[1]Individual items in each of the media categories have not been listed here to save space. These items may be requested from the author.

[2]Unlike traditional regression analyses conducted in media use studies, demographic variables were not introduced into the first block because the emphasis of this research was on identifying the relationship of media use with healthy eating. Demographic variables were integral to the development of hypotheses based on the argument that demographics underlie the expression of consumer choices in the realms of both healthy behaviors and media use. Therefore, introducing demographics into the regression analysis would have weakened the relationships observed between media use and healthy eating.

demonstrated that healthy eating was positively related with the consumption of both newspapers (β = .09; $p < .001$) and magazines (β = .18; $p < .001$). H2 was also supported with healthy eating being positively correlated with television consumption (β = –.06; $p < .001$). The results pointed out that healthy eaters were less likely to spend time listening to the radio (β = –.03; $p < .10$), supporting H3. H4 was also supported with healthy eating being negatively correlated with Internet use (β = –.04; $p < .01$).

While H5 posited a positive correlation between healthy eating and the consumption of information-oriented media, H6 posited a negative relationship between healthy eating and entertainment-media use. To test the hypotheses, a regression analysis was conducted, with the media consumption variables entered in a single block (see Table 2). Supporting H5, the results demonstrated that the utilitarian use of the information section of newspapers, information-oriented weeklies, and information-oriented television was positively correlated with healthy eating. Also, the use of the Internet for the purposes of gathering information was positively correlated with healthy eating. In the domain of the readership of entertainment sections of newspapers, H5 was not supported, with readers of the entertainment sections being more likely to eat healthy than nonreaders. However, partially supporting H6, it was observed that the viewership of television sports was negatively related with healthy eating. In the domain of Internet use, H6 was sup-

TABLE 2
The Relationship Between Information or Entertainment Media Use and Healthy Eating

	Healthy Eating Behavior	
Independent Variables	*Final Beta*	R^2
Print		
Information	.05**	
Entertainment	.10***	
Weekly Magazine		
Information	.05*	
Entertainment	.03	
Television		
Information	.15***	
Sports	–.15***	
Movies	–.00	
Drama	.03	
Comedy	–.08***	
Internet		
Information	.072***	
Entertainment	–.12***	.102***

*$p < .05$. **$p < .01$. ***$p < .001$.

ported, with a negative correlation between the use of the Internet for entertainment purposes and healthy eating.

H7 and H8 dealt with the differences in healthy eating in the realm of male and female-oriented media. The regression analysis revealed that the consumption of male-oriented magazines ($\beta = -.03$; $p < .05$) and sports television ($\beta = -.08$; $p < .001$) was negatively related with healthy eating, providing support for H7. Readers of women's magazines ($\beta = .20$; $p < .001$) and viewers of drama ($\beta = .03$; $p < .05$) are more likely to eat healthy than nonreaders and nonviewers, thus supporting H8. To test H9, a correlation analysis was conducted. Supporting the hypothesis, the readership of health media was positively correlated with healthy eating, $\beta = .20$, $p < .01$.

Finally, Table 3 presents a regression analysis of all media vehicles on healthy eating. The media vehicles together explained 13.7% of the variance in healthy eating. The viewership of television news, and readership of health and monthly women's magazines were the strongest positive predictors of healthy eating. Entertainment-oriented print media consumption and information-based Internet use also positively predicted healthy eating. Unhealthy eating, however, was most

TABLE 3
Hierarchical Multiple Regression
Explaining Healthy Eating

	Healthy Eating Behavior	
Independent Variables	*Final Beta*	R^2
Print		
Information	.03†	
Entertainment	.09***	
Weekly magazine		
Information	.03†	
Entertainment	–.02	
Women's magazines	.12***	
Men's magazines	–.02	
Television		
Information	.14***	
Sports	–.12***	
Movies	–.006	
Drama	.02	
Comedy	–.08***	
Internet		
Information	.08***	
Entertainment	–.12***	
		.137***

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

strongly related to the use of the Internet for entertainment purposes followed by the viewership of sports and comedy on television.

DISCUSSION

Targeting the at-risk target population is quintessential to the success of a health communication campaign. This article applies that philosophy to suggest media, content, appeal, and delivery strategies for campaigns targeting unhealthy eaters. H1 was supported, raising critical questions about the media delivery choices of traditional healthy eating campaigns. While print-based news stories and print advertisements are most often used for diet and nutrition campaigns, these channels are consumed to a lesser extent by unhealthy eaters (Potter et al., 2000). Therefore, the members of the at-risk target groups remain unexposed to the healthy eating message. Because exposure is the first step to behavior change (McGuire, 1974), media-based elements of campaigns often fail in inducing behavioral changes among unhealthy eaters primarily because of their inability to reach the appropriate target audience. The significantly greater unhealthy eating practices of the nonreader of print media suggests that campaigns targeting the unhealthy eating behaviors of at-risk populations should perhaps put less emphasis on the use of the print media.

