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Research report

Factors associated with choice of a low-fat or low-carbohydrate diet during a behavioral weight loss intervention ☆, ☆☆

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ABSTRACT

Individuals undertaking a weight loss effort have a choice among proven dietary approaches. Factors contributing to choice of either a low-fat/low-calorie diet or a low-carbohydrate diet, two of the most studied and popular dietary approaches, are unknown. The current study used data from participants randomized to the 'choice' arm of a trial examining whether being able to choose a diet regimen yields higher weight loss than being randomly assigned to a diet. At study entry, participants attended a group session during which they were provided tailored feedback indicating which diet was most consistent with their food preferences using the Geiselman Food Preference Questionnaire (FPQ), information about both diets, and example meals for each diet. One week later, they indicated which diet they chose to follow during the 48-week study, with the option of switching diets after 12 weeks. Of 105 choice arm participants, 44 (42%) chose the low-fat/low-calorie diet and 61 (58%) chose the low-carbohydrate diet. In bivariate analyses, diet choice was not associated with age, race, sex, education, BMI, or diabetes (all $p > 0.05$). Low-carbohydrate diet choice was associated with baseline higher percent fat intake ($p = 0.007$), lower percent carbohydrate intake ($p = 0.02$), and food preferences consistent with a low-carbohydrate diet according to FPQ ($p < 0.0001$). In a multivariable logistic regression model, only FPQ diet preference was associated with diet choice ($p = 0.001$). Reported reasons for diet choice were generally similar for those choosing either diet; however, concerns about negative health effects of the unselected diet was rated as more influential among participants selecting the low-fat diet. Only three low-carbohydrate and two low-fat diet participants switched diets at 12 weeks. Results suggest that when provided a choice between two popular weight loss dietary approaches, an individual's selection is likely influenced by baseline dietary intake pattern, and especially by his or her dietary preferences. Research is needed to determine if congruency between food preferences and dietary approach is associated with weight loss.

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Factors associated with choice of a low-fat or low-carbohydrate diet at onset of a behavioral weight loss intervention

Low-fat/low-calorie diets prescribed as part of behavioral weight loss interventions have produced clinically significant weight loss in several large clinical trials (Knowler et al., 2002; The Look AHEAD Research Group, 2010). Accordingly, a low-fat/low-calorie diet has been the mainstay of guidelines from public health organizations for the past several decades (Marantz, Bird, & Alderman, 2008). More recent clinical trials of low-carbohydrate diets have supported the effectiveness of this dietary approach as well (Foster et al., 2003; Gardner et al., 2007; Samaha et al., 2003; Shai et al., 2008). Thus, multiple effective dietary approaches are available for weight loss, leading some experts to suggest that individuals beginning weight loss programs should be provided a choice between empirically supported dietary approaches, consistent with patient-centered care (Sacks et al., 2009; Shai et al., 2008).

Little is currently known about how individuals choose between different dietary approaches to weight loss. The existing literature on food choice may provide insights into how choice among diets is made. Early food choice research suggested that food selection is influenced by factors such as taste, health, social status, and cost (Lewin, 1943). Food choice is also thought to reflect the influence of social factors (e.g., opinions or habits of household members), food availability, and convenience (Furst, Connors, Bisogni, Sobal, & Falk, 1996; Sobal, Bisogni, & Jastran, 2014). However, the existing literature has not addressed selection of a dietary approach at the onset of a weight loss effort, which differs from making specific food choices in several important ways. When starting a weight loss effort, individuals are selecting a diet with the understanding that they will be striving to adhere to that diet for a prolonged period of time (versus making a food selection for only one meal). Diet selection that is intended to be for a prolonged period of time may evoke more careful, deliberate consideration and take into account more factors than one-time food selection, which may be subject to greater automaticity (Sobal et al., 2014). Additionally, when selecting a diet to follow, individuals are selecting with a particular goal (i.e., weight loss) as an identified priority. Thus, selection of a diet at the onset of a weight loss attempt differs considerably from individual food or meal choices, and may have different determinants.

