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NUTRITIONAL SCREENING AMONG NURSING HOME RESIDENTS AT RUMAH SERI KENANGAN, KELANTAN

by

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ABSTRACT

Most research found that malnutrition among nursing home was high. Malnutrition was a public issue which everyone was too worried because it can cause the health condition of elderly become worst. The purposes of this study were to identify the nutritional status and prevalence of high risk of malnutrition among nursing home residents. On the other hand, the purpose of this study to determine the association of nutritional status and socioeconomic status, functional status, weight loss, mid upper arm circumference and calf circumference. This cross sectional study done in Rumah Seri Kenangan (RSK), Kelantan involved 68 of respondents who were 60 years of age and above and full fill the inclusion criteria that had determined before. This study use questionnaire which consists of three parts which personal and social data, anthropometry measurements and questions of MRST-H. The results showed that, 14.7% of respondents were underweight (BMI < 18.5 kg/m^2), 58.8% of respondents were normal, 19.1% of respondents were overweight and 7.4% of respondents were obesity. 11.8% of respondents were high risk for malnutrition which 4 respondents were male and 4 respondents were female. There were significant association between nutritional status and weight loss (p<0.001), mid upper arm circumference (MUAC) (p=0.046) and calf circumference (CC) (p<0.001). There was no significant association between nutritional status and functional

status (p=0.118). As a conclusion, this study found that more elderly in RSK, Kelantan were underweight and high risk for malnutrition. The nutritional status had significant association with weight loss, MUAC and CC but not significant with functional status.

PENYARINGAN PEMAKANAN DALAM KALANGAN PENDUDUK RUMAH ORANG-ORANG TUA DI RUMAH SERI KENANGAN, KELANTAN

ABSTRAK

Malnutrisi dalam kalangan warga tua di rumah orang-orang tua adalah tinggi dalam kebanyakan kajian yang telah dijalankan. Malnutrisi merupakan satu isu masyarakat yang amat membimbangkan kerana malnutrisi boleh menyebabkan keadaan kesihatan warga tua bertambah buruk. Tujuan kajian ini dijalankan adalah untuk mengenal pasti status nutrisi warga tua di sini dan prevelen warga tua yang berisiko tinggi untuk mendapat malnutrisi. Selain itu, kajian ini bertujuan untuk melihat perkaitan antara status nutrisi dan status sosioekonomi, status fungsian, kehilangan berat badan, ukurlilit lengan atas dan ukurlilit betis. Kajian keratan lintang ini dijalankan di Rumah Seri Kenangan (RSK), Kelantan, melibatkan 68 orang responden yang berumur 60 tahun ke atas yang menepati kriteria-kriteria yang telah ditetapkan. Kajian ini menggunakan borang soal selidik yang terdiri daripada tiga bahagian iaitu data peribadi dan sosial, pengukuran antropometri dan soalan MRST-H. Keputusan kajian menunjukkan bahawa 14.7% responden mengalami kekurangan berat badan (IJT < 18.5 kg/m^2), 58.8% responden adalah normal, 19.1% responden mengalami berat badan berlebihan dan 7.4% responden mengalami obesiti. Seramai 11.8% responden berisiko tinggi untuk mendapat malnutrisi yang terdiri daripada 4 orang lelaki dan 4 orang wanita. Terdapat perkaitan yang signifikan antara status nutrisi dan kehilangan berat badan ($p<0.001$), ukurlilit lengan atas ($p=0.046$) dan ukurlilit betis ($p<0.001$). Namun

begitu, tiada perkaitan yang signifikan antara status nutrisi dan status fungsian (p=0.118). Kesimpulannya, kajian ini mendapati bahawa ramai warga tua di RSK, Kelantan mengalami kekurangan berat badan dan berisiko tinggi mendapat malnutrisi. Status nutrisi mempunyai perkaiatan yang signifikan dengan kehilangan berat badan, ukurlilit lengan atas dan ukurlilit betis tetapi tidak signifikan dengan status fungsian.

