Review of Literature
Chapter-II

REVIEW OF LITERATURE

Review of literature is the basis of most of the research.

"The literature in any field forms the foundation upon which all future work is built."

Review of related literature of the study has become an established practice of all research report but this should not be taken as mere practice or tradition in writing research process. Briefly it may be pointed out that review of related literature gives an insight into the problem. The important aspect of this tradition is that the researcher comes to know about the present position of the problem and also the explored and unexplored aspect of the problem. It was in view of these considerations that the investigator shifted the pages of journals, abstracts and internet, so that the different aspect of problem may be elaborated.

Ageing is a gradual process taking place over many decades. Ageing involves two opposing type of changes, evolution or growth and involution or atrophy. Both go on concurrently throughout life but atrophy predominates in old age.

Galanos et al. (1994) stated that adequate nutrition helps elderly people to maintain their activities of daily living and thus preserve functional autonomy.

Move and co-workers (1994) considered that low serum albumin levels of recently hospitalized elderly patients were partly attributable to acute illnesses like stroke, pneumonia and heart attack.
James et al. (1994) analysed usefulness of arm circumference in elderly, and calculated cutoffs equivalent to body mass index (BMI) and cutoffs for chronic energy deficiency using a range of data sets from developing countries.

Lehman (1994) stated that in the developed world, income and educational level are inversely correlated with adequacy of nutrition in elderly people.

WHO (1995) states that conventional BMI cutoffs for defining chronic energy deficiency may not be appropriate for older people 70 years and over, because of age-related changes in body composition.

Chadha et al. (1995) reported from urban Delhi a lower prevalence of smoking among elderly males, but a much higher prevalence of among female elderly.

Potter et al. (1995) reported that in elderly people under nutrition is an increasingly recognized problem and is associated with increased mortality and worse morbidity after acute illness.

Smith (1995) stated that chewing is a major problem in many elderly. Difficulty with chewing is a risk factor for malnutrition.

Rissanen (1996) conducted a study on 138 persons over the age of 70 years in Eastern Finland to assess the nutritional status of home living elderly people and found that physical activity was poor and chronic diseases affect nutritional status either directly or indirectly.

Natrajan et al. (1996) studied that nutrient intake and associated factors in elderly people in Southern India and reported that 60 per cent of the Indian elderly population ate protein daily in the form of pulses.
Prentice et al. (1996) reported that those elder people never drank milk had the lowest calcium concentration. Osteomalacia is rare in Gambians because of exposure to sunlight.

Silver (1996) stated that diet and physical activities are closely related to each other.

Casper (1996) reported that ageing process alone has no significant adverse consequences for the caloric intake and the nutritional status of healthy elderly individuals. Nutritional intake and nutritional status in old age is multifactorial and dependent not only on appetite and availability of diverse food, but also on physical activity, body mass, education and on involved social life style.

Schlioenger (1996) stated that energy intake and energy expenditure decreases with age. Caloric restriction, weight loss in case of obesity, decrease in blood lipids, and increase in calcium intake which depend mainly of prior nutritional habits may have an effect in the elderly.

Fielding (1996) revealed that human ageing is associated with an increased incidence of several chronic diseases including coronary artery disease, non-insulin dependent diabetes mellitus and osteoporosis.

Mowe et al. (1996) revealed that reduced nutrient and energy intakes may increase the occurrence of under nutrition. Reduced nutritional status in an elderly population (770 μ) is probable before disease and possibly contributes to the development of diseases.

Keller (1997) reported that community dwelling as well as hospitalized and institutionalized elderly people can be at high risk of malnutrition.
Pozner et al. (1997) reported that according to American Dietetic Association about 85 per cent of older persons have one or more chronic potentially debilitating diseases.

Schmuchi (1997) stated that elderly people are known to be at risk of low dietary intakes and poor nutritional status, particularly if they are hospitalized or institutionalized. The population at greater risk of cataract is person aged ≥ 55 years with 5 per cent of persons aged ≥ 65 years and 50 per cent of persons aged ≥ 75 years having visually significant cataract.

