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## The Content of Diet and Physical Activity Consultations with Older Adults in Primary Care

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### Abstract

**Objective**—Despite numerous benefits of consuming a healthy diet and receiving regular physical activity, engagement in these behaviors is suboptimal. Since primary care visits are influential in promoting healthy behaviors, we sought to describe whether and how diet and physical activity are discussed during older adults' primary care visits.

**Methods**—115 adults ages 65 and older consented to have their routine primary care visits recorded. Audio-recorded visits were transcribed and diet and physical activity content was coded and analyzed.

**Results**—Diet and physical activity were discussed in the majority of visits. When these discussions occurred, they lasted an average of a minute and a half. Encouragement and broad discussion of benefits of improved diet and physical activity levels were the common type of exchange. Discussions rarely involved patient behavioral self-assessments, patient questions, or providers' recommendations.

**Conclusions**—The majority of patient visits include discussion of diet and physical activity, but these discussions are often brief and rarely include recommendations.

**Practice Implications**—Providers may want to consider ways to expand their lifestyle behavior discussions to increase patient involvement and provide more detailed, actionable recommendations for behavior change. Additionally, given time constraints, a wider array of approaches to lifestyle counseling may be necessary.

### Keywords

Health Promotion; Older Adults; Counseling; Qualitative

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## 1. Introduction

Healthy diet and sufficient physical activity have significant health and quality of life benefits across ages (1, 2) and generally result in lower healthcare utilization and associated costs (3). While the benefits are greater if positive health behavior changes take place earlier in life, advantages still exist if changes begin in later years (4, 5). Even small behavior improvements may result in significant health benefits (6).

As individuals reach age 65, women have an average of 20.3 and men an average of 17.6 years of life remaining, allowing for sufficient time for changes in dietary intake and physical activity levels to have an effect on functional status and quality of life (7). Unfortunately, despite well documented benefits of engaging in healthy lifestyles, poor diet and physical inactivity are pervasive across ages, particularly among older adults. In the US, only 30.0% of adults ages 65 and older consume five or more fruits/vegetables a day (8) and 32.7% of adults ages 65 and over report no leisure time physical activity within the past 30 days (9). Among older adults age 65 and over in the United States, self-reported rates of moderate physical activity participation range from 39.3% to 51.2%, depending on the criteria used (10, 11), and only 10% of adults over the age of 65 engage in any vigorous physical activity (12).

One potential venue for addressing these suboptimal health behaviors is through primary care providers. Primary care providers are particularly well situated to counsel older adults because older Americans are the largest consumers of health care services (7). Adults between the ages of 65 to 74 average 6.5 physician office visits per person per year; adults ages 75 and over make 7.7 visits per person per year (13). In 2008, 44% of visits for adults ages 65 and over were to primary care providers (14). While fewer than 8% of these visits are dedicated preventive care visits, this frequent contact creates opportunities for lifestyle counseling (13).

Prior research indicates that provider counseling has the potential to help patients with dietary and physical activity changes (15, 16). Currently however, there is very little research that documents how often these discussions occur with older patients or the nature of the counseling that occurs. The scant existing research indicates that diet and physical activity discussions occur in less than a quarter of primary care visits (17), though these estimates pertain to a general adult population rather than to older adults. Stange et al. (2002) found that the average duration of diet and physical activity discussions was 1.35 minutes, reduced to only .7 minutes when also taking into account visits during which prevention counseling did not occur (18). Eaton, Goodwin, and Stange (2002) found that the average duration of dietary counseling was 55 seconds, ranging from less than 20 seconds to over six minutes (19). Preventive service delivery is often associated with related signs or symptoms, suggesting that illnesses care may present opportunities for prevention (20). Flocke, Kelly, and Highland (2009) found that most prevention discussions occurred in the context of structured routines (e.g., checklists) or opportunistic triggers (symptoms or conditions) (21). Anis and colleagues (2004) determined that most (61%) lifestyle counseling was physician-initiated (22).

Surprisingly little research has examined the actual content of lifestyle counseling. Sciamanna and colleagues (2004) conducted a study where all participating physicians were instructed to counsel their patients on physical activity, but the content of that counseling was left up to them (23). The most common topics physicians counseled on were type of activity recommended, reasons to become active, and past experiences with activity. Action items - such as written plans or making plans for future discussion - were very uncommon. To rectify this sparse knowledge base regarding provider lifestyle counseling, we seek to describe whether and how diet and physical activity are discussed during older adults' primary care visits.

## 2. Methods

### 2.1 Eligibility and Recruitment

Providers and patients from the departments of Internal Medicine and Family and Community Medicine in an academic medical center were recruited and consented to have their visits audio-taped. The consent form indicated that the research study was focused on lifestyle behaviors, but did not specify diet and physical activity. Providers included attending physicians, nurse practitioners, physician assistants, resident physicians, and medical students. Patients over the age of 65 were identified using the daily patient list from consenting providers. Patients were recruited from the clinic waiting areas immediately prior to their visit. Patients were informed that the study involved recording their visit and an interview immediately following about their health behaviors and relationship with their provider. Patients who agreed to participate signed both a general informed consent document and a Health Insurance Portability and Accountability Act consent form. Exclusionary criteria included: too hard of hearing to participate in an interview, not English speaking, unable or unwilling to speak at length, and cognitive impairment (either as evidenced by difficulty comprehending the consent form, from patient or companion self-report, or by provider notification).

### 2.2 Procedures

Tape recording began once the intake nurse left the patient's exam room. Following the visit, patients completed the socio-demographic questionnaire and behavioral assessment which included the six-item Behavioral Risk Factor and Surveillance System (BRFSS) questions about fruit and vegetable consumption and the three-item Godin Leisure Time Exercise Questionnaire (GLTEQ) Assessment of Physical activity (27). The BRFSS fruit and vegetable questions are considered to be of moderate reliability and moderate validity among adults ages 18 and older (28). The GLTEQ has moderate test-retest reliability for light to moderate physical activity and high test-retest reliability for strenuous activity; while not specifically designed for older adults, the GLTEQ also has demonstrated validity among older adult populations with chair stands and walking speed (27, 29). To describe the visit characteristics, we recorded when providers entered and exited the room (to calculate the duration of the visit), noted whether anyone accompanied the patient to his/her visit, and asked patients questions about their relationship and history with their provider and the care they received. Similar to the approach used by Zhang and colleagues, quality of care was assessed with a single-item scale from 1 to 10 with 1 being completely awful and 10 being

completely wonderful (30). To preempt literacy concerns all questions were completed orally. Participants were not compensated for their participation. All protocols were approved by the University of Kentucky's Institutional Research Board and appropriate reviewing bodies within the clinics themselves. Data collection took place between September, 2011 and March, 2012.

### 2.3 Sample

One hundred fifteen patients participated to insure a broad array of diet and physical activity discussions for analysis. In order to recruit these 115 patient participants and record their visits, 84 providers consented to participate (consisting of 16 attending physicians, 3 nurse practitioners, 1 physician assistant, 44 resident physicians, and 20 medical students).

### 2.4 Data Analysis

We conducted descriptive analyses for all patient sociodemographics and health behavior questionnaire data. Using the height and weight information provided by patients, body mass index (BMI) was calculated using the National Heart Lung and Blood Institute calculator (31) and the resulting BMIs were categorized into underweight (BMI <18.5), normal weight (BMI=18.5–24.9), overweight (BMI=25–29.9), and obese (BMI of 30 or greater) according to the National Heart Lung and Blood Institute criteria. The BRFSS fruit and vegetable questionnaire enables computation of total daily fruit consumption and total daily vegetable consumption. The GLTEQ indicated how many times a week individuals participated in mild, moderate, and vigorous physical activity for periods of at least 15 minutes (27).

Upon completion of the interview, the tapes were transcribed. Time stamps, the time to the second that had elapsed from the beginning of the audio-recording, were included anytime a provider exited or entered the exam room and at the initiation and conclusion of all instances of diet and physical activity discussions. These stamps enabled calculations of the time spent with providers and of the duration of diet and physical activity discussions. The Microsoft Word word count feature was used to assess the relative contribution of the patient versus the provider to the discussions.