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Elderly who can be called as senior citizen can be define as an individual who is 60 and over years of age (WHO, 2008). This age group is growing in virtually all countries, and worldwide trends are likely to continue tremendously. In 2002, there were an estimated 605 million older persons in the world, nearly 400 million of whom were living in low income countries (WHO, 2008). Greece and Italy had the highest proportion of older persons (both 24% in 2000). By 2025, the number of older persons worldwide is expected to reach more than 1.2 billion, with about 840 million of these in low income countries (WHO, 2008). Studies on elderly have now created interest among researchers and a lot of attention had been given since this special group has faced many problems throughout their life including health care (Suriah, Zainorni, Shafawi, Mimie Suraya, Zarina, Wan Zainuddin & Zalifah, 1996). Even though they may have involved with health problem, but every year, the population of elderly is increasing while the mortality rates had declined due to progress in preventing infectious diseases and improving hygiene, sanitation and overall social development and living standards. As a result, the average life expectancy in Malaysia, since between 2005 and 2007, the life expectancy for the males were increased from 71.4 to 71.9 years while the females from 76.1 to 76.4 years (Department of Statistic Malaysia, 2008). On the other hand, by the year 2000, the percentage of elderly in Malaysia is 6.3% and it is expected by the year 2010 the percentage of elderly will be 7.5% and in 2020 the percentage is 9.8% (Karim,

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1997). It is estimated that by the year 2050, the proportion will increased by four-fold to 21% (7.9 million people) (Mafauzy, 2000).

Being older person who has a family that love and is willing to take care of them until the end of their life they are considered very lucky but for those who have no family or was neglected by the family members are very unfortunate because they had to go through a hard time to survive. Because of that, to lighten the burden of this people, the government took an initiative to build a place which is called as Rumah Seri Kenangan (RSK) to accommodate them so that their welfare is protected. The aims of these homes are to provide adequate care and support in the form of medical and rehabilitative services and counseling to older people who are lacking of family and financial support (Visvanathan, Zaiton, Sherina & Muhamad, 2005). In Malaysia, the total number of RSK is nine. Corresponding with the increasing of life expectancy, every year, the numbers of people who was sent to RSK increased (Table 1.1).

Ageing process is a natural and continuous process that everyone cannot avoid. It is a complex phenomenon which affects physiology, psychology and social life of the elderly. Ageing process is not a disease but as they were getting older, the elderly need a special care and treatment because at this age, they are at the high risk of getting diseases. A total of 60% of elderly in rural communities in Malaysia reported that they had either one or two diagnosed chronic illnesses (Shahar, Earland & Abd Rahman, 2001).

Everyone agrees that adequate nutrient intake is very important to all living things. Malnutrition is one of the health issues that people around the world are very concerned about it. Besides the children, elderly people are one of the group that are at

Table 1.1: Number of Occupants at Rumah Seri Kenangan by Gender, 2005-2006

Institution	2005		2006	
	Male	Female	Male	Female
RSK Bedong	209	113	246	129
RSK Cheng	101	56	118	58
RSK Cheras	182	73	175	102
RSK Pengkalan Chepa	86	58	81	58
RSK Johor Bahru	119	74	110	63
RSK Kangar	103	59	113	67
RSK Seremban	91	73	100	70
RSK Taiping	121	66	144	78
RSK Tanjung Rambutan	159	84	156	85
Total	1,171	656	1,234	710

Source: Department of Social Welfare, Malaysia, 2007

high risk of malnutrition (Pauly, Stehle & Volkert, 2007). Older people are at high risk of malnutrition not only because of food insecurity, but also due to various social, physiological and health changes with ageing (Solve, 1997). It is sad to hear that because this problem not only occurs in developing countries but also in developed countries such as Japan and United States (Solve, 1997).

Malnutrition refers to a condition that occurs when the nutrients available to a person's body are insufficient to meet the body's needs (www.megacees.com). Malnutrition among elderly occurs due to many factors including sensory losses; anorexia, chewing and swallowing problems; chronic and acute disease and accompanying multimedication may compromise dietary intake and lead to nutritional deficiencies and malnutrition (Pauly et al., 2007). While Visvanathan et al., (2005) found

that lonely, poor and often illiterate people are at risk of being or becoming undernourished. Everybody is very scared about malnutrition because it can cause the increasing of morbidity and mortality, length of hospital stay, and consequently the cost of providing health care (Chima, Barco, Dewitt, Maeda, Teran & Mullen, 1997). Other than that, malnutrition contributes to sarcopenia, frailty, loss of functions, progression of diseases (Morley, 2001), induces impairment in immune responses that exposes aged people to infections (Suominen, Muurinen, Routasola, Soini, Suur-Uski, Peiponen, Finne-Soveri & Pitkala, 2005).

Malnutrition can be detected by using anthropometry, biochemical test, clinical assessment and dietary intake. There are many tools that had been developed by other researchers that the validity and reliability had been determined to screen nutritional status among elderly. They are Nutrition Screening Initiative (NSI), Malnutrition Universal Screening Tool (MUST), Mini Nutritional Assessment (MNA) (Elia, 2003), Instant Nutritional Assessment (INA) (Grant, 1991), Nutritional Form for the Elderly (NUFFE) (Soderhamn, 2002), Nutritional Risk Index (NRI) (Wolinsky & Coe, 1990) and Mini Nutritional Assessment – Short Form (SMNA-SF) (Guigoz, Vellas & Garry, 1994).

In Malaysia, the new tool that uses to assess nutritional status among elderly in hospital was developed by Sakinah (2006) which is Malnutrition Risk Screening Tool-Hospital (MRST-H). This tool is simple and consist of five questions cover the socioeconomic status, functional status and anthropometry measurements.

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1.2 Problem Statements

Living at the nursing home is not guarantee that the elderly can live happily. There were many problems reported at nursing home such as elderly abuse, dehydration and malnutrition. Malnutrition has been recognized as a common problem among aged residents living in institutional care facilities (Saletti, Lindgren, Johansson & Cederholm, 2000) either in the hospital or nursing home. As age increased, it may affect on eating patterns and nutritional status. In Malaysia, study had shown that in institutions, the prevalence of malnutrition is higher compared to community which 2% to 63% (Azhar 1986; Norimah, Faizah & Suriah, 1990; Tee, Chan, Zaitun & Suriah, 2005; Visvanathan et al. 2005). Several studies have shown that aged residents living in institutions suffer from malnutrition (Christensson, Unosson & Ek, 2002). In Sweden, one-third of aged residents living in old people's homes were malnourished (Saletti et al, 2000). It is expected that one of four older people who come to nursing home will has malnutrition (Clarke, 1993). In developing country, the prevalence of malnutrition in nursing home is high which 5 to 71% compare older people who lives in community and outpatient clinic which 0 to 3% and 0 to 13% each (Guigoz, Vellas & Garry, 1996).

While residents in the 'Rumah Seri Kenangan' are generally less dependent, it is still likely that the prevalence of undernutrition will still be high, as these elderly people have often lived an impoverished and lonely life prior to admission (Visvanathan et al., 2005). Most of the residents at nursing homes probably come from rural area. With industrialization and the disappearance of extended family network system, the displacement of older people from rural area to urban shelters is very likely. Almost 38.5% of elderly residing at rural area in Malaysia had body mass indices (BMIs) less than 18.5 kg/m^2 From this finding, it can postulate that a large proportion of older people in the nursing home may be at risk of malnutrition especially come from rural area

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(Suzana, Earland, Suriah & Warnes, 2002). Resident's malnutrition is often unnoticeable by nurses and there is a lack of documentation of the nutritional deficiencies in nursing home (Abbasi & Rudman, 1993). Because of that, further study among elderly at nursing home is needed so that for the next time, the nurses or dietician can use this information to help to improve the nutritional status of elderly residents.

This study can be explained by the conceptual framework adapted from Anderson (1990), Crogan, Corbett and Short (2002), Frongillo and Horan (2004) and Orem's Theory of Self Care Deficit (Kozier, Erb, Berman and Synder, 2004). This conceptual framework explained how various factors can cause malnutrition and the consequences of malnutrition among elderly.

1.3 Objective of the Study

1.3.1 General objective

To explore the nutritional status of elderly at Rumah Seri Kenangan, Kelantan.

1.3.2 Specific objectives

i)   To identify the nutritional status among nursing home residents at Rumah Seri Kenangan, Kelantan according to Body Mass Index (BMI) measurement.

ii) To identify the prevalence of high risk of malnutrition among nursing home residents at Rumah Seri Kenangan, Kelantan by using MRST-H.

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iii) To determine the association between nutritional status and socioeconomic status, functional status, weight loss, Mid Upper Arm Circumference (MUAC), Calf Circumference (CC).

1.4 Research Questions

1. What is the nutritional status among nursing home residents at Rumah Seri Kenangan, Kelantan?

2. What is the prevalence of high risk of malnutrition among nursing home residents at Rumah Seri Kenangan, Kelantan?

3. Do the socioeconomic status, functional status, weight loss, MUAC and CC associated with nutritional status among nursing home residents?

1.5 Hypothesis

a) H_O: There is no association between nutritional status and socioeconomic status.

 H_A: There is an association between nutritional status and socioeconomic status.

b) H_O: There is no association between nutritional status and functional status.

 H_A: There is an association between nutritional status and functional status.

c) H_O: There is no association between nutritional status and weight loss.

 H_A: There is an association between nutritional status and weight loss.

d) H_O: There is no association between nutritional status and MUAC.

H_A: There is an association between nutritional status and MUAC.

e) H_O: There is no association between nutritional status and CC

H_A: There is an association between nutritional status and CC.

1.6 Definition of Terms

a) Nutrition screening

Nutrition screening is the process of identifying patients with characteristics commonly associated with nutritional problems and risk factors that may require comprehensive nutritional assessment (Mahan & Escott-Stump, 2004). It is a quick method of identifying nutritional risk. It does not require expert knowledge. In this study, the tool that was used for nutrition screening is MRST-H.

b) Malnutrition

Malnutrition is a state of nutrition in which a deficiency or excess or imbalance of energy, protein and other nutrients, causes measurable adverse effects on tissue or body form, function and clinical outcome (Stratton, 2003).

In this study, malnutrition is determined according to Body Mass Index (BMI) measurement which focus on BMI is less than 18.5 kg/m^2 which indicates that person is underweight which can be classified as malnutrition (Heymsfield & Williams, 1988).

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1.7 Significance of the Study

Malnutrition is often overseen in elderly due to many changes of physiology, psychology and social that occur as ageing is increase. It is associated with higher morbidity and mortality, as well as a poor quality of life (Guigoz et al., 1996). Institutionalized elderly are more or less disabled and highly afflicted with functional impairments and diverse health problems that may compromise adequate nutrition and thus at high risk of malnutrition (Pauly et al., 2007). Presently, the extent of nutritional risk among elderly Malaysians residing in nursing home is not known (Visvanathan et al., 2005). Therefore, this study is needed to carry out so that early detection of malnutrition among elderly in nursing home can be done. Early detection of malnutrition is very important to prevent complications of malnutrition as well as decrease morbidity and mortality. Through early detection, the nurses can help to improve nutritional status of elderly by notifying and discussing with the dietician about their nutritional problem. As a consequence, the nutritional status of elderly in nursing home can be improved. A part from that, the study is conducted to test either MRST-H is appropriate to use in nursing home or not because this tool had never been yet tested in nursing home.

CHAPTER 2

LITERATURE REVIEW

2.1 Elderly worldwide

The human life cycle has change vividly in the last century. At the beginning of 20th century, the average of life expectancy at birth in the United States for males and females combined was a mere 50 years but now, 100 years later, the average of life expectancy at birth is 77 years and is anticipated to increase to an average of 85 years by the year 2125. The percentage of the United States population over the age of 65 years has increased from 4% in 1900 to 13% in 2006 (Roberts & Rosenberg, 2006).

In Malaysia, the ageing population is growing steadily as a result of the decline in birth rate and mortality rate and also due to the reduction in infectious diseases and improvements in the health care system (Pala, 1998). The elderly population has increased two-fold in 20 years, from 685, 000 in the year 1975 to 1, 463, 400 in the year 2000. Since July 2008, it is estimating that the total population of Malaysian is 25, 274,133 of people. The total number of elderly age 65 and above is 4.9% of population which male 548, 970 and female 699, 302 (The World Factbook Malaysia, 2008). For the life expectancy, it can see that, in 2007, the life expectancy of female is much longer than male which female 76.4 years while male 71.9 years (Department of Statistic Malaysia, 2008). The increasing of life expectancy actually has relation with the increasing of health services quality which modern technology can help the care giver to diagnose and provide appropriate treatment.

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2.2 Malnutrition and ageing

The elderly population is extremely diverse, ranging from fit, active and healthy to extremely frail, totally dependent due to chronic disease and severe disabilities. Malnutrition is not side effects of ageing but many changes associated with the process of ageing that promote malnutrition (Hickson, 2005)

Adequate nutrition is important because it helps elderly people to maintain their activities of daily living and thus reserve functional autonomy. Implications of undernutrition in the elderly are manifold. It can reduce functional status and worsen existing medical problems, and hence impact negatively on health-related quality of life (Zarina, Tamanna, Tommy, Masuma, Kim & Ake, 2006). Undernutrition increases the risk of respiratory and cardiac problems, infections, deep venous thrombosis, pressure ulcer, perioperative mortality and multiple organ failure (Omran & Morley, 2000). Malnutrition is common among nursing homes residents. Because of that, they may have decreased body strength, lower resistance to infections, poor quality of life, depression, falls, fractures, reduce autonomy and increased mortality (Abbasi & Rudman, 1994).

2. 3 Prevalence and risk of malnutrition among elderly institutionalized

The rising number of elderly addresses us about their nutritional needs more challenging. Malnutrition in institutionalized elderly is of individual and public concern since it negatively affects health outcome and quality of life. Recently, the occurrence of malnutrition among elderly is increase around the world. Institutionalized elderly are more or less disabled and highly afflicted with functional impairments and diverse health

problems that may compromise adequate nutrition and are thus at high risk of malnutrition (Pauly et al., 2007). Several studies have shown that aged residents living in institutions suffer from malnutrition (Abbasi & Rudman, 1994). In Sweden, one-third of aged residents living in old people's homes were malnourished (Saletti et al, 2000). 12 studies conduct by using Mini Nutritional Assessment (MNA) reported that malnutrition was observed in 2 to 38% and risk of malnutrition in 37 to 62% (Pauly et al., 2007). One study shows that malnutrition is a very common problem among elderly residents living in nursing homes in Helsinki. According to the MNA, nearly one-third (29%) of the studied residents suffered from malnutrition (<17 points) and 60% were at risk of malnutrition (17–23.5 points) while only 11% of them had a good nutritional status (Suominen et al., 2005).

In Malaysia, the study about nutritional status among elderly in nursing home had been conducted since 1986. Refer to Table 2.1, the prevalence of malnutrition at Rumah Seri Kenangan, Cheras is 63.2%, Rumah Seri Kenangan, Seremban is 2.2 to 52%, nursing home in Peninsular Malaysia is 14.3%, nursing home in Lembah Klang is 24.2% and Rumah Seri Kenangan in Peninsular Malaysia is 19.9% (Sakinah, 2006). From the data, it shows that malnutrition among elderly in nursing home really occurs and it may occur due to many factors.

As ageing process is continue, many changes associated with the process of ageing can promote malnutrition. According to Hickson (2005), the risk factors for malnutrition among elderly can be divided into three main types which medical, social factors and psychological. Medical factors including poor appetite; poor dentition, other oral problems and dysphagia; loss of taste and smell; respiratory disorder; gastrointestinal disorders; endocrine disorders; neurological disorders; infections and physical disability. Social factors consist of lack of knowledge about food, cooking and