Theresa (1997) conducted a survey to examine the dietary pattern, anthropometric measurements and biochemical values in rural and urban subjects of Zimbabwe. In Zimbabwe both income and education influence the frequency of eating certain food stuffs particularly meat, protein, bread, milk and fried food. Most subjects in both rural and urban areas grew the maize and vegetable they ate. Urban elders have a higher body mass index, waist, hip ratio, triceps skin fold thickness and serum lipid and B₁₂ concentration than do rural elders. Rural elders have higher folate concentration.

Morley (1997) reported that lack of education on adequate dietary needs can result in poor dietary intake.

Christine et al. (1997) revealed that about 15-20 per cent of the home bound older adults are malnourished.

Guzman et al. (1977) conducted a study on 289 elderly Filipinos to assess the nutritional status and anthropometric measurements. They found that hypertension, cataracts and nervousness are common health problems of the urban elderly. Anaemia is also highly prevalent among them.
Rose and Oliveira (1997) reported that food insufficient or food insecure elderly persons had lower nutrient intakes than those that were food secure.

Verbrugge et al. (1997) reported that the level of difficulty experienced by the elderly depends not just on functional capacity but also upon one's access to assistance. Moreover, they include that assertive devices provide the most efficacious means for reducing functional limitations.

Longlois et al. (1997) found that difficulty in crossing streets is associated with functional limitations, measured by poor walking speed and the help needed in one or more activities of daily living.

Fries et al. (1997) stated that the patient education interventions have decreased morbidity in populations with arthritis and Parkinson's disease, as well as in healthy seniors.

Borawski et al. (1997) showed that the older the respondents, the less, likely they were to focus on physical aspects of their health.

Park (1997) reported that in India, although the percentage of aged persons to the total population is low in comparison to the developed countries, nevertheless, the absolute size of the aged population is considerable.

Dhar (1997) stated that many physical and mental problems of the older people may be prevented or cured by proper nutrition.

Morley (1997) stated that nutrition is linked with many chronic diseases that afflict the elderly people.

Vora (1997) states the process of ageing is initiated from the moment of birth and continues throughout life. Older adulthood can be certainly a more
fulfilling and happy period of life if one is conscious of certain important psycho-social, physiological and nutritional changes occurring in one’s life.

Bjornsbo (1997) estimated that inadequate nutrient intake appeared to result from a combination of low energy intake and unfavourable food pattern. Vulnerable groups of elderly people may gain from stimulation of physical activity and recommendations on nutritious foods.

Griep (1997) reported that elderly people with poor odour perception have lower nutrient intake levels than people with good odour perception.

Evans and Cys-Campbell (1997) revealed that advancing age is associated with a remarkable number of changes in body composition, including reduction in lean body mass and increase in body fat. Decreased lean body mass occurs as a result of losses in skeletal muscle mass. Loss in muscle mass accounts for the age associated decreases in basal metabolic rate, muscle strength, and activity levels, which, in turn are the cause of the decreased energy requirements of the elderly.

Aihie and Cooper (1997) stated that diet restriction is a well recognized method of slowing aging and prolonging life span in animals. Reducing nutrition has opposite effects, resulting in accelerated ageing and a reduction in life span.

Mion et al. (1997) reported that malnutrition is a major risk for morbidity and mortality among elderly hospital and nursing home patients. Moreover, prevalence of malnutrition or inadequate nutrition among the elderly is quite high with 10 per cent to 51 per cent of community residing elderly, 20 per cent to 60 per cent of hospitalized elderly patients, and up to 85 per cent of nursing home patients showing significant nutritional deficits.
Roubenoff and Coworkers (1998) reported that chronic inflammation in rheumatoid arthritis can lead to hypermetabolism and relative anorexia predisposing to loss of body cell mass.

Pieterse et al. (1998) stated that the prevalence of under nutrition increased with age among women.

Wasir (1998) have shown an inverse relation of physical activity to the levels of blood pressure.

Hijartaker and Lund (1998) revealed that older Norwegian women tend to have a healthier diet than younger Norwegian women because oldest women reported higher consumption of potatoes and fish whereas the youngest reported more coffee, meat and alcohol. Healthy life style and higher socio-economic status were associated with healthier diet.

Popkin and Doak (1998) stated that development related increases in protein and fat intake and decreases in physical activity and energy requirements have been associated with an increasing prevalence of over weight and obesity among adults world wide.

Rowe and Kahn (1998) stated that health care costs may be greatly reduced by improving the nutritional well being of elderly persons, especially those who are at the risk of poorer health status.

The Times of India (Sunday Times, Sept. 6, 1998) has reported while 10 per cent of women will find a fibrous lump at sometimes in their lives, it is usually benign and most breast cancer deaths are among women over the age of 65.
According to Helpage India (1998) many factors contribute to inadequate nutrition in the elderly, the dietician needs to assess the elderly individuals physical function, cognition, mood, socialization and living arrangements, finance and medications as part of the routine nutrition assessment.

WHO (1998) stated that an increase in longevity and a decline in fertility in elder people have contributed to people living much longer today than ever before in the last 50 years.

Pieterse (1999) proposes a screening tool for use in emergencies which needs to be tested, in particular, the validity of the MUAC cutoffs it uses.

Sangwan and Khetarpaul (1999) stated that alcoholism is a well established nutritional and social problem. There is a direct correlation between quantity of alcohol consumed and the systolic and diastolic blood pressure. The prevalence of hypertension is generally higher among the drinkers than in abstinent subjects.

Krause et al. (1999) in their study examine age related changes in parameters of acquired and innate immunity in healthy and generally well-nourished older (82-88 years) versus younger (20-40 years) women, and found that most immune parameters were not compromised with aging in healthy, well nourished women.

Prothro and Rosenbloom (1999) studied that in nutrient/energy intakes, relationship of income status to intakes of elderly population of 60-103 years of age. They reported that diets of men were better than those of women. Calcium and phosphorus were higher in diets of female elders above the poverty line than those below.
Irving et al. (1999) estimated that elderly living in services flats displayed definite signs of malnutrition, cognitive function correlated with BMI, weight loss and age.

Azad et al. (1999) conducted a study to determine the prevalence of malnutrition in elderly patients admitted to a tertiary care centre and found that for 152 patients, 62 was found to be well nourished, 66 at moderate risk for malnutrition and 23 malnourished.

Rolls (1999) reported that food intake declines with age, and elderly individuals frequently report a decrease in appetite.

Marshall et al. (1999) undertook a study to describe the prevalence of nutritional risk factors among elderly residents in a rural Hispanic and non-Hispanic white population. They reported that Hispanic participants were more likely than non-Hispanic whites to report inadequate intake of vegetables, problems with teeth or dentures that limited the kinds and amounts of food eaten, difficulty preparing meals and lack of money needed to by foods. Hispanic women reported nutritional risk factors more often than Hispanic men, although anthropometric markers indicated that Hispanic men may be at higher risk of nutritional deficiency.

Houston et al. (1999) stated that age related hearing loss or auditory dysfunction may be associated with poor vitamin B₁₂ and folate status.

Andrade et al. (1999) conducted a cross sectional study involved 204 elderly individuals (60-75 years old). They found that anaemia, thiamine and possibly vitamin B₁₂ deficiency are prevalent in the elderly living in Indonesia. They suggested that micronutrient supplementation may be beneficial for the Indonesian elderly population living in underprivileged areas.
Seibel (1999) revealed that a better understanding of nutrition and nutritional supplements may reduce or prevent illness.

Wobb et al. (1999) stated that under nutrition is more prevalent among community-dwelling older people.

Srilakshmi (1999) stated that old age is best defined as the age of retirement 60+ but nutritionally a person becomes old from 39+ onwards.

Anonymous (1999) revealed that India will be having an elderly population of 12.7 per cent by 2010 and 23.1 per cent in 2025.

Ismail (2000) conducted a study on urban slum areas of Mumbai, India, Rwandan refugees in a camp in Tanzania and rural communities in Lilongwe, Malawi to assess the nutritional status, functional ability and examine the risk factors of nutritional vulnerability, and found that there was a high prevalence of malnutrition in older adults in the three developing countries and that was the highest among the very old. They showed poor functional ability and the ability to live an independent life was associated with poor nutritional status.

Gambhir (2000) reported that at least 30 million people are suffering from heart diseases in India, which is expected to become 100 million by year 2010.

Van Rossum et al. (2000) conducted a cross-sectional analysis of socio-economic status in relation to dietary intake of 2213 men and 3193 women, aged 55 years and over. Dietary data was assessed with a semi quantititative food frequency questionnaire, containing 170 food items in 13 food groups. They found that lower educated subjects had a higher intake of almost all micronutrients compared with higher educated subjects. The total energy intake of
men/women with the lowest educational level differed from those with the highest education.

Steen (2000) reported that hypoactivity has been linked with unhealthy conditions such as obesity, cardiovascular diseases, diabetes, hypertension and some forms of cancer.

Stookey et al. (2000) conducted a cross-sectional analysis for the rural and urban Chinese elderly to assess the nutritional status, food intake, physical activity. They reported that under weight may constitute a more pressing problem than overweight for the Chinese elderly. The BMI was consistently, positively and significantly associated with urban residents.

Hatloy et al. (2000) reported that food variety and dietary diversity seem to be associated with nutritional status (weight/age and height/age) of elderly people in urban areas. In rural areas, however, this association could not be shown.

Marshall et al. (2001) conducted a study with the objective of dietary habits, nutrient intakes and nutritional risk of community-dwelling, rural Jowans, 79 years of age and older. Diet variety was positively associated with the number of nutrients consumed at adequate intakes ($r=0.498$), total energy ($r=0.522$) and dietary fiber ($r=0.421$). They found that rural community dwelling old have inadequate intakes of several nutrients. They recommended to increase diet variety and consume a nutrient supplement may be necessary for elderly people to achieve adequate nutrient intakes.

Huang et al. (2001) compare the nutritional status of the functionally dependent elderly with those non functionally dependent elderly by assessing nutrient intake, anthropometric measurements, hematological and biochemical
parameters and the nutritional risk index (NRI) and exhibited the poorer nutritional status of functionally dependent elderly than the non functionally dependent elderly.

**Mishra and Bezbaruah (2001)** revealed that WHO predicts that Indians will have 100 million or 60 per cent of the world’s heart patients by 2010.

**Ageways (2001)** stated that poor socio-economic status, poor access to health services and lack of support were underlying factors precipitating poor quality health among the elderly population.

**Gill (2001)** estimated that food sources which contain essential nutrients such as vitamin C and E, β carotene and other phytochemicals they help to prevent age related muscular degeneration and vision loss.

**Chorlton et al. (2001)** conducted a cross sectional analysis to assess the nutritional status and dietary intake of the elderly block population of Cape Town. They found that micronutrients and dietary fiber intake is inadequate largely due to low reported energy intakes; particularly in women.

**Lee and Frongillo (2001)** revealed that food insecurity is another risk factor associated with poorer nutritional and health status among older persons.

**Sharma (2001)** estimated that about 10 per cent of the adult hypertension is secondary to excessive intake of alcohol.

**Charlton (2001)** stated that older people are at nutritional risk not only because of impaired digestion, absorption or utilization of nutrients associated with chronic diseases or drug nutrient interactions, but also due to an interaction between physiological socio-economic factors.
Bates *et al.* (2002) reported that inadequate nutrition contributes to the loss of function and the development and progression of disease. Nutritional status is influenced by a range of medical, physical, psychological, social and situational variables. The encouraging of better nutrition and the taking of exercise is a cost effective way of decreasing the incidence and progression of age-related diseases.

**WHO (2002)** reported that in 2002 there were estimated 605 million older persons in the world. Greece and Italy had the highest proportion of older persons (both 24% in 2000).

**According to World Health Organization (2002)** reported that older persons are particularly vulnerable to malnutrition. Many of the diseases suffered by older persons are the result of dietary factors.

**Shukla et al. (2002)** studied the association of BMI with education, age, and tobacco habits in an urban Indian population in Mumbai and reported that equal prevalence of thinness and overweight in an urban area and their association with age, level of education and tobacco use raise cancers of an emerging public health crisis in urban India.

**Ojofeitimí et al. (2002)** stated that nutrition related diseases among the elderly persons have been recognised as important causative factors of morbidity, depression, poor cognitive ability, hypoactivity, poor quality health and increased mortality.

**Buchowski et al. (2002)** stated that obesity is one of the major cause of chronic diseases such as cardiovascular diseases, stroke, osteoarthritis, non insulin dependent diabetes mellitus and cancer.
Visvanathan (2003) stated that weight loss is associated with malnutrition in older people.

John et al. (2004) undertook a study to assