

Abstract

This study examines the public perception that there is malnutrition in elderly living in assisted living facilities. Fifteen participants filled out an anonymous survey form. The results of this research were that two thirds of the participants believed that it is unlikely that elderly living in assisted living facilities suffer from malnutrition. Women in this study even disagreed more strongly than men on this subject that the elderly were malnourished. The findings also showed that participants with the least number of relatives or friends living in assisted living facilities and those who visited those facilities the least had the strongest agreement that the elderly were suffering from malnutrition. The survey showed no correlation between education level and the degree of agreement that elderly in assisted living facilities are malnourished and this relationship should be studied further.

Introduction

There is an epidemic in the world today. It is not only occurring in the poorest parts of the world but also in our most affluent neighborhoods. This epidemic is the malnutrition of our older population, especially the elderly in assisted living facilities. Such malnutrition is a problem which is faced by the elderly regardless of social or economical status. The causes of malnutrition often are the result of age related illnesses or conditions which are not always recognized, but they can also occur just because the elderly are not given the proper foods.

This particular aspect of elderly malnutrition is an issue for me since I have close relatives who are resident in assisted living facilities. It is also a problem for many of my friends who are in similar situations. Through this experience I have come to realize that I need to understand more about elderly nutritional requirements and how these relate to their health and well being. But beyond that I realize that my friends and I are also getting older and soon will be having our own nutritional issues, which we need to understand.

To understand the nutritional needs of the elderly, and to take the initial step in preventing or treating elderly malnutrition, we need to determine the risk of its occurrence or its pre-existence. Once such a risk or pre-existence is known, chronic diseases or mental disabilities can be prevented by appropriate nutritional treatments. Properly nourished elderly live more independent and fruitful lives. Moreover resources related to medical costs and elderly care can be better utilized with prevention rather than correcting deficiencies due to malnutrition.

We all get older and the more information we have, the better we can be prepared. This is why it is important to study this issue further so that we can improve the quality of life during

this period. I will discuss in this paper the recognition of malnutrition in the elderly and how it may be prevented.

Review of Literature

Who Are the Elderly Affected by Malnutrition?

As our population grows older, malnutrition is a continuous problem for a wide range of older adults. It is a condition that appears across the economic spectrum. Poor older people show significant nutritional deficiencies which did not improve even with food assistance programs like the Food Stamp Program and Elderly Nutrition Program (Lee, & Frongillo, 2001). This study used 9,596 elderly between the ages of 60 to 90 years. Lee and Frongillo, (2001) agree with Babineau, Villalon, Laporte, and Payette, (2008) that there is a malnutrition problem in the elderly. But in contrast to Lee and Frongillo (2001) that deficient food intake might be an expectation in poorer older people, the study of Babineau et. al (2008) shows that there is also a problem with malnutrition which is not anticipated in the elderly who are wealthy enough to afford nursing home and hospital care. Yet an estimated 30% to 83% are malnourished at the start of a hospital stay, and the nutritional deficiency worsens during their hospitalization (Babineau, et al. 2008).

A study by Paillaud, et al. (2004) determined that malnutrition in the elderly was most likely due to underlying illnesses, like oral candidiasis which was present in 34 to 51 % of patients, which can prevent a geriatric patient from eating due to pain in the mouth, rather than economic conditions. Other studies, like the study by Ilich, Brownbill, & Tamborini (2003) found age related illnesses to have a more direct impact on elderly malnutrition. They examined 136 healthy postmenopausal women, and found that even healthy postmenopausal women are at

risk to develop a nutrient deficiency which is osteoporosis. This is an age related condition that poses serious health risks to the elderly.

What Are the Health Consequences of Malnutrition in the Elderly?

The health consequences of malnutrition in the elderly come in a wide range depending on the length of nutritional deficiencies. They can include reduced mental capacity, weight loss, reduction of physical functions, and chronic diseases such as heart disease and arthritis hypertension (Lee, & Frongillo, 2001; Bernstein, et. al 2002; Paillaud, et al 2004). The study of “Nutrition, Aging and Memory in Elders” (NAME) showed that the lack of micronutrients can lead to decreased intestinal absorption, and elevation of the homocystein level in the blood which then causes cardiovascular disease and vascular dementia (Scott, et al. 2006). The study of bone mineral density by Ilich, et al. (2003) determined that the lack of protein and calcium can lead to bone fractures in the elderly. Other results show that the consequences can be quite dire, ranging from longer hospital stays to even death (Babineau, et al. 2008).

What Can Be Done to Prevent or Correct Elderly Malnutrition?

Intervention is critical to correct the problem of malnutrition in our older population. In order to reduce elderly nutrition related diseases, improve their cognitive function, and allow longer independence. In this respect, determination of a malnourished condition is vital since studies show that initial screening of elderly in their homes, healthcare facilities, and hospitals for malnutrition, and nutrition related disease play an important part in prevention and intervention. (Babineau, et al. 2008; Lee, & Frongillo, 2001). The exact condition of malnourishment and the nutritional needs of elderly are basically determined by food assistance programs research (Lee, & Frongillo, 2001). But it should be noted that these programs are

especially concerned with the impoverished and neglected older adult food intake (since there is as stigma attached on receiving assistance). Nevertheless, the goal of food assistance programs are to make their programs more effective, accessible and beneficial to prevent malnutrition in the geriatric population, and they do provide guidance on elderly malnutrition.

Once malnutrition is determined, preventive measures can be as simple as offering a greater variety in food selection in the home or hospital. The study by Bernstein, et al. (2002) found that offering frail elderly persons a wide selection in fruits and vegetables to their daily intake was helpful in preventing malnutrition. The variety in the diet improved both men and women's nutritional level and improved their cognitive abilities. In women it not only improved their body mass index, but also lowered the risk of gastrointestinal cancer.

Food is not the only source of nutrition for the elderly as the effects of vitamins and minerals can also improve the health and prevent serious illnesses and malnutrition in mature adults. It is essential to allow older people to keep their independence as long as possible by promoting cognitive and physical abilities. By taking vitamins and mineral supplements the elderly can prevent the condition of chronic illnesses, or prevent or improve infections, and dementia. By taking calcium postmenopausal women can ensure a healthier bone mass density. (Ilich, et al 2003; Scott, et al.2006; Paillaud, et al. 2004).

Human Ecological Theory

Human ecological theory states that each individual is a growing active entity that is intertwined with its environment, and an individual affects and is being affected by its surroundings. At the macrosystem level the nutritional deficiencies in the elderly can be affected by a number of factors such as government funding available for food assistance programs for the elderly, a falling stock market that can affect financial resources available to institutions to

provide nutritional or geriatric research funding, or changes in laws regarding the nutrients in food content. At the exosystem level, nutrition can be affected by the outside work demands of an elderly person's caretaker such as the work schedule of a son or daughter that does not allow them to properly prepare meals or monitor nutrition, local resources allocated by city officials that support senior meal or assistance programs, and hospitals that are not properly attuned to providing the proper nutritional needs for the elderly. Moreover, when we look at older adults and see that their environment and development have changed over time, we can see that their nutritional needs have been affected by various nutritional, health and monetary problems. As these problems affect these persons, they react and affect their environment by placing demands on family, personal, and social resources. It is an affect related to the chronosystem in which we influence our environment as our positions in that environment change, and malnutrition has a serious impact on those positions.

Methods

Nutritional Deficiencies and Malnutrition in an Older Population

Nutritional deficiencies in the elderly should be everybody's concern. We will hopefully all grow old one day and need to know what kind of age appropriate nourishment we will need. Therefore this study will look at these concerns and test the knowledge of people of different backgrounds and educational levels to determine how aware they are of the nutritional needs of the elderly.

Operationalization of Variables

The demographic variables of this study will focus on age, sex, and education. These three demographics are of interest because a person representing any combination of them could have a different perception of malnutrition in the elderly. Next three quantitative questions will be asked. The first one will question the participant if they have any close family or friend living in an assisted living facility for the elderly. This would indicate that they have an immediate personal interest in the health and well being of their family member or friend. These participants most likely would be aware of the care and food given to their family member or friend. A question is asked about how often they visit a nursing home since the more often a person visits such a facility, the more aware they would be of the facility's food service (whether or not they had a friend or relative living there). Further the participant will be asked how much he/she agrees that the elderly in an assisted living facility suffer from malnutrition. The final question will be a qualitative one, where the participant will be asked to share his/her perception of the type of foods elderly in assisted living facilities should be provided to prevent malnutrition.

Sample Selection

For this study a convenience sample will be used and the survey will be distributing to

willing participants in the Northridge Fashion Center in the food court area. Both adult males and females will be asked to participate.

Analyses

For the purpose of this study qualitative and quantitative methods will be used.

Perception of Nutrition of Elderly Residents in Assisted Living Facilities

This is a confidential and anonymous survey designed to look into perception of the nutrition of adults over 60 years of age in assisted living facilities.