In addition to documenting the duration of the discussion, qualitative description allowed us to explore the nature and structure in which providers discuss diet and physical activity with their older patients (32). Qualitative description is “a rich, straight description of an experience or an event” (33), where this description is itself the goal (34). Our qualitative description included content analysis and quasi-statistical analysis (33). Qualitative content analysis involves codes that are generated from the data and are modified as needed to fit the data rather than pre-existing codes (34,35). Content analysis refers to methods of inference based upon systematic identification of features of messages (36). We used Excel to facilitate data management.

### 2.5 Ensuring Rigor

To enhance rigor, we verified stability of coding by engaging in a code-recode procedure for 10% of the data (37) and assured consistency by having an additional coder co-coded 10%

of the data (38,39). The two coders discussed all discrepancies, and made changes or clarification to the coding scheme as needed, resulting in an inter-rater reliability of 88% (defined as the number of coding instances that were in agreement divided by the total number of coding instances) (38). The validity of the data was also enhanced through triangulation of data sources; data collection included patients and providers in two separate clinics, at various times of day over the course of several months (40).

### 3. Results

#### 3.1 Description of the Care Context

Patients spent an average of 11.5 minutes with the provider with whom their visit was scheduled and an average of 26.6 minutes when including resident physicians with whom the visit was not scheduled and medical students. Twenty-eight percent of patients were accompanied during their visit, typically by spouses or adult children. Patients reported being very satisfied with the quality of their care, providing an average quality rating of 9.5 out of 10. Patients reported seeing their providers on average four times a year; some patients reported just a single annual visit and one patient had 20 visits with her provider within the last year. Patients reported an average of 6.5 years seeing the same provider

#### 3.2 Description of Patient Participants

Final analysis was limited to 104 patients; four patients were excluded due to incomplete recordings and seven patients were excluded due to being ineligible (four were there for non-routine visits and three had severe comprehension difficulties). Based on two-tailed t-tests, there were no significant differences in age or sex between participants and non-participants. As shown in Table 1, the 104 patients who were included in the analysis were, on average, 73 years old, ranging in age from 65 to 95. There were slightly more female (54%) than male participants (46%). The majority (59%) were married. The sample was well educated, 69% reported some post-secondary education. The majority (58%) of the participants perceived they had more than enough to get by financially, with just over a third (38%) indicating household incomes above \$50,000 a year. The majority (82%) of the sample was white, non-Hispanic. Patients reported an average of 2.4 chronic conditions. Approximately a third of the sample reported being in excellent or very good health, another third in good health, and the remaining third in fair, poor, or very poor health. Just under a third of the sample had BMIs within the normal weight range, one individual was underweight, and the remaining participants were overweight or obese. A third (30.4%) of the patients reported no leisure time physical activity and 64.7% of the patients reported no moderate or vigorous leisure time physical activity. Just over half (58.8%) of patients reported consuming fewer than five fruits and vegetables a day.

#### 3.3 The Extent to Which Diet and Physical Activity Were Discussed

Diet and physical activity were discussed, at least to some extent, in the majority of patient visits. Diet was mentioned in 70 patient visits (67% of patient visits). Physical activity was mentioned in 75 patient visits (72% of patient visits). Of the visits with these elements, discussions of diet had an average duration of one minute and 33 seconds (range: three seconds to nine minutes and 47 seconds) and discussions of physical activity had an average

duration of one minute 29 seconds (range: one second to five minutes and 27 seconds). The very brief (e.g. three second and one second) discussions included a question pertaining to diet that did not receive a reply and a reference to exercise offered in passing,

### 3.4 The Nature of Diet and Physical Activity Discussions

**Initiation of the discussions**—Patients initiated 58.6% of diet discussions and 49.3% of physical activity discussions while providers initiated 38.6% and 46.7% of diet and physical activity and discussions, respectively. While family members initiated only a small percentage of the total discussions, when evaluated relative to their attendance in the visits, they more frequently instigated the discussion. Of the visits in which a family member was present, family members initiated 14.3% of physical activity discussions and 9.5% of diet discussions.

**Patient contributions to the diet and physical activity discussions**—As shown in Table 2, discussions of diet and physical activity typically involved the patient providing some information about his or her current behaviors. Seventy-six percent of diet discussions included information about the patient’s current diet and 92% of physical activity discussions included information about the patient’s current physical activity patterns. This information was offered both without a prompt and in response to provider questions (39.6% of the time for diet, 56.5% of the time for physical activity).

In addition to sharing information on their behaviors, patients provided self-assessments of their behaviors. Patients provided dietary self-assessments 50% of the time; only 51.4% of these self-assessments involved recognition of the need for dietary changes. Patients described their physical activity in just under a third (30.7%) of the physical activity discussions; 73.9% of these self-assessments involved recognition of the need for more physical activity. Patients asked questions pertaining to diet in only 17% of all diet discussions and asked questions pertaining to physical activity in only 8% of all physical activity discussions.

**Provider contribution to the diet and physical activity discussions**—Providers asked patients questions regarding diet and physical activity in 45.7% and 69.3% of these discussions. For both diet and physical activity, specific questions such as “what kind of exercise do you do?” were more common than broad questions such as “do you exercise?” or “are you eating ok?” After patients provided information about their current behaviors, providers offered encouragement in approximately half of all behavioral discussions. Benefits of diet were discussed in 51.4% of the visits with diet discussion. Benefits of physical activity were discussed in 37.3% of the visits with physical activity discussion. Overall, patients spoke more than providers during these lifestyle behavior discussions. Providers contributed 45.1% of the words in the diet discussions and 41.6% of the words in the physical activity discussions.

**Context for diet and physical activity discussions**—Diet discussions most frequently occurred in the context of existing conditions or laboratory results, such as blood pressure, blood sugar or diabetes, cholesterol, constipation, heart disease, gastroesophageal

reflux disease, diverticulitis, celiac disease, or osteoporosis. Functional health concerns - such as sleep difficulties/nighttime urination, cramps, bloating, dehydration, dizziness, dry mouth, heartburn, kidney stones, water retention, appetite, and overcoming sickness - provided the next most common context for diet discussions. Weight gain or loss offered the third most common context for dietary discussions. The fourth most common context was no context at all or what seemed to be part of a checklist of items the provider asked about, but not associated with any existing discussion. Diet discussions also took place in the context of medication/vitamins, memory, screening for depression, discussion of flu shots/allergies, and, for one participant, a recent lifestyle change associated with a move to an assisted living facility.

Physical activity discussions most frequently occurred in the context of functional health concerns, such as shortness of breath, fatigue, balance difficulties and falls, weakness, and endurance. Existing conditions such as arthritis, blood pressure, diabetes and blood sugar, cholesterol, neuropathy, or osteoporosis provided the next most common context for physical activity discussions. The third most common context was no context at all, or what seemed to be part of a checklist of items the provider asked about, but not tied in to any existing discussion. Physical activity also came up in the context of pain, weight gain or weight loss, as an explanation for health - e.g., "I'm healthy because I work out," as evidence of health - e.g., "because I'm healthy I can now do...", and physical therapy. Physical activity also arose in several single occasions, including memory, mental health, and lifestyle changes associated with a recent move to an assisted living facility.

**Provider recommendations for patients' diet and physical activity**—The majority (57%) of diet discussions did not involve any provider recommendations. When the provider made diet recommendations, a sixth of the recommendations were vague recommendations such as "try to eat a little bit more healthy" or "work on diet." Specific recommendations were most commonly instructions to reduce certain foods or fats (n=11), specific food suggestions (n=10), and suggestions regarding fluid consumption (n=7). Less commonly-offered specific recommendations included portion size information (n=3), suggested supplements (n=3), instructions for salt reduction (n=3), and a discussion of improving diet by relocating to a rehabilitation facility (n=1). Some recommendations involved multiple items.

In 60% of the physical activity discussions, providers did not offer any recommendations. When providers did make recommendations, 30% of the recommendations were vague such as "try to exercise." A third of all the physical activity recommendations involved suggestions for specific activities (n=10) such as walking or swimming; a third were equipment recommendations (n=10, e.g., braces or exercise equipment), and the remaining physical activity recommendations involved level of activity (n=3, e.g., continue with current level of activity), rehabilitation or physical therapy (n=4), or exercise-related testing such as a pulmonary function test or stress echocardiogram (n=2).

Visits that included discussion of diet or physical activity recommendations averaged just over two minutes, and were approximately one minute longer than visits that involved discussion of diet or physical activity but did not include such recommendations. Providers

also contributed more of the words to the discussion when the visits involved recommendations (55.5% for diet, 49.6% for physical activity) than when the visits did not involve recommendations (37.4% for diet, 36.3% for physical activity). The purposes of the 30 diet and 30 physical activity recommendations included to reduce symptoms and control medical conditions, to lose weight, and to improve energy and fatigue (see Table 3).

## 4. Discussion and Conclusion

### 4.1 Discussion

We designed this study to fill the gaps in our understanding of the frequency and nature of health behavior recommendations with older adults in the primary care setting. The findings indicate that diet and physical activity discussions between older adults and their primary care providers occur much more frequently than suggested by prior research. This nearly three-fold greater rate of diet and physical activity discussion may, in part, reflect our more inclusive identification process. Additionally, it may reflect that our identification of diet and physical activity discussions in the current research was from transcripts that could be reviewed multiple times rather than from direct observation which provides only a single opportunity to notice discussions (17, 22). Alternately, the longer visit length in our study (visits in our study averaged 26.6 minutes, whereas other researchers reported an average visit length of 13 minutes), may have led to more opportunity for lifestyle discussions (21). Providers' knowledge of the study focus on lifestyle behaviors could also have contributed to the greater rate of diet and physical discussions; however, given that providers often signed consent forms in advance of the day's visit, the sustained heightened awareness seems unlikely.

Previous research has been limited in its exploration of the focus of diet and physical activity discussions, reporting on the discussions' duration, the context, and party initiating. The current research revealed slightly longer average discussion durations for both diet (1.53 minutes) and physical activity (1.50 minutes) than the 1.35 minutes that Stange et al (2002) reported (18). The somewhat lower time estimate provided by Stange et al (2002) may reflect their use of a more restrictive definition of diet and physical activity discussion (18). Consistent with prior researchers, related symptoms/conditions and checklists were among the most common contexts for diet and physical activity discussions (21). In terms of who initiates the discussion, Anis and colleagues (2004) reported that 61% of diet and physical activity discussions were physician-initiated, while we found physicians initiated only 39% of diet and 47% of physical activity discussions (22). Previous research suggests that more educated patients participate more actively in their medical visits (41). Accordingly, this lower rate of physician initiation of these topics may reflect the high educational level of the participants in this research.

While this study focuses on primary care providers, we recognize that their success in promoting healthy lifestyles may be heightened if they are integrated with a team of providers and health educators who can complement and supplement initial efforts to support behavior change (24). In addition, structural supports, such as electronic medical records with high levels of functionality – including alerts, counseling templates, and tracking features - can also enhance the delivery of prevention services (25, 26). Further, this



study's focus on the primary care provider visit is not intended to devalue the host of environmental, social, and interpersonal factors that are also influential in older adults' engagement in health behaviors. Given the complexity and challenges associated with lifestyle change, all of these influences—social support, public service announcements, support groups in community and clinical locations, and policy approaches—should be employed to promote healthy lifestyles.

**Study Limitations and Strengths**—We acknowledge several limitations. Generalizability may be limited by having conducted the research in a single academic medical center. Additionally, our work may reflect selection bias in terms of the providers who agreed to participate. Providers who chose to participate may have been more interested in communication or quality improvement than those who declined to participate. This study also involves the possibility of a Hawthorne effect; while we aimed to be unobtrusive by placing recorders in the exam room rather than being physically present, it is still possible that the presence of the recorders influenced the nature and duration of patient counseling (42). These limitations, however, are offset by several strengths. We obtained the visit content through recording and transcription and did not rely on patient self-report or recall, the patient and provider research sample was diverse, and we explored numerous features of patient-provider diet and physical activity communication.

## 4.2 Conclusion

The majority of older adults' primary care patient visits include discussion of diet and physical activity, but these discussions are often rather brief and rarely include behavioral recommendations. Increasing the depth of these conversations may help to better capitalize on the potential for primary care providers to improve their patients' lifestyle behaviors.

## 4.3 Practice Implications

The frequency of discussions regarding diet and physical activity suggest providers recognize the importance of these behaviors, but the brevity of these discussions suggests that time or other factors may limit the quality of these discussions. Primary care providers may want to consider ways to expand their discussions of diet and physical activity to increase patient involvement and provide more detailed, actionable recommendations for behavior change. To offer providers some direction for their counseling efforts, future research should explore how different counseling approaches and counseling personnel influence patient health behavior change.

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**Table 1**

## Patient Health Status and Health Behaviors, N=104

<b>Characteristics</b>	
<i>Chronic conditions, mean (SD, range)</i>	2.4 (1.5, 0–8)
<i>Perceived health status, n (%)</i>	
Excellent	11 (10.6)
Very Good	22 (21.2)
Good	36 (34.6)
Fair	24 (23.1)
Poor	8 (7.7)
Very Poor	3 (2.9)
<i>Self-reported BMI, mean (SD, range)</i>	
Underweight	1 (1.0)
Normal Weight	31 (29.8)
Overweight	36 (34.6)
Obese	36 (34.6)
<i>Physical activity*</i>	
Composite weekly physical activity score, mean (sd, range)	12.6 (22.5, 0–126)
No leisure time physical activity, n (%)	31 (30.4)
No moderate or vigorous leisure time physical activity, n (%)	66 (64.7)
<i>Total daily fruit consumption, mean (sd, range)**</i>	1.9 (1.2, 0–6)
<i>Total daily vegetable consumption, mean (sd, range)**</i>	2.9 (1.6, 0.5–8.3)
<i>Total daily fruit and vegetable consumption, mean (sd, range)**</i>	4.8 (2.2, 0.6–12.2)
Less than 5 fruit and vegetables a daily, n (%)*	60 (58.8)
Five or more fruit and vegetables a day, n (%)*	42 (41.2)

\* These responses were missing for two individuals so percentages are out of 102.

\*\* To convert to times per day weekly estimates were divided by 7 and monthly estimates by 30. If a range was provided, e.g., 2–3/week, the midpoint of the range was used, e.g. 2.5/week, to calculate the daily value.

**Table 2**

## Patient Contributions to the Diet and Physical Activity Discussions

	Diet (N=70) N (%)	Physical Activity (N=75) N (%)
<i>Did the patient provide any information about his or her current behavior?*</i>		
Yes, in response to a question	21 (30.0)	39 (52.0)
Sample Quotation	<i>Provider: Are you trying to exercise? Patient: Yes, I'm working out with a trainer twice a week.</i>	
Yes, offered spontaneously	32 (45.7)	30 (40.0)
Sample Quotation	<i>I've been really pleased. A lot of that [improved blood pressure] has to do with my diet. My wife has a really good diet for me. And it was high for a while and Dr. H. threatened to put me on blood pressure medication and I said, I can do this myself. So I practice the DASH diet.</i>	
No	17 (24.3)	6 (8.0)
<i>Did the patient provide any self-assessment of his or her current behavior?</i>		
Yes, satisfied with current behavior	17 (24.3)	6 (8.0)
Sample Quotation	<i>I think my diet is pretty good</i>	
Yes, recognizes need for improvements	18 (25.7)	17 (22.7)
Sample Quotation	<i>I'm not getting enough exercise this fall, I know that.</i>	
No	35 (50.0)	52 (69.3)
<i>Did the patient ask any questions pertaining to behavior?</i>		
Yes	12 (17.1)	6 (8.0)
Sample Quotation	<i>So when you say weight bearing, what's good for that?</i>	
No	58 (82.9)	69 (92.0)

\* If any behavior information was provided in response to a question, it was coded as in response to a question, even in instances where other information was provided spontaneously. When including all instances of patients providing information unprompted, 68.6% of diet discussions and 58.7% of physical activity discussions involved the patient sharing some information about his or her current behavior unprompted.

**Table 3**

## Providers' Stated Purposes for the Diet and Physical Activity Recommendations Offered

	Diet* (N=30)	Physical Activity (N=30)
Ability to maintain/return to activities	1 (3.3)	4 (13.3)
Alleviate pain	.	5 (16.7)
Appearance	.	1 (3.3)
Control medical conditions	20 (66.7)	4 (13.3)
Energy/fatigue	.	4 (13.3)
General health	3 (10.0)	1 (3.3)
Reduce symptoms	6 (20.0)	4 (13.3)
Strengthen bones	.	2 (6.7)
Treat virus/overcome sickness	2 (6.7)	.
Weight loss	6 (20.0)	2 (6.7)
Not specified	1 (3.3)	3 (1.0)

\* Total is greater than 30 because in some instances providers offered multiple reasons for dietary recommendations.