H2, H3, and H4 were also supported, showing that television, radio, and the Internet could be effectively harnessed for message placement in campaigns promoting healthy eating. In the realm of specific media vehicles, H5 was also supported, showing that consumers of information-based media are more likely to be healthy eaters than nonconsumers. Healthy eaters are more likely to read newspapers, news sections, and information-based magazines than unhealthy eaters. This contradicts the traditional use of news and information-oriented channels such as press conferences, press releases, feature stories, and media kits to get the information out to the public (see for instance the REACT campaign at www.epi.umn.edu/react; Potter et al., 2000). Much of the media budget of healthy eating campaigns is spent on media events and activities that would draw the attention of the media, subsequently generating news stories across media outlets and catching the attention of healthy eaters. This news-orientation of healthy eating campaigns leads to an increasing health gap between healthy and unhealthy eaters. While the already healthy consumer reads and/or views news stories and gets more information on improving his or her health, the unhealthy eater remains unexposed to the health information. Evidence of this gap is reported in multiple health campaigns (Viswanath & Finnegan, 1995; Viswanath, Finnegan, Hannan, & Luepker, 1991). Healthy eating campaigns need to move away from the use of news-oriented channels such as media events, press conferences, media kits, and press releases. Perhaps the first step toward decreasing the

knowledge and behavioral gap is the placement of messages in media that are actually consumed by unhealthy eaters.

The observation that the consumers of entertainment-oriented media are more likely to be unhealthy eaters than nonconsumers supported H6. The unhealthy eater is more likely to watch comedy and sports programs on television, and read entertainment magazines, suggesting that messages targeting unhealthy eaters be placed in these entertainment-based media vehicles. Effective media planning targeting unhealthy eaters may be accomplished through (a) strategic advertising or (b) product placement in entertainment programs. Healthy eating may be modeled in programs that are viewed by unhealthy eaters. For instance, collaborative efforts with programs such as *Married with Children*, *The Simpsons*, or *Roseanne* to model healthy eating might be worthwhile (Potter et al., 2000). Kauffman (1990) pointed out that entertainment programming frequently depicts unhealthy eating as normal and desirable, without linking it to the unhealthy outcomes. Given the entertainment orientation of unhealthy eaters, it may be argued that their unhealthy patterns of eating and drinking are further reinforced by the images on entertainment television. Special attention would also need to be paid to matching the information content of the healthy eating messages to the editorial environment in these entertainment-oriented outlets. Novel and sensory content strategies would need to be developed to effectively reach this group. Perhaps an article placed in Playboy on the great taste options of health foods would be effective. Also, sources may be selected to match the sensory orientation of the readers. The findings in the context of H7 and H8 suggest that healthy eating messages need to be placed in male-oriented media.

In the domain of the consumption of health-oriented media content, it was observed that healthy eaters are more likely to seek out targeted media containing health-related and diet-related information. Readers of "Health" and "Prevention" were more likely to eat healthy than nonreaders. Although these outlets carry a great deal of information on the different ways of enhancing and maintaining health, they remain unreached by the unhealthy consumer. This, once again, contributes to the increasing knowledge and behavioral gaps within the population (Viswanath & Finnegan, 1995; Viswanath, Finnegan, Hannan, & Luepker, 1991).

Their inability to effectively reach the unhealthy eater is a key problem facing practitioners today. While some public campaign strategists might argue that "getting the message out there" is all that can be done with the limited budgets of healthy eating campaigns, the wisdom of that approach is questioned by the findings of this study. This study raises important questions that need to be addressed in the domain of public health campaigns: Is it worthwhile to spend any money on media campaigns when the budget does not allow for adequate targeting? With limited budgets of public health campaigns, how can media planning be used strategically to reach the target population at the least cost with the most efficiency? Are there cheaper forms of media that may be used to reach the target audience and

how could such media be incorporated into the media mix? What is the rationale behind spending money on media events to grab the attention of the press and generate news stories when the unhealthy eaters do not consume "news"? Campaign planners need to be more innovative in the ways they try to reach these illusive segments of population that are in need of interventions. The content and delivery preferences of the unhealthy eater should be the driving forces of public health campaigns.

This article calls for a shift in the basic philosophy of public health in the domain of media selection and strategy. Getting the information out is not enough. Awareness among the members of the at-risk population cannot be created by simply generating media presence through news stories. Instead, campaign planners need to focus on the concept of "reach." After identifying the appropriate target audience, campaign planners need to think about the best media vehicles to effectively reach this audience. The at-risk populations are not illusive when attempts are made to understand these populations and their media choices before starting a campaign. Using a behavioral approach, strategic media placement should be guided by the specific media choices of unhealthy eaters.

The use of a mail panel to gather information orients the sample toward more educated respondents. The Lifestyle data reflect this bias in data gathering. Weighing the sample to match the US population on age, income and area of residence (Horn &Wells, 1997) proposes to solve the problem with response bias. To address this issue, Putnam and Yonish (1997) successfully validated the Lifestyle survey against the general social survey and the roper poll. The fact that the mail panel survey measures attitudes, opinions, and interests of respondents repeatedly is both an advantage and a disadvantage. On one hand, the mail panel allows the researcher to follow the respondent over a period of time, providing an excellent method for trend analyses. On the other hand, the mail panel method suffers from the drawbacks of panel bias and attrition (see Tanur, 1984 for a detailed discussion of panel surveys). Also, the self-reported nature of the data gathering technique poses threat to the accuracy of the results.

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