Please mark or fill in the appropriate response:

1. Age _____
2. Sex
☐ Male ☐ Female
3. What is your level of education?

<input type="checkbox"/> 5th Grade or Below	<input type="checkbox"/> 6th-8th Grade	<input type="checkbox"/> Some High School
<input type="checkbox"/> High School or Equivalent	<input type="checkbox"/> Some College / No Degree	<input type="checkbox"/> AA Degree
<input type="checkbox"/> Bachelor's Degree	<input type="checkbox"/> Graduate Degree	<input type="checkbox"/> Other _____
4. How many of your relatives or friends are living in an assisted living facility? _____
5. How much do you agree that the elderly in assisted living facilities are malnourished?
☐ Strongly Agree ☐ Agree ☐ Disagree ☐ Strongly Disagree
6. How often do you visit an assisted living facility?
☐ Very Often ☐ Often ☐ Seldom ☐ Never
7. In the space provided below, in as much detail as possible, explain what type of foods do you think elderly in assistant living facilities should be provided to prevent malnutrition:

Thank you for your time in filling out this survey.

Results

Univariate Demographic Analyses

A survey on public perception of whether elderly residents in assisted living facilities are malnourished was carried out at the food court in the Northridge Mall in Northridge, California. 15 people at random were asked to take part in the survey. Of the surveyed, 40.0% were male and 60.0% were female (see Table1). The mean age of the surveyed males and females was 47.9 years. All involved were asked about their education level, of which 13.3 % had a 5th grade or below education level, and the same percent of the surveyed (13.3%) had a graduate degree. None of the participants had a 6th-8th grade education level, some high school, or had marked “other”. The high school level or equivalent group comprised 20.0% and the AA degree group also comprised 20.0 % of the participants. Only 6.7% marked on the survey that they had some college education but no degree. The highest number of participants surveyed stated they had a Bachelor’s Degree, which was 26.7%.

Table 1: Univariate Analysis of Demographic Variables N=15

	N	%
Sex Male	6	40.0
Female	9	60.0
Age (in mean years)		47.9
Education Level		
5th Grade or Below	2	13.3
6th-8th Grade	0	0.0
Some High School	0	0.0
High School or Equivalent	3	20.0
Some College / No Degree	1	6.7
AA Degree	3	20.0
Bachelor’s Degree	4	26.7
Graduate Degree	2	13.3
Other _____	0	0.0

Univariate Research Analyses

This study focused on participants who had family or friends living in an assisted living facility. The surveyed had an average of 0.93 of relatives or friends living in an assisted living facility (see Table 2). When participants were asked about their perception regarding the degree of agreement that elderly living in assisted living facilities were malnourished, the mean was 2.20. This was based on a four-point score system, where 4 = strongly agree, 3 = agree, 2 = disagree, and 1 = strongly disagree. The average of participants who visit an assisted living facility was 2.73. This mean was also based on a 4 point score, where 4 = very often, 3 = often, 2 = seldom, and 1 = never.

Table 2: Univariate analysis of Research Variables N=15

	Mean
Number of Relatives or Friends in Assisted Living Facility	0.93
Degree of Agreement in Malnutrition in Elderly Living in Assisted Living Facilities	2.20
How often Participant Visited an Assisted Living Facility	2.73

Bivariate Analyses

A crosstabulation of sex and agreement that there is malnourishment in elderly in assisted living facilities showed that 66.7% of males and 33.3% of females disagree and 33.3 % of females strongly disagreed that elderly in assisted living facilities are malnourished.. This illustrates that the majority of female and males disagree that there is malnutrition in the elderly in assisted living facilities.

A Chi square test was performed on sex and education level. The result of Chi square was 3.616. The critical value was 15.507 at eight degrees for freedom (df), thus the result was not significant. This establishes that there was no relationship between sex and education level and occurred by chance.

A t-test was conducted to establish a statistical difference between sex and the number of relatives or friends living in an assisted living facility. A t-value of 0.2124 was calculated. The critical value with thirteen degrees of freedom (df) was 2.160 at an alpha level of less than 5 %. Since the critical value was less than the t-value, no significance was found between the variables of sex and number of relatives or friends living in an assisted living facility.

A correlation calculation test was carried out to determine if the number of relatives and friends living in assisted living facilities has an impact on the degree of agreement that elderly in assisted living facilities suffer from malnourishment. The r-value obtained was -0.6377, and at thirteen degrees of freedom (df) there was a critical value of 0.514. Therefore the two variables are negatively correlated as demonstrated in Figure 1. As the participant's numbers of family and friends living in assisted living facilities increased, the degree of agreement that there was malnourishment in elderly living in assisted living facilities decreased.

Another correlation test was done to see if there was a significant correlation between how often participants visit an assisted living facility and the degree of agreement that elderly in assisted living facilities suffered from malnourishment. The r-value was -0.584 which, at thirteen degrees of freedom (df) had a critical value of 0.514 at the 5% probability level. Therefore again, the two variables are negatively correlated. The more often participants visited a assisted living facility the degree of agreement that elderly in assisted living facilities suffered from malnourishment decreased.

Qualitative Analysis

The participants were also asked qualitative questions regarding what they believe the type of foods elderly in assisted living facilities should be provided to prevent malnutrition. While a majority of the participants stated that the foods elderly need to eat should include proteins, fruits, carbohydrates and dairy, one participant wrote that the food given to the elderly should be personalized to each person's preference. Another common concern was that the elderly need to have well balanced meals, which should include vitamins and minerals. Many of the participants wrote about the importance of fresh fruits and vegetables on a daily basis. They also stated that besides well balance meals, the food should be processed as little as possible. The diet should consist of a high variety of different foods, a diet high in fiber, and a diet taking into account the health of the elderly; all statements were all made by participants filling out the survey.

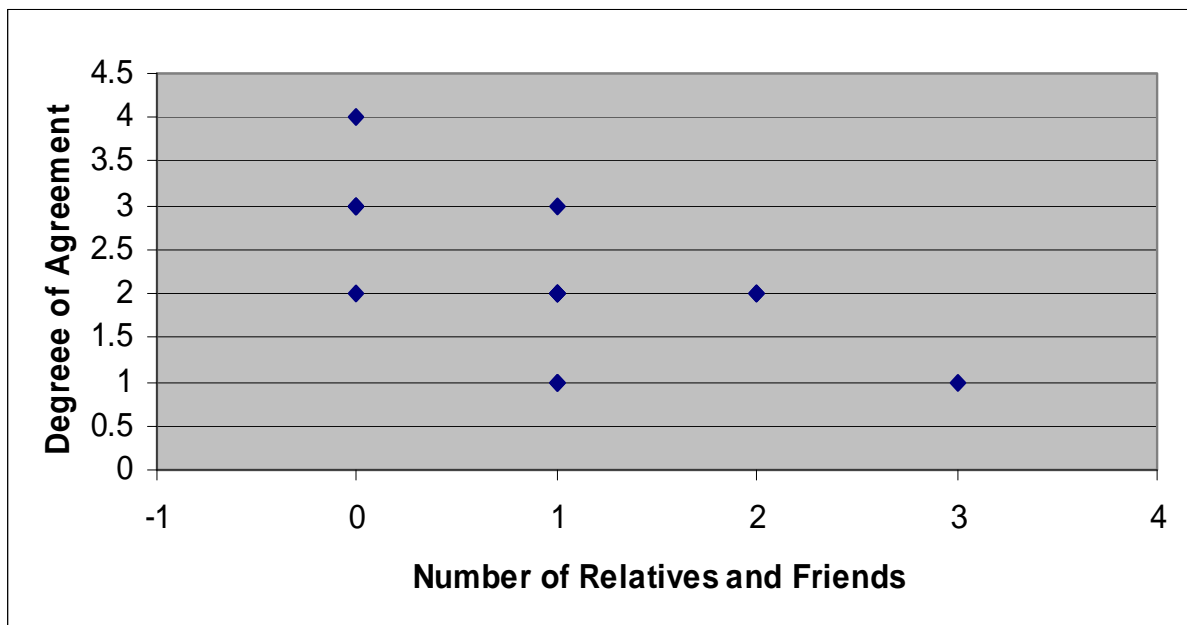


Figure 1. Correlation of Number of Relatives and Friends Living in an Assisted Living Facility by the Degree of Agreement that Elderly Living in Assisted Living Facilities are Malnourished, N=15

Conclusion

This study was performed in order to evaluate the public perception of the nutritional status of elderly residents in assisted living facilities. A range of people were asked to participate in this survey. Because there were only 15 participants the sampling was too limited, so many factors were probably overlooked. However, the result of this study disclosed the participants' perception that is supported by the research done by Bernstein, et al. (2002) that to prevent malnutrition a wide selection of fresh fruits and vegetables need to be offered to elderly persons daily. Also, subjects in this study indicated they understood the importance of vitamin and mineral supplements for the elderly which correlates with the study by Ilich, et al. (2003) that food should not be the only source of nutrition for the elderly as the effects of vitamins and minerals can also improve elderly health and prevent serious illnesses and malnutrition in mature adults.

While 33.3% of males and 22.3 % of females agreed or strongly agreed that the elderly in assisted living facilities are malnourished, which supports the study of Babineau et. al (2008) that there is a problem with malnutrition in the elderly, the majority of the participants disagreed that elderly in assisted living facilities are malnourished which correlates to the perception in the study of Babineau et al (2008) that malnutrition in wealthier elderly did not exist.

A crosstabulation of sex and agreement regarding the status of malnourishment in elderly in a assisted living facilities showed that the majority of men and women disagree that the elderly are malnourished, but half of the women felt stronger about their disagreement. Women usually take care of their family members or friends and therefore are more likely to make sure their loved ones are receiving the proper nutrition in their assisted living facility.

A Chi square test was performed on sex and education level, which showed no relationship between sex and education level. This data was not pertinent to this study. A Chi square test on education level and the degree of agreement that elderly in assisted living facilities are malnourished would have been a more relevant comparison for this study.

My t-test was conducted to establish a statistically differences between sex and the number of close relatives or friends living in an assisted living facility. The test result concluded that men and women have about the same amount of relatives and friends living in assisted living facilities.

I performed two correlation tests. The first correlation was intended to determine if the number of relatives and friends living in assistant living facilities has an impact on the degree of agreement whether elderly living in assisted living facilities suffer from malnourishment. The result took me by surprise since I expected that the more relatives and friends the participants knew who lived in assisted living facilities, the more they would be aware of the problem of malnutrition in the elderly. My result indicated just the opposite. Participants who indicated in the survey the least number of relatives or friends living in assisted living facilities agreed the strongest to the malnutrition question. I am not sure why they responded this way, but to be sure about this correlation the study needed to be open to more participants.

The second correlation test was done to see if there was a significant correlation between how often participants visit an assisted living facility and the degree of agreement whether elderly living in assisted living facilities suffer from malnourishment. Again, a negative correlation was established. The more infrequently the participants visited a relative of friend the more likely they were to agree that elderly living in an assisted living facilities are malnourished.

Based on my research, two thirds of participants believed that it is unlikely that elderly living in assisted living facilities suffer from malnutrition. Women in this study disagreed more strongly than men on this subject. The most interesting discovery was in my two correlation tests that revealed that participants with the least relatives or friends in assisted living facilities and those who visited those facilities the least agree the strongest that elderly in assisted living facilities suffer from malnutrition. However, because of the limited amount of information, an absolute conclusion cannot be made about whether or not people perceive there is a malnutrition problem in the elderly, but from the information I collected it seems that a perceptual issue may exist and more work has to be done to educate people about the problem of malnutrition in the elderly in assisted living facilities.

References

- Babineau, J., Villalon, L., Laporte, M., & Payette, H. (2008). Outcomes of screening and nutritional intervention among adults in healthcare facilities. *Canadian Journal of Dietetic Practice and Research*, 69(2), 89-94.
- Bernstein, M. A., Tucker, K. L., Ryan, N. D., O'Neill, E. E., Clements, K. M., Nelson, M. E., et al. (2002). Higher dietary variety is associated with better nutritional status in frail elderly people. *Journal of the American Dietetic Association*, 102(8), 1096-1104.
- Ilich, J., Brownbill, R., & Tamborini, L. (2003). Bone and nutrition in elderly women: protein, energy, and calcium as main determinants of bone mineral density. *European Journal of Clinical Nutrition*, 57, 554-565.
- Lee, L. S., & Frongillo, Jr., E. A. (2001). Understanding needs is important for assessing the impact of food assistance program participation on nutritional and health status in U.S. elderly persons. *The Journal of Nutrition*, 131, 765-773.
- Paillaud, E., Merlier, I., Dupeyron, C., Scherman, E., Poupon, J., & Boris, P. (2004). Oral candidiasis and nutritional deficiencies in elderly hospitalized patients. *British Journal of Nutrition*, 92, 861-867.
- Scott, T. M., Peter, I., Tucker, K. L., Arsenault, L., Bergethon, P., Bhadelia, R., et al. (2006). The nutrition, aging, and memory in elders (NAME) study: Design and methods for a study of micronutrients and cognitive function in a homebound elderly population. *International Journal of Geriatric Psychiatry*, 21, 519-528.