In the context of selecting a dietary approach during a weight loss attempt, it has been suggested that individuals would select the diet that is most closely aligned or congruent with their food preferences (Borradaile et al., 2011), a prediction suggested by the broader literature on food choice (Furst et al., 1996; Lewin, 1943; Sobal et al., 2014). However, a dietary approach might be selected on the basis of being *incongruent* with food preferences, as a diet that restricts preferred foods could be viewed as beneficial to weight loss. Further, the congruency between food preferences and diet selection could differ depending on the foods preferred. Americans are generally familiar and accepting of the low-fat diet because of marketing attempts and public health messages. In contrast, many people have negative perceptions of the low-carbohydrate diet. For example, only one-third believe that a low-carbohydrate diet is a healthy way to lose weight (Rutten, Yaroch, Colón-Ramos, & Atienza, 2008). Thus, individuals may be less likely to select a diet that is congruent with their food preferences when their food preferences are consistent with a low-carbohydrate diet.

Diet selection at onset of a weight loss attempt may also be related to habitual food intake patterns. Individuals who tend to consume greater dietary fat, for example, may select a diet that is consistent with that pattern (i.e., a low-carbohydrate diet) out of habit. Another influential factor in diet selection may be presence of type 2 diabetes. Adults with diabetes often receive counseling to monitor their carbohydrate intake, which may make a low-carbohydrate diet appear more beneficial to them. Finally, dietary choice may also be associated with demographic factors given that sex, race, and age are related to dietary behaviors and preferences (Drewnowski, Kurth, Holden-Wiltse, & Saari, 1992; Monsivais, Rehm, & Drewnowski, 2013; Sijtsma et al., 2012; Wyant & Meiselman, 1984; Yang, Buys, Judd, Gower, & Locher, 2013).

Examining individuals' self-reported reasons for diet selection could provide a better understanding of the process of diet selection. Factors that patients may report as influencing dietary choice include perceptions of diets' costs, effects on appetite, acceptability in the social/household environment, effectiveness for weight loss or risk reduction, and safety. We are unaware of studies that have asked patients to rate the importance of these and other factors in selecting between low-fat and low-carbohydrate diets.

Thus, the purpose of the current study was to describe the choice process as well as the factors associations with and self-reported reasons for choice of either a low-fat/low-calorie diet or a low-carbohydrate diet at initiation of a behavioral weight loss program. These data are from a trial comparing participants randomized to either a *no choice* arm or a *choice* arm. If randomized to the no choice arm, participants were further randomized to either a low-fat/low-calorie or low-carbohydrate diet. If randomized to the choice arm, participants chose between a low-fat/low-calorie or a low-carbohydrate diet. Presented herein are the results of the diet choice process for participants in the diet choice arm. Analyses of the primary outcome of weight change are ongoing and will be presented separately.

Based upon the aforementioned literature, we hypothesized that selection of the low-carbohydrate diet would be associated with: (1) preference for foods consistent with low carbohydrate diet (i.e., high in fat or protein content and low in carbohydrate content), (2) habitual patterns of food intake consistent with a low-carbohydrate diet, (3) presence of type 2 diabetes, and (4) past experience with a low-carbohydrate diet. We also tested the hypothesis that participants with food preferences consistent with a low-fat diet would be more likely to select a diet congruent with their preferences than those with preferences consistent with a low-carbohydrate diet. Additionally, we explored associations between diet choice and demographics, BMI, and other health behaviors (e.g., tobacco use, physical activity) and reported on patients' self-reported reasons for selecting their diet. The current study is the first to present the outcomes of choosing between a low-fat and low-carbohydrate diet during a weight loss attempt, to describe the correlates of that choice, and to provide descriptive data on patients' perspectives on reasons for their diet selection.

Subjects and methods

Participants

Study participants were recruited from the Durham Veterans Affairs (VA) Medical Center between June 2011 and June 2012 through flyers, brochures, and advertisements. VA health care personnel were informed of the study and encouraged to refer patients to the study through the VA's electronic referral option. Additionally, a search of electronic health records for patients meeting study criteria was conducted, with potentially eligible patients contacted via a recruitment letter with a telephone number to contact if they were interested. Sample size was determined based on power analyses conducted for the parent trial.

Patients were eligible for the study if they had BMI ≥30 kg/m^2, were in stable health, desired to lose weight, agreed to attend regular visits per study protocol, had access to a telephone and reliable transportation, and had a VA provider. Exclusion criteria included age over 75; pregnancy, breastfeeding or lacking birth control; certain

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