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DIETITIANS' USE AND PERCEPTIONS OF NUTRITION SCREENING TOOLS FOR THE OLDER ADULT

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ABSTRACT OF THESIS

DIETITIANS' USE AND PERCEPTIONS OF NUTRITION SCREENING TOOLS FOR THE OLDER ADULT

Malnutrition is a significant issue affecting the health of many adults over the age of 65. Screening for malnutrition in this population can help identify those in need of a complete nutritional assessment. Many screening tools have been developed to aid healthcare team members in identifying those at risk for malnutrition. A population of dietitians with a focus in older adult nutrition was surveyed to determine dietitians' perceptions and use of screening tools for the older adult. The results of the study showed many dietitians did not use validated screening tools at their place of work and were not confident in their knowledge regarding the topic. Despite dietitians' having the expertise in nutrition, other interdisciplinary team members are performing the screening in many settings in the United States and some dietitians' feel this is an obstacle in identifying older adults at risk.

KEYWORDS: malnutrition, screening tools, older adult, dietitian, nutrition screening

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THESIS

Sarah Ross Small

The Graduate School

University of Kentucky

2010

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THESIS

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Sciences
College of Agriculture
at the University of Kentucky

By

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Introduction

Background

In 2008, 40 million adults over age of 65 lived in the United States. That number will only continue to grow according to the Federal Interagency Forum on Aging-Related Statistics (2008), which projects the population of older adults reaching 71.5 million by 2030. Along with a growing older population come concerns of their escalating health needs. Aging leads to an increase in chronic disabilities and diseases associated with a decline in independence and functionality (Manton, Corder, & Stallard, 1997). Older adults' lifestyles and self-care habits have a great impact on their health risks (Butler, 1997; Harper, et al., 1998). With certain preventive measures, these health risks can be reduced.

Nutrition is one of these preventive measures that can impact an older adult's health significantly. While obesity is skyrocketing in the United States, most of healthcare focuses on this issue, however, malnourishment does not need to be overlooked. The number of malnourished older adults is not astounding in those living independently, but in those hospitalized or institutionalized the number increases drastically (Corish & Kennedy, 2000; McWhirter & Pennington, 1994; Thomas, et al., 2002).

Complications that many older adults face may also cause them to be at risk for malnutrition. Physically their ability to taste, chew, swallow, and smell decrease over time. Their desire to eat wanes as their appetite diminishes significantly. Medications can have side effects of anorexia that only worsen the problem (Morley, 1997). In hospitals or long term care facilities, older adults may not receive proper assistance at mealtime or feel their food is not appealing (Steele, Greenwood, Ens, & Seidman-Carlson, 1997). At home, older adults living on a tight budget cut corners by limiting their food intake or variety in their diet. Those who live alone may also have diminished dietary intake because of their lack of socialization at meal times (Markson, 1997). Each of these major factors explains why there is such a high prevalence of malnutrition in older adults.

Being malnourished is a significant aspect of an individual's nutritional status as well as their overall health status. Malnourishment increases complications during hospitalization (Correia & Waitzberg, 2003). The length of stay and cost of care in a hospital are higher for older adults classified as malnourished or at risk of malnourishment (Chima, et al.., 1997; Correia & Waitzberg; 2003; Van Nes, Herrmann, Gold, Michel, & Rizzoli, 2001). Lastly, many studies have found that malnutrition is linked to an increase in morbidity and mortality (Beck, Ovesen, & Osler, 1999; Kagansky, et al., 2005; Correia & Waitzberg, 2003; Persson, Brismar, Katzarski, Nordenstrom, & Cederholm, 2002).

Problem

Malnutrition is a health problem that can be prevented or reversed. Healthcare professionals can screen for malnutrition in order to detect it early or identify those at risk. Dietitians' primary responsibility is the nutrition of patients/clients, but they may not be involved in the initial screening for malnutrition. Other members of the healthcare team may perform the screening and only refer an individual if they feel a full nutrition assessment is necessary. Being able to identify malnourishment is vital to a person's health. Failure to detect or late detection of malnutrition can lead to a higher risk of medical complications and increased mortality rates.

The problem of malnutrition in adults over the age of 65 is not something newly identified. Specific assessment tools have been developed to screen and/or assess whether older adults are at risk or currently malnourished. Many of these tools have been validated and can be used in different healthcare settings. The amount of research analyzing the actual use and knowledge of these tools on the older adult population is limited.

Purpose

Dietitians are the members of every healthcare team that have the expertise to identify malnutrition. Their perspective on nutrition screening tools for the older adult is valuable. The purpose of this study was to investigate dietitians' perceptions on malnutrition and screening tools for the older adult.

Objectives

The study focused around the following objectives.

- Identifying dietitians' perceptions on malnutrition in the older adult population (adults 65 and older).
- Evaluating dietitians' awareness of screening tools for the older adult.
- Measuring the use of screening tools for the older adult in a dietitian's specific work setting.
- Distinguishing the obstacles that prevent dietitians and/or other health professionals from using nutritional screening tools for the older adult.

Research Questions

In order to fulfill the purpose of the study, a set of specific research questions were answered.

- How significant is the problem of malnourishment in the older adult population according to a dietitian?
- What methods are used to screen for malnutrition in older adults?
- What education or exposure to screening tools for older adults have dietitians had in their career?
- What are the issues dietitians feel stand in the way of using screening tools for older adults?

Justification

In order to decrease the occurrence of malnutrition in the aging population, identifying what is currently being done or not done for screening was essential. Older adults misidentified may not receive the extra nutritional care they need to improve their health status. The first step to solving any problem is identifying the cause of the problem. Many screening tools are available for use but little is known about their utilization and administration in different settings. Additionally, finding the possible obstacles dietitians experience can help uncover what may need to be done to improve screening techniques.

Chapter Two

Review of Literature

In order to investigate dietitians' use and perceptions of nutrition screening tools for older adults, background on the older adult population (adults 65 and older) and their nutritional needs must be investigated. The prevalence of malnutrition will be reviewed to indicate the importance of this problem. Nutritional screening will be defined and the tools that have been validated for use on adults over the age of 65 will be described. A review of screening processes being utilized will give an overview on what has been found in past research and what information is currently lacking in this area.

Older Adult Population

Older Americans make up a significant portion of the population and continue to increase in number every year. The 2000 United States Census reported the older population to be 35 million representing 12.4% of the total population (United States Census Bureau, 2004). The Federal Interagency Forum on Aging-Related Statistics reported the population of adults over the age of 65 was 37 million in 2006. The U.S. Department of Administration on Aging develops a yearly profile on older Americans based on the most recent data from the U.S. Bureau of the Census, National Center on Health Statistics, and the Bureau of Labor Statistics. The profile in 2009 reports 38.9 million Americans were 65 or older in 2008 making 12.8% of the population classified as an older adult. Just over the past ten years, a significant increase can be noticed in this aged population.

These numbers will only continue to increase as the majority of Baby Boomers (those born between 1946 and 1964) reach the age of 65. The nation will have a drastic rise in the older population between the years of 2010 and 2030. An increase to 40 million is predicted to be seen in 2010 and will continue to increase to 55 million by 2020 (Administration on Aging, 2009). By 2030, projections have been made that the older adult population may reach 71.5 million, which would represent 20% of the total United States population (Federal Interagency Forum on Aging Related Statistics, 2008).

These numbers are increasing drastically not only because of the Baby Boomers but the fact people are living longer. On average, when an adult reaches 65 their life expectancy is to be 18.7 more years (Federal Interagency Forum on Aging-Related Statistics, 2008). The death rate has lowered for the population between 65-84 years old. Men have seen the largest decrease in death rate with it being 32.3% for men ages 65-74 and 23.5% for men ages 75-84 (Administration on Aging, 2009).

With individuals living longer, older adults require more money for retirement. Many adults begin to retire by age 65 but continue to work. In 2008, 6.2 million older Americans were still in the labor force. The major source of income for older adults in 2007 was Social Security, which was the primary income of 87% of older Americans. Other sources of income included were assets, private pensions, government employee pensions, and earnings (Administration on Aging, 2009). The average median income in 2008 was $44,188 for households headed by an older adult. However, a significant amount of older adults, 3.7 million, were below the poverty line in 2008. The percentage of the older adult population in poverty has not changed drastically since 2000 being 9.9% were considered to have a poverty status in 2000 and 9.7% in 2008 (United States Census Bureau, 2004; Administration on Aging, 2009).

Many older adults live off a smaller budget once they retire but that does not mean their expenses decrease drastically. Older adults deal with high health care expenditures even though many are receiving Medicare. The average health care costs in 2004 differed amongst ethnicities: $14,989 for non-Hispanic blacks, $13,101 among non-Hispanic whites, and $11,962 among Hispanics. Individuals with no chronic conditions have costs on average of $4,718 but those with five or more conditions have an average cost of $20,334. The major components of these health care costs are for inpatient hospital visits (25%), physician/outpatient visits (35%), and prescription drugs (25%). Medicare was responsible for paying slightly over half (53%) of these costs with the rest coming from Medicaid, out-of-pocket, or third party payers (Federal Interagency Forum on Aging-Related Statistics, 2008). The amount of money spent on adults over the age of 65 is anywhere from 3 to 5 times greater than those younger than 65 (Center for Disease Control and Prevention, 2003).

Escalating health care costs are caused by the increase in health problems individuals face as they age. Hospital stays and doctor visits both escalate for adults over 65. Over 13.1 million older adults were admitted to a hospital in 2006 and the average stay for these patients was 5.5 days. Additionally, doctor visits for those between ages 65-74 was 6.5 visits per year and for those over 75 was 7.7 visits per year. These visits are substantially higher than the 3.9 office visits a year made by adults ages 45-65 (Administration on Aging, 2009). It is evident that older adults are facing more health concerns than their younger counterparts.

Even though older adults are living longer than they did in the past, they are not necessarily healthier. The leading cause of death has shifted from infectious disease and acute illness to chronic diseases that affect an individual for a longer period of time (Mokdad, Marks, Stroup, & Gerberding, 2004). There are three chronic conditions affecting more than 25% of the older adult population: heart disease (37% of men and 26% of women), hypertension (52% of men and 54% of women), and arthritis (43% of men and 54% of women). Others affecting 10-25% of the population are stroke, asthma, emphysema, cancer, and diabetes (Federal Interagency Forum on Aging-Related Statistics, 2008). The astounding statistic to recognize is that 80% of the older population has at least one of these chronic conditions and 50% have at least two (Center for Disease Control and Prevention, 2003).

Nutrition

Aging itself influences the risk a person has for acquiring many chronic conditions or health problems; however, there are also a multitude of factors that come in to play. One component that could help improve the health of the aging population's is nutrition. Proper nutrition is a lifestyle change that can help lower the risk of disease, improve clinical illnesses, and assist in maintenance of mental and physical function (Rowe, 1998). Some older adults are not only unaware of this connection but face many factors that impact their ability to eat healthfully. In the aging, new financial, social, mental, and physical obstacles begin to occur. These changes can have an effect on the dietary habits of an older adult.

With such a large percent of older adults having a low income, finances can become an issue for them. As any individual begins to struggle financially so can their dietary intake causing food insecurity or even hunger. The report, *Household Food Security in the United States, 2008*, determined that 2.3 million households with adults over the age of 65 experienced food insecurity (Nord, Andrews, & Carlson, 2009). Research has shown that food insecurity is related to lower intakes of energy and some vitamins and minerals when compared to an individual that is food secure (Dixon, Winkleby, & Radimer, 1994). With decreased energy and nutrient intakes, an older adult is at risk for malnourishment.

Social changes are another huge factor in the nutrition of an older adult. Social isolation becomes common, causing mealtime to be spent alone. Research has shown that older adults who dine with friends or family will consume more food than those who eat alone (Markson, 1997). The aging population at some point may face a time when they are unable to drive. Transportation to the grocery becomes a problem and some older adults must rely on programs such as Meals on Wheels or a family member to supply their food.

Dementia is a common health issue in older adults that in turn affect their nutritional status. Dementia is a progressive disease in which memory and the ability to function independently decline. The declining mental ability makes eating difficult. Assistance is necessary to ensure an individual with dementia is receiving the necessary nutrients (Amella, Grant, & Mulloy, 2008).

In addition to mental changes, an older adult will have to cope with many physical transformations. Many of these changes affect their appetite and ability to eat. Taste and smell both change drastically with age (Morley, 1997). Reduced odor perception decreases the desire to cook or consume particular foods. Increased taste threshold makes many foods seem like they have little flavor. Flavor enhancements are used in many long term care facilities to increase food consumption of residents (Mathey, Siebelbink, de Graaf, & van Staveren, 2001). Difficulty chewing is common in older adults as they begin to lose their teeth or begin using dentures. Research shows that dental health is closely correlated with nutritional status in older adults (Sahyoun, Lin, &

Krall, 2003). Physical disabilities have an effect on older adults eating as well. Many are unable to feed themselves properly and without assistance may not receive the needed dietary intake (Westergren, Unosson, Ohlsson, Lorefält, & Hallberg, 2002).

The metabolism of older adults change as does the rest of their body. One study found that the energy needs decline by 1,000 to 1,200 kcal in men and by 600 to 800 kcal in women when comparing a 20 year old to an 80 year old (Wakimoto & Bock, 2001). However, the decline in energy needs does not mean the smaller nutritional needs are easy for an older adult to reach.

Malnutrition

Malnutrition is an area of concern for adults over the age of 65. During this time of many changes, an older adult increases their chance of being malnourished. Adults who are in good health and live independently are less likely to suffer from malnourishment, according to the National Health and Nutrition Examination Survey (NHANES). However, NHANES reports that 16% of older adults living independently consume fewer than 1000 calories per day. This low consumption of calories puts them at high risk for becoming malnourished (Cereda, Pusani, Limonta, & Vanotti, 2009).

A drastic increase in poor nutritional status occurs when an individual goes from independent living to hospitalization or institutionalization. Persson, Brismar, Katzarski, Nordenstrom, and Cederholm (2002), found protein energy malnutrition to be as high as 20% and 26% using the Subjective Global Assessment (SGA) and Mini Nutritional Assessment (MNA), respectively. Older patients at risk for protein energy malnutrition were found to be 43% using the SGA and 56% using the MNA. Another study using the Geriatric Nutritional Risk Index determined malnutrition in older hospitalized patients to be 12.2% and for those at risk to be 31.4% (Bouillanne, et al., 2005).

Older adult patients living in long-term care also have substantial prevalence of malnourishment. One study analyzed a random sample of annual assessments from older adults residing in long term care across the United States. The results showed that 12% of residents were undernourished and 27% of them were severely undernourished having a Body Mass Index less than 16 (Challa, Sharkey, Chen, & Phillips, 2007). In another

study using residents from three nursing homes in Washington, the prevalence of malnutrition was 38.6% in residents over the age of 65 (Crogan & Pasvogel, 2003).

Malnutrition's effects. Malnutrition is not only a decline in nutritional status but also a factor in other facets of health for an older patient. Malnutrition can lead to decreased muscle strength, slow wound healing, pressure ulcers, postoperative complications, and infections (DiMaria-Ghalili & Amella, 2005). All of these can make a hospital stay longer and medical care more expensive.

A study using patients of all ages looked at cost and length of stay at a hospital for patients at risk of malnutrition. The length of stay for patients at risk for malnutrition was found to be two days longer and cost $1,663 more than those not at risk (Chima, et al., 1997). More recently a study found length of stay to be 6.6 days longer. Additionally, a higher incidence of complications (27.0% vs. 16.8%) was found in those who are malnourished compared to those who were nourished (Correia & Waitzberg, 2003).

Research studies have looked specifically at older adults using a screening tool as a predictor for malnutrition. In one study, patients at risk for malnutrition had longer hospital stays on average of 11.5 days. In addition, the older adults living at home had a greater chance of being discharged to a nursing home if they were malnourished (20.3%) (Van Nes, Herrmann, Gold, Michel, & Rizzoli, 2001). Using a different screening tool, another study found that older adults at low risk for malnutrition had an average stay of 15 days where as those at high risk had an average of 28 days (Stratton, King, Stroud, Jackson, & Elia, 2006).

Nutritional Screening

The American Dietetic Association promotes the screening of all populations in a clinical setting despite their age (Charney & Marian, 2009). The actual screening process is used to identify characteristics known to be associated with nutrition problems in order to recognize individuals who are malnourished or at nutritional risk. Nutritional screening is an established part of the Nutrition Care Process used by dietitians across the United States (Lacey & Pritchett, 2003). A study published in 1993 by Foltz, Schiller, and Ryan reported the results of a screening and assessment survey given to members of the

Nutrition Support Dietetic Practice Group of the American Dietetic Association. The results illustrated that two thirds of the respondents had dietitians, dietetic technicians, or dietary aides performing the screening. Only 61.2% were screening all patients admitted and the other patients were screened only based on specific criteria or physician referral. The top five parameters listed on the survey being used for screening were weight (85.6%), height (83.8%), diagnosis (83.5%), recent weight loss (83.0%), and albumin (79.6%).

Since 2003, The Joint Commission requires all accredited hospitals and ambulatory facilities to have a nutritional screen done on a patient within 24 hours of admittance (The Joint Commission, 2006). They do not require the individual doing the screening to be a dietitian or dietary staff. Additionally, each facility is responsible for determining the screening process and criteria to be used (Charney & Marian, 2009). With no specific guidelines for use, there is an assortment of screening methods being practiced today in facilities as well as a variety of members of the interdisciplinary teams performing the screening. In 2008, an article published by Chima, Diet-Seher, and Kushner-Benson discussed the results of a Nutrition Screening Survey given to the Clinical Nutrition Management Dietetic Practice Group. They found that 84% of the respondents' place of work had nursing staff performing the initial screening and only 10% used nutrition services (dietitians, dietetic technicians, or dietary aides). The data being collected in the screen varied among respondents with history of weight loss (94.6%), poor intake prior to admission (81.5%), patient currently receiving nutrition support (79%), chewing/swallowing issues (75.34%), and skin breakdown (72.2%) being the top five criteria used as a part of screening. All the other criteria were used by less than half of the respondents. These numbers are a significant change form the 1993 survey and may be connected to the new Joint Commission requirements.

Screening Tools

In order to bring continuity to screening in facilities, many screening tools have been developed to guide the screening process. According to the American Dietetic Association, a useful screening tool needs to have the following characteristics:

- Simple
- Efficient
- Quick
- Reliable
- Inexpensive
- Low risk to the individual being screened
- Has an acceptable level of sensitivity, specificity, and positive and negative predictive values.

While most screening tools adhere to these characteristics, many use different criteria about the patient for the screening process (Charney & Marian, 2009).

In a review by Jones (2002), 44 different nutritional screening tools were identified. Not all had the same intended setting or population but were used in some manner as a screening tool. Many of these had not been tested for validity, reliability, sensitivity, or specificity. Many facilities do not even use a specific screening tool but instead use parameters outlined in their protocol. Based on the results from Chima, Dietz-Seher, and Kushner-Benson (2008), most acute care facilities do not choose their criteria based on validity, sensitivity, or specificity but instead by availability (57%), documented indicator for nutrition risk (54%), and ease of use (38%).

Screening Tools for Older Adults

While nutritional screening has received more attention since the Joint Commission requirements, there was a specific promotion for screening older adults prior to 2003. The Nutrition Screening Initiative (NSI) was formed in the 1990s by the American Academy of Family Physicians, American Dietetic Association, and National Council on Aging. This partnership was developed to raise awareness of the nutrition

problem in the aging population (Dwyer, 1991). In addition to the NSI, other screening tools have been developed specifically for the older adult population or have been tested on this population to tests its validity specific to this age group.

Upon review of the literature, the screening tools summarized in Table 2.1 were found to be designed for older adults or had been validated in this population.

Table 2.1 Screening Tools for the Older Adult

Screening Tool	Development	Setting Application	Length	Content
Body Mass Index (BMI)	James, Ferro-Luzzi, & Waterlow (1988)	All settings	1 calculation	Weight (kg) divided by height (cm) squared.
Nutrition Screening Initiative/ Determine Checklist	White, Dwyer, Posner, et al (1992)	Community[a]	10 questions	Questions regarding eating behaviors, unexplained weight loss, polypharmacy, social factors, physical restraints, and financial obstacles.
Geriatric Nutrition Risk Index (GNRI)	Bouillanne, Morineau, Dupont, et al (2005)	Hospital[b] & LTC[c]	1 calculation	Adapted version of NRI. Requires albumin lab value, actual weight, and ideal body weight.
Malnutrition Screening Tool (MST)	Ferguson, Capra, Bauer, & Banks (1999)	Hospital[d]	3 questions	Questions on recent weight loss, amount of recent weight loss, and decrease in appetite.
Malnutrition Universal Screening Tool (MUST)	Elia (2003)	Hospital[e] & Community[e]	3 questions	Questions on BMI, unexplained weight loss in past 3-6 months, and intake affected by an acute disease.
Mini Nutrition Assessment (MNA)	Guigoz, Vellas, & Garry (1994)	Hospital[f], LTC[f], & Community[f]	18 questions	Contains the 6 questions from the Mini Nutrition Assessment-Short Form plus 12 questions regarding health conditions and two anthropometric measurements.
Mini Nutrition Assessment- Short Form (MNA-SF)	Rubenstein, Harker, Salva, Guigoz, &Vellas (2001)	Hospital[g] & Community[i]	6 questions	Questions on appetite, weight loss, mobility, psychological stress or acute disease, neuropsychological problems, and BMI.
Subject Global Assessment (SGA)	Detsky, McLaughlin, Baker, et al (1987)	Hospital[i]	6 multi-part questions	Questions on physical traits, weight changes, dietary intake, gastrointestinal complications, functional capacity, and disease relation to nutrition.

[a] White, Dwyer, Posner, et al. (1992) [b] Bouillanne, Morineau, Dupont, et al. (2005) [c] Cereda, Limonta, Pusani, et al (2007) [d] Ferguson, Capra, Bauer, & Banks (1999) [e] Stratton, Hackston, Longmore, et al (2004) [f] Guigoz (2006) [g] Ranhoff, Gjoen, & Mowe (2005) [h] Borowiak & Kostka (2003) [i] Detsky, McLaughlin, Baker, et al (1987)

Summary

The older adult population is growing rapidly and their nutritional needs are a major concern. The financial, social, mental, and physical changes an older adult undergoes makes them susceptible to malnutrition. Research studies show the high occurrence of malnourishment in older adults as well as the effects on their overall health. The needs of the older adults cannot be met unless they are given proper nutritional therapy. Nutritional screening is the first step to identifying malnourishment

and there are many tools that can be used to make the process quick and efficient. However, we are unaware of the actual use of these tools and the obstacles that may prevent facilities from using a screening tool.

Chapter Three

Methodology

Subjects

All 1800 members of the Healthy Aging Dietetics Practice Group (DPG) of the American Dietetics Association (ADA) with a valid e-mail address were the survey population. The Healthy Aging DPG members are "practitioners that provide and manage nutrition programs and services to older adults in a variety of settings — community, home, healthcare facilities and education and research facilities" (American Dietetics Association, 2010). Members of this DPG come from all 50 states and include some individuals from Canada and Puerto Rico. Being a registered dietitian is not a requirement for membership and neither is working with older adults. In order to address this concern, screening questions were used to filter out non-dietitians and dietitians not working with older adults.

Survey Design

An initial survey was generated based on individual questions developed to achieve the research objectives. Three questions regarding dietitians' perceptions on malnutrition of the older adult were included and possible responses were given in Likert-type format (strongly agree, agree, neutral, disagree, strongly disagree). Two questions pertaining to dietitians' knowledge and skill in screening older adults were added to assess whether this is as an obstacle in screening. Six other obstacles (cost, lack of personnel, lack of time, lack of knowledge, work policy, and reimbursement issues) for using a screening tool were written in separate statements with Likert type format responses. The researcher chose the obstacles tested as the most probable barriers to screening tool usage. Additionally, dietitians' recognition of screening tools for the older

adult was tested. The 8 screening tools found to have been previously validated in the older adult population in the literature review were used as possible screening tools the dietitian would recognize. The same 8 screening tools were used in a question referring to dietitians' use of screening tools. A work developed screening tool was also added to the 8 screening tools since Chima, Dietz-Seher, and Kushner-Benson found many clinical nutrition mangers' workplaces were using non validated screening tools. Lastly, interdisciplinary team member involvement was evaluated with questions regarding referrals of older adults, screening responsibilities of interdisciplinary team members, and screening tool use of interdisciplinary team members. These questions were combined to form a 26 question survey, The Survey of Dietitians' Use and Perceptions of Nutrition Screening Tools for Older Adults.

Based on the objectives of the study, a behavioral sociologist who specializes in survey research made recommendations on the survey instrument itself. The behavioral sociologist provided options and suggestions on how to design the survey. The order and layout of the questions were set based on the feedback of this survey expert. To test for validity and clarity of the survey questions, 10 registered dietitians were used as a pilot study. Based on their feedback, adjustments were made to the wording of some questions.

In order to reach the study sample by e-mail, the survey was made in to an electronic format using the website SurveyMonkey.com. The questions were entered in the same order and format as previously evaluated. A link was developed that was used in the email sent to all participants that connected them directly to the electronic survey.

Description of procedures

Permission was granted from the Healthy Aging DPG Executive Committee to e-mail the survey link to all the members of the practice group with valid e-mail addresses. The research study design was reviewed and approved by the University of Kentucky Institutional Review Board. Once approvals were received, a cover letter including the survey link was sent to all members of the Healthy Aging DPG with a valid email address. The cover letter explained the purpose of the research, described the benefits of

completing the survey, explained the confidentiality, and addressed that participation was voluntary. A reminder e-mail was sent two weeks after the initial email and then the results were collected at the end of the third week.

Data Analysis

The answers from the survey were collected through SurveyMonkey. The responses were converted to numerical code in order to analyze the data using an analytical software program, SPSS Statistical Software Version 17.0. Descriptive statistics were used to summarize and organize the data obtained from the survey. Chi square statistics were used to determine any significant relationships among all the responses and work settings, years as a dietitian, or interdisciplinary team performing the screen.

Chapter Four

Results

Survey Response

The study resulted in 389 returned surveys, a response rate of 22%. Of the returned surveys, 47 were not completed and removed from the data for analysis. The survey responses were also filtered for any survey respondent that was not a dietitian or did not work with the older adult population. There were 11 respondents meeting this category and their data was removed for the data set. A total of 353 responses were used for data analysis. Not all respondents replied to each of the survey questions affecting the sample size of each question.

Demographics of Respondents

Table 4.1 shows the profile of the respondents. Over half of the respondents (57.5%) had been a dietitian for over 20 years and most of the respondents (62.9%) were between 45-64 years of age. The respondents represented all geographical locations with the Northeast (38.5%) and Midwest (22.7%) being the largest locations represented.

Table 4.1 Demographics of Survey Respondents		
	N	%
Years as a dietitian		
Less than 1 year	1	0.3
1-5 years	51	14.4
6-10 years	32	9.1
11-15 years	38	10.8
16-20 years	28	7.9
Over 20 years	203	57.5
Age		
18-24 years	4	1.1
25-34 years	49	13.9
35-44 years	35	9.9
45-64 years	222	62.9
65 years or older	42	11.9
Geographic Location		
Northeast	134	38.5
Southeast	60	17.2
Midwest	79	22.7
Southwest	24	6.9
West	51	14.7

Respondents represented a variety of work experience with the older adult population (Table 4.2). The largest percentage of dietitians' years of work experience was the over 20 years category (34.4%) and second highest was work experience of 1-5 years (20.4%). The work setting response resulted in over half (56.7%) of the respondents working in a long term care facility. However, all work settings that were initially a response were represented (Table 4.2). The responses that were classified as "other" were evaluated individually and some were distributed in a specific setting based on its similarity to that setting. Additionally, an extra category was formed because of the number of "other" responses for rehabilitation center. Most respondents had been in their current job for 1-5 years (37.8%) and spent >90% of their time with older adults (41.5%).

Table 4.2 Survey Respondents Work Experience and Current Job		
	N	%
Length of Time Working with Older Adults		
Less than 1 year	5	1.4
1-5 years	72	20.4
6-10 years	56	15.9
11-15 years	54	15.3
16-20 years	45	12.7
Over 20 years	121	34.3
Current Work Setting		
Hospital	74	22.7
Long Term Care	200	56.7
OAA	57	16.1
Community	55	15.6
Academic	8	2.3
Research	5	1.4
Private Corporation	5	1.4
Consulting	51	14.4
Home Health	22	6.2
Rehabilitation Center	6	1.7
Length of current job		
Less than 1 year	17	4.9
1-5 years	132	37.8
6-10 years	76	21.8
11-15 years	35	10.0
16-20 years	39	11.2
Over 20 years	50	14.3
Percent of Time Working with Older Adults		
$\leq$9%	21	6.0
10-19%	20	5.7
20-29%	17	4.9
30-39%	12	3.4
40-49%	11	3.2
50-59%	27	7.7
60-69%	17	4.9
70-79%	42	12.0
80-89%	37	10.6
$\geq$90%	145	41.5

Dietitians' Perception of Malnutrition and Screening Tools for the Older Adult

More than three fourths of the respondents (86.1%) agreed or strongly agreed that malnutrition was a problem in the older adult population. The majority also agreed or strongly agreed that early nutrition intervention helps older adults maintain independence (96.2%) and functionality (97.3%). Many dietitians do not feel their lack of knowledge (45.4%) or skill (41.4%) in screening is a problem for identifying malnutrition in the older adult population; however, significant amounts do agree (32.5% and 33.6% respectively). In contradiction to the amount of respondents that felt dietitians' knowledge and skill was satisfactory, the majority (78.8%) agreed or strongly agreed that dietitians should receive more training in screening for the older adult. Additionally, they also felt a dietitian should spend more time (76.5%) and play a larger role (85.3%) in screening older adults.

The responses regarding obstacles for using screening tools were not heavily weighed to either side. The highest percentage did fall in the disagree category for all obstacles: cost (31.1%), lack of personnel (31.9%), lack of time (28.8%), lack of knowledge of tools (34.2%), work policy (35.9%), and reimbursement issues (31.5%). The majority (94%) did agree or strongly agree that a quick and validated screening tool for older adults would be beneficial. Additionally, a large amount of respondents (78.8%) agreed or strongly agreed a screening tool compatible with their work computer system would be beneficial.

Table 4.3 Dietitians Perceptions on Malnutrition and Screening Tools for the Older Adults					
	Percent of Respondents (%)				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Malnutrition is a prevalent problem in the older population.					
	29.3	56.8	11.5	2.4	0.0
Early nutrition intervention will help the older adult population maintain…..					
functionality	59.0	38.3	2.1	0.6	0.0
independence	58.6	37.6	3.0	0.9	0.0
Dietitians lack of_____ in nutrition screening of the older adult is a problem in identifying malnourishment in the older adult population.					
knowledge	8.4	24.1	22.0	35.8	9.6
skill	7.9	25.7	25.1	32.3	9.1
Screening tools other than BMI are not used in my place of work because of……					
cost	10.4	22.8	20.3	31.3	15.2
lack of personnel	9.8	24.0	20.2	31.9	14.2
lack of time	11.7	28.5	17.7	28.8	13.3
lack of knowledge of tools	9.2	24.1	19.9	34.2	12.7
work policy	6.1	12.2	29.2	35.9	16.7
reimbursement issues	10.3	14.8	27.3	31.5	16.1
Dietitians should_____screening older adults for malnutrition.					
receive more training	19.1	59.7	15.7	5.2	0.3
spend more time	19.9	56.6	19.0	4.3	0.3
play a larger role in	31.9	53.4	12.6	1.8	0.3
A quick, validated screening tool for the older adults would be beneficial to dietitians for identifying malnutrition in older adults.					
	55.6	38.4	5.7	0.3	0.0
Screening tools compatible with the computerized system used by my place of work would be beneficial to identifying malnutrition in older adults.					
	40.8	38.0	18.4	2.5	0.3

Recognition of Screening Tools for Older Adults

As seen in Table 4.4, BMI was widely recognized by respondents (99.4%) with college (42.2%) being how the majority found out about BMI. Mini Nutrition Assessment (71.3%) and Mini Nutrition Assessment-Short Form (61.5%) were the next two highly recognizable screening tools. Both were discovered mainly through journal articles and professional conferences. The fourth on the list was the Determine Checklist (61.2%), which was taught, to many dietitians at a professional conference (20.1%) or was an organizational policy (18.4%). The last four were recognized by less than half of the respondents: Subjective Global Assessment (47.7%), Malnutrition Screening Tool (35.4%), Geriatric Nutrition Risk Index (34.5%), and Malnutrition Universal Screening Tool (17.4%).

Table 4.4 Recognition of Screening Tools for the Older Adult			
Screening Tool	How did they find out about it?	Percent of Respondents (%)	
		Yes	No
BMI		**99.4**	**0.6**
	Specific Organization Policy	9.8	
	Website	1.4	
	Journal Article	5.6	
	College	42.2	
	Dietetic Internship	10.5	
	Word of Mouth	3.1	
	Webinar	0.7	
	FNCE Presentation	1.0	
	Professional Conference	13.2	
	Other	12.5	
Determine Checklist		**61.2**	**38.8**
	Specific Organization Policy	18.4	
	Website	3.9	
	Journal Article	15.6	
	College	14.5	
	Dietetic Internship	7.8	
	Word of Mouth	1.7	
	Webinar	1.1	
	FNCE Presentation	2.8	
	Professional Conference	20.1	
	Other	14.0	
Geriatric Nutrition Risk Index		**34.5**	**65.5**
	Specific Organization Policy	7.9	
	Website	5.0	
	Journal Article	21.8	
	College	7.9	
	Dietetic Internship	1.0	
	Word of Mouth	7.9	
	Webinar	0.0	
	FNCE Presentation	6.9	
	Professional Conference	23.8	
	Other	17.8	
Malnutrition Screening Tool		**35.4**	**64.6**
	Specific Organization Policy	11.8	
	Website	6.9	
	Journal Article	21.6	
	College	9.8	
	Dietetic Internship	5.9	
	Word of Mouth	2.9	
	Webinar	2.0	
	FNCE Presentation	3.9	
	Professional Conference	15.7	
	Other	19.6	

Table 4.4 (continued)			
Screening Tool	How did they find out about it?	Percent of Respondents (%)	
		Yes	No
Malnutrition Universal Screening Tool		**17.4**	**82.6**
	Specific Organization Policy	3.6	
	Website	14.5	
	Journal Article	27.3	
	College	5.5	
	Dietetic Internship	3.6	
	Word of Mouth	3.6	
	Webinar	0.0	
	FNCE Presentation	5.5	
	Professional Conference	14.5	
	Other	21.8	
Mini Nutrition Assessment		**71.3**	**28.7**
	Specific Organization Policy	7.0	
	Website	10.0	
	Journal Article	20.5	
	College	11.0	
	Dietetic Internship	4.5	
	Word of Mouth	6.5	
	Webinar	1.0	
	FNCE Presentation	5.5	
	Professional Conference	19.0	
	Other	15.0	
Mini Nutrition Assessment-Short Form		**61.5**	**38.5**
	Specific Organization Policy	6.9	
	Website	12.1	
	Journal Article	20.7	
	College	10.9	
	Dietetic Internship	4.0	
	Word of Mouth	4.0	
	Webinar	0.6	
	FNCE Presentation	5.2	
	Professional Conference	19.5	
	Other	16.1	
Subjective Global Assessment		**47.7**	**52.3**
	Specific Organization Policy	0.8	
	Website	3.0	
	Journal Article	16.7	
	College	22.0	
	Dietetic Internship	12.9	
	Word of Mouth	3.0	
	Webinar	1.5	
	FNCE Presentation	1.5	
	Professional Conference	18.9	
	Other	19.7	

Use of Screening Tools for Older Adults by Dietitians

Of all the respondents, 80.7% currently were using a screening tool at work. The most widely used screening tool was body mass index (80.7%) and second was a screening tool developed at work (67.2%). The Determine Checklist was being used by 27.6% of respondents with the main reason being work policy (45.8%). Mini Nutrition Assessment was used by 20.0% also because of a significant amount of participants' work policy (22.0%). The rest of the tools were used by less than 20% of the respondents at work (See Table 4.5).

Table 4.5 Use of Screening Tools by Dietitians			
		Percent of Respondents (%)	
		Yes	No
Do you use a screening tool at your place of work?		**80.7**	**19.3**
Do you use this screening tool?	**Why do you use the screening tool?**		
BMI		**80.7**	**19.3**
	Validated	11.9	
	Computerized	8.9	
	Focuses on critical parameters	10.9	
	Accurate	2.0	
	Quick	25.7	
	Work Policy	31.7	
	Reimbursement	3.0	
	Other	5.9	
Determine Checklist		**27.6**	**72.4**
	Validated	16.9	
	Computerized	3.4	
	Focuses on critical parameters	5.1	
	Accurate	1.7	
	Quick	11.9	
	Work Policy	45.8	
	Reimbursement	3.4	
	Other	11.9	
Geriatric Nutrition Risk Index		**6.8**	**93.2**
	Validated	29.4	
	Computerized	0.0	
	Focuses on critical parameters	17.6	
	Accurate	5.9	
	Quick	5.9	
	Work Policy	23.5	
	Reimbursement	0.0	
	Other	17.6	
Malnutrition Screening Tool		**8.6**	**91.4**
	Validated	28.6	
	Computerized	19.0	
	Focuses on critical parameters	4.8	
	Accurate	9.5	
	Quick	19.0	
	Work Policy	4.8	
	Reimbursement	0.0	
	Other	14.3	

Table 4.5 (continued)		
Malnutrition Universal Screening Tool	**3.0**	**97.0**
Validated	27.3	
Computerized	0.0	
Focuses on critical parameters	0.0	
Accurate	0.0	
Quick	0.0	
Work Policy	27.3	
Reimbursement	0.0	
Other	45.5	
Mini Nutrition Assessment	**20.0**	**80.0**
Validated	14.6	
Computerized	9.8	
Focuses on critical parameters	19.5	
Accurate	7.3	
Quick	17.1	
Work Policy	22.0	
Reimbursement	2.4	
Other	7.3	
Mini Nutrition Assessment– Short Form	**14.3**	**85.7**
Validated	12.0	
Computerized	12.0	
Focuses on critical parameters	8.0	
Accurate	0.0	
Quick	40.0	
Work Policy	8.0	
Reimbursement	0.0	
Other	20.0	
Subjective Global Assessment	**10.4**	**89.6**
Validated	10.7	
Computerized	3.6	
Focuses on critical parameters	25.0	
Accurate	14.3	
Quick	14.3	
Work Policy	14.3	
Reimbursement	0.0	
Other	17.9	
Work Developed Screening Tool	**67.2**	**32.8**
Validated	2.5	
Computerized	8.6	
Focuses on critical parameters	29.6	
Accurate	4.3	
Quick	9.9	
Work Policy	35.8	
Reimbursement	0.0	
Other	9.3	

Dietitians' Perceptions on Referrals and Screening of Older Adults by Interdisciplinary Team Members

Eighty percent of respondents had a policy at their work for other interdisciplinary team members to refer clients to the dietitian as needed. Nurses (48.4%) were the most likely to refer a client on to the dietitians and doctors (39.1%) were not far behind as a major referral source. Other members of the team were a source for a referral but as significant as doctors and nurses (see Table 7). When asked about lack of referrals being a problem in malnutrition identification in the older adult, 61% of respondents agreed or strongly agreed. A lack of knowledge (72.5%) and lack of training (76%) in screening among interdisciplinary members was agreed or strongly agreed upon as an obstacle in identifying malnutrition. Despite dietitians opinion on the lack of knowledge and training interdisciplinary members have, many respondents (58.5%) still felt dietitians should not be solely responsible for screening older adults. Over half the respondents (57.6%) did not have some else on the interdisciplinary team performing the screening. For those who did have other members performing the screens, the majority (74.0%) used a work-developed tools for screening. The second most used tool was the Subjective Global Assessment having 66.7% of the respondents interdisciplinary team members using it. Determine Checklist was also a widely used tool having 43.6% of respondents' interdisciplinary team members using it. The other tools were used by less than 10% of respondents (See Table 4.7).

Table 4.6 Dietitians Perceptions on Referrals

At your current job, is it policy for other members of your interdisciplinary team to refer older clients to a dietitian?		
	Yes	No
	80.2	19.8
Who is most likely to refer an older client to you?		
	Yes	No
Doctor	39.1	60.9
Nurse	48.4	51.6
Diet Technician	9.1	90.9
Physician Assistant	14.4	85.6
Case Manager	23.2	76.5
Center Director	8.2	91.8
Discharge Planner	5.9	94.1
Speech Therapists	4.0	96.0
Social Worker	2.3	97.7
A lack of referrals of older adults from an interdisciplinary team member to a dietitian is an obstacle to identifying malnutrition in the older adult.		
Strongly Agree	16.7	
Agree	44.5	
Neutral	14.4	
Disagree	20.2	
Strongly Disagree	4.2	

Table 4.7 Dietitians' Perceptions of Screening Older Adults and Screening Tools Used by Other Interdisciplinary Members		
A lack of knowledge in screening older adults by an interdisciplinary team member (excluding dietitians) is an obstacle in identifying malnourishment in this population.		
Strongly Agree	22.9	
Agree	49.6	
Neutral	15.3	
Disagree	11.1	
Strongly Disagree	1.1	
A lack of training in screening older adults by an interdisciplinary team member (excluding dietitians) is an obstacle in identifying malnourishment in this population.		
Strongly Agree	26.6	
Agree	49.4	
Neutral	13.3	
Disagree	9.9	
Strongly Disagree	0.8	
Only dietitians should screen older adults for malnutrition.		
Strongly Agree	6.7	
Agree	15.9	
Neutral	19.0	
Disagree	48.9	
Strongly Disagree	9.5	
Does someone else on your interdisciplinary team perform the screening?		
	Yes	No
	42.4	57.6
If someone else does the screening and refers the client to you, choose the screening tools used.		
	Yes	No
Work Developed Screening Tool	74.0	26.0
Determine Checklist	43.6	56.4
Geriatric Nutrition Risk Index	7.5	92.5
Malnutrition Screening Tool	7.9	92.1
Malnutrition Universal Screening Tool	0.0	100.0
Mini Nutrition Assessment	13.6	86.4
Mini Nutrition Assessment-Short Form	7.7	92.3
Subjective Global Assessment	66.7	33.3

Relationship Between Work Setting and Screening Tool Used By the Dietitian

Calculating the percentage of use of each tool in different work settings shows what tools are widely used in each setting. A Chi Square Test was run on each of these relationships to test for a statistically significant relationship between the two. Table 4.8 shows the results and only a few were statistically significant at a level p value ≤ 0.05. In the hospital setting, BMI (97%) and a work developed tool (81%) had predictable percentages of dietitians that use the screening tool. Additionally, there were two tools not used in the hospital at a predictable percentage, Determine Checklist (88%) and SGA (80%). The Long Term Care Facility had significant use of BMI (92%) as well as a work developed tool (67%). Only the SGA was a predictable percentage of not being used in Long Term Care (93%). Community was the final setting with a predictable percentage of use with the Determine Checklist being used by half of the respondents in this setting.

Table 4.8 Dietitians' Use of Each Screening Tool in Different Settings

	BMI	Determine	GNRI	MST	MUST	MNA	MNA-SF	SGA	Work Dev
Hospital	97%*	12%*	7%	14%	5%	19%	7%	20%*	81%*
Long Term Care Facility	92%*	11%	8%	8%	4%	18%	16%	7%*	67%*
OAA	64%	81%	10%	10%	0%	30%	17%	7%	47%
Community	83%	50%*	6%	13%	10%	34%	24%	16%	76%
Academic**	100%	75%	0%	0%	0%	60%	60%	0%	66%
Research**	100%	66%	0%	0%	0%	0%	0%	25%	0%
Private**	100%	50%	50%	50%	50%	100%	50%	0%	50%
Consulting	85%	23%	13%	16%	8%	21%	24%	9%	80%
Home Health	79%	28%	6%	11%	0%	11%	6%	11%	79%
Rehabilitation Center*	100%	50%	25%	0%	0%	0%	25%	25%	75%

*p vale=≤ 0.05 Significance using Chi Square Test
**Answers based on fewer than 5 respondents.

Chapter Five

Discussion and Conclusion

Discussion

Results from this study suggest that dietitians perceive malnutrition to be a problem in the older adult population. The nutrition experts, dietitians, may agree with what past research has shown to be possibly true about the older adult population in multiple settings (Feldblum, et al., 2009; Persson, Brismar, Katzarski, Nordenstrom, & Cederhold, 2002; Cereda, Pusani, Limonta, & Vanotti, 2009). Additionally, it may be deduced from the study that dietitians identify early intervention as an important measure to maintaining older adults' functionality and independence. These remarks concerning functionality and independence are consistent with past research done on the older adult population (Manton, Corder, & Stallard, 1997).

About one third of responding dietitians did not think their knowledge or skills (in screening older adults is efficient which again is consistent with past research that identified the aging population as a weakness in the dietetic curriculum (Kaempher, Wellman, & Himburg, 2002). The question referencing dietitians' need for more training in screening older adults supported this even more with 78.8% of the respondents agreeing with this statement. Rhee, Wellman, Castellanos, and Himburg (2004) found that only 22% percent of dietetics undergraduate curriculum offered a class in gerontology, which backs their possible need for additional training found in this study.

In the questions regarding dietitians' involvement in screening, respondents suggest that dietitians need to play a larger and have more time for screening older adults. However, the majority of respondents did not state that they should be the only interdisciplinary team members performing the screens on the older adults. As Chima, Dietz Seher, and Kushner-Benson (2006) found in their research on screening of all ages in the acute care setting, dietitians or nutrition staff are not the members performing the screening the majority of the time. Instead, the nursing staff is the interdisciplinary team member performing the screening. This was supported by the results from this study showing that nurses were the number one disciplinary team member referring patients to

dietitians. This is a change from the research done by Foltz, Schiller, and Ryan in 1993. Dietitians and dietetic technicians were primarily performing the screens at this point. The change in the members performing the screens may be from the new Joint Commission regulations, which now make nutrition screening a requirement within the first 24 hours of admission. With dietitians not always being involved with a patient admission, performing the initial screen on every older adult would be difficult or even impossible in certain situations.

The knowledge dietitians possess on different screening tools for older adults was another topic not well researched. Almost all the study participants knew about BMI for they had been taught about it in college. . Other screening tools were not known by a large percentage of the respondents. However, the MNA and MNA-SF were familiar to a majority of respondents and many had learned about them from a journal article or professional conference. Similarly, the Determine Checklist was identified by over half of the dietitians, which may show that the Nutrition Screening Initiative was not successful in reaching all dietitians or may not be taught to the newest generation of dietitians. The Subjective Global Assessment is an older assessment that more than almost half of the respondents recognized. Many had learned about this screening tool in college, which is understandable since it is a screening tool that was initially designed to use on all populations (Detsky, et al., 1987). GNRI, MUST, and MST were all screening tools developed and published in research more recently (Bouillanne, et al., 2005; Elia, 2003; Ferguson, Capra, Dauer, & Banks, 1999). Each of these was not widely recognized and was discovered through journal articles or professional conferences.

Each of the screening tools surveyed for this research has been validated at some point as seen in Table 2.1. Each are a quick screening tool acceptable for use on the older adult population. Based on the results, the assumption can be made that dietitians believe a quick and validated tool would be beneficial for screening older adults. However, when the use of these tools was surveyed, the results showed dietitians are not using these available quick and validated tools. The majority was using BMI and work developed screening tools as their source for screening older adults. BMI has been shown to be an inadequate screening tool for the older adult population (Cook, Kirk, et al., 2005) but is

being widely used by dietitians and other interdisciplinary team members. The other highly used screening tool was the work developed tool. Yet again, another concern for the screening process since Chima, Dietz-Seher, and Kushner-Benson (2008) found the screening tools developed at the place of work are not always formally tested and validated. Instead, the screening criteria are chosen based on availability, ease of use, and documentation that the indicator represents nutrition risk in research. Of the respondents using a screening tool, approximately two thirds used a work developed screening tool. The question is whether or not the screening tools used by the majority of dietitians are meeting the American Dietetic Association standards for a screening tool, acceptable level of sensitivity, specificity, and positive and negative predictive values.

The results did not show one specific obstacle preventing screening tools other than BMI from being used in this population. No research has been found prior to this study on the obstacles of screening tools for older adults. The results of why certain screening tools are being used in each work setting showed that work policy was the main factor in 4 screening tools (BMI, work developed tool, Determine Checklist, and MNA). The MNA-SF was being administered due to its quickness and GNRI and MST were used for their validity. Dietitians surveyed used the SGA mostly because it focuses on critical parameters. While the results did not show any significant evidence on obstacles to screening tools, there were factors interpreted as to why particular screening tools are being used.

This survey showed that dietitians perceive interdisciplinary teams are lacking in training and knowledge regarding screening tools for the older adults. Past research has supported this by showing that nurses and doctors are not as accurate at performing screens (Adams, Bowie, Simmance, Murray, & Crowe, 2008; Bavelaar, et al., 2008; Suominen, Sandelin, Soini, & Pitkala, 2009). With the majority of respondents having a policy for interdisciplinary referrals, questions arise to whether the ones screening are capable of determining a proper referral. This survey also suggests the majority of dietitians find a lack of referrals from interdisciplinary team members as an obstacle in identifying malnourishment in the older adult population. With malnutrition continuing to

be a problem in all settings, one solution may lie in education of other interdisciplinary members on how to perform proper screening.

Conclusion

This study suggests older adult malnutrition is a problem and it affects an older adult's functionality and independence. There is a possibility many dietitians are not aware of the available quick, validated screening tools developed to identify malnutrition in the older adult population. In may be deduced that many dietitians are using screening tools; however, the majority of screening tools currently being used are possibly inappropriate for the population or the setting in which they are administered. Additionally, a knowledge and training deficit in dietitians and other interdisciplinary team members may be a problem in the identification of malnutrition.

Based on the results of the study, education regarding screening for malnutrition in older adults needs to increase in the curriculum of dietitians and interdisciplinary team members. Dietitians need to evaluate the screening tool they are currently using at work and determine if it is the best choice for their work setting as well as if it is validated. Aggressive measures needs to be made in identifying older adults at risk for malnutrition. If the problem can be attended to before it leads to actual malnourishment, adverse health effects caused by malnourishment can be avoided.

Limitations

The study is limited by only evaluating one member of the healthcare team's perspective. Opinions of dietitians may be biased or misinformed when regarding questions concerning other members of the healthcare team. Additionally, the data collected was only from one dietetics practice group which only represents a portion of the dietitians working with the older adults across the United States. These results were all based only on opinions and not on the actual occurrences at healthcare settings so this should be taken in to consideration when applying the results. Lastly, the response rate to the survey may be a limitation. Not all settings were equally represented with Long Term Care employees heavily weighing in on the overall results of the survey.

Future Applications

Upon completion of this study, there is a significant amount of research that could be done to further the understanding of this topic. One step would be to expand the population to all dietitians in the American Dietetics Association. Including other dietitians not belonging to the Healthy Aging DPG may give a better representation of all practices across the United States.

Analyzing the topic of older adult screening criteria would be beneficial as well. The results showed many dietitians using work developed tools but nothing is known on what criteria is involved. Also, comparing whether the criteria used for screening is the same or different for different age populations may show a lack of validity in these work developed tools.

Lastly, the results of screening accuracy in interdisciplinary team members prior to and after education on the topic would be beneficial. Determining whether there would be an increase in screening competency in different healthcare disciplines would help promote dietitians educating their fellow staff on screening older adults. In addition to the value of on the job training, looking closer at the training of other disciplines during school could highlight what may need to be added in the curriculum to improve screening in older adults.

Appendix I

1. Dietitians' Use and Perceptions of Nutrition Screening Tools for Older Adul...

The purpose of this survey is to determine the methods used by dietitians to screen for malnutrition in the older adult; to determine the role of dietitians in preventing malnutrition in the older adult; and to determine what obstacles are present in older adult care that need to be overcome to decrease malnutrition.

2.

Please answer the following questions. Please keep in mind the questions refer to older adults, age 65 and over. Thank you for your time and expertise. They are greatly appreciated.

1. How long have you been a registered dietitian?

- ◯ Not a registered dietitian
- ◯ Less than 1 year
- ◯ 1-5 years
- ◯ 6-10 years
- ◯ 11-15 years
- ◯ 16-20 years
- ◯ over 20 years

2. In which category is your age?

- ◯ 18-24 years
- ◯ 25-34 years
- ◯ 35-44 years
- ◯ 45-64 years
- ◯ 65 years or older

3. In which section of the United States are you employed?

- ◯ Northeast (CT, DE, MA, MD, ME, NH, NJ, NY, OH, PA, RI, VT, DC, Canada)
- ◯ Southeast (AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, WV, PR)
- ◯ Midwest (CO, IA, IL, IN, KS, MI, MN, MO, ND, NE, SD, WI)
- ◯ Southwest (AZ, OK, NM, TX)
- ◯ West (AK, CA, HI, ID, MT, OR, NV, UT, WA, WY)

4. How long have you been in your current job?

- ◯ Less than 1 year
- ◯ 1-5 years
- ◯ 6-10 years
- ◯ 11-15 years
- ◯ 16-20 years
- ◯ over 20 years

5. How long have you worked with older adults?

- ◯ I do not work with older adults
- ◯ Less than 1 year
- ◯ 1-5 years
- ◯ 6-10 years
- ◯ 11-15 years
- ◯ 16-20 years
- ◯ over 20 years

3.

6. In what setting do you work with older adults?

- ☐ Hospital
- ☐ Long Term Care Facility
- ☐ OAA Nutrition Program
- ☐ Community
- ☐ Academic
- ☐ Research
- ☐ Private Corporation
- ☐ Consulting
- ☐ Home Health
- ☐ Other (please specify)

7. What percent of your time at work is spent with older adults?

- ◯ <10%
- ◯ 10-19%
- ◯ 20-29%
- ◯ 30-39%
- ◯ 40-49%
- ◯ 50-59%
- ◯ 60-69%
- ◯ 70-79%
- ◯ 80-89%
- ◯ >90%

4.

Malnutrition may be defined as a state of nutrition where a deficiency or excess of energy, protein, and other nutrients cause adverse effects on body tissue and function.

8. Malnutrition is a prevalent problem in the older population.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree

9. Early nutrition intervention will help the older population maintain....

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
functionality	◯	◯	◯	◯	◯
independence	◯	◯	◯	◯	◯

10. Dietitians lack of _____in nutrition screening of the older adult is a problem in identifying malnourishment in the older population.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
knowledge	◯	◯	◯	◯	◯
skill	◯	◯	◯	◯	◯

11. Screening tools other than BMI are not used in my place of work because of

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
cost	◯	◯	◯	◯	◯
lack of personnel	◯	◯	◯	◯	◯
lack of time	◯	◯	◯	◯	◯
lack of knowledge of tools	◯	◯	◯	◯	◯
work policy	◯	◯	◯	◯	◯
reimbursement issues	◯	◯	◯	◯	◯

5.

12. At your current job, is it policy for other members of your interdisciplinary team to refer older clients to a dietitian?

- ◯ Yes
- ◯ No

6.

13. Who is most likely to refer an older client to you?

- [ ] Case Manager
- [ ] Center Director
- [ ] Discharge Planner
- [ ] Doctor
- [ ] Nurse
- [ ] Diet Technician
- [ ] Physician Assistant
- [ ] Other (please specify)

14. A lack of referrals of older adults from an interdisciplinary team member to a dietitian is an obstacle to identifying malnutrition in the older adult.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree

15. A lack of _____ in screening older adults by an interdisciplinary team member (excluding dietitians) is an obstacle in identifying malnourishment in this population.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
knowledge	◯	◯	◯	◯	◯
training	◯	◯	◯	◯	◯

7.

16. Only dietitians should screen older adults for malnutrition.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree

17. Dietitians should _____ screening older adults for malnutrition.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
receive more training in	◯	◯	◯	◯	◯
spend more time	◯	◯	◯	◯	◯
play a larger role in	◯	◯	◯	◯	◯

18. A quick, validated screening tool for the older adults would be beneficial to dietitians for identifying malnutrition in older adults.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree

19. Screening tools compatible with the computerized-system used by my place of work would be beneficial to identifying malnutrition in the older adult.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree

8.

The following question apply to specific screening tools. Please answer the questions as indicated.

20. Are you familiar with any screening tools used for malnutrition?

- ◯ Yes
- ◯ No

21. Choose all the screening tools you recognize. For any screening tool you recognize, please choose how you learned about it.

	Do you recognize this?	How did you find out about it?
BMI		
Determined Checklist/NSI		
Geriatric Nutrition Risk Index		
Malnutrition Screening Tool		
Malnutrition Universal Screening Tool		
Mini Nutrition Assessment		
Mini Nutrition Assessment-Short Form		
Subject Global Assessment		

Other (please specify)

9.

22. Do you currently use a screening tool at your place of work?

- ◯ Yes
- ◯ No

23. Choose the screening tools you currently use to screen for malnutrition. For a screening tool you use at work, please choose why you selected this tool.

	Do you use this screening tool?	Why did you select the screening tool that you currently use?
A screening tool developed at your place of work		
BMI		
Determined Checklist/NSI		
Geriatric Nutrition Risk Index		
Malnutrition Screening Tool		
Malnutrition Universal Screening Tool		
Mini Nutrition Assessment		
Mini Nutrition Assessment-Short Form		
Subject Global Assessment		

Other (please specify)

10.

24. Does someone else on your interdisciplinary team perform the screening?

- ◯ Yes
- ◯ No

25. Do other members of your interdisciplinary team use a screening tool?

- ◯ Yes
- ◯ No
- ◯ I do not know

11.

26. If someone else does the screening and refers the client to you, choose the screening tools used. For any screening tool used, please choose why the specific screening tool is being used.

	Does a member of your interdisciplinary team use this screening tool?	Why is this screening tool used?
A screening tool developed at your place of work		
Determined Checklist/NSI		
Geriatric Nutrition Risk Index		
Malnutrition Screening Tool		
Malnutrition Universal Screening Tool		
Mini Nutrition Assessment		
Mini Nutrition Assessment-Short Form		
Subject Global Assessment		

Other (please specify)

12. THANK YOU!

Thank you for answering these questions. We look forward to sharing the information with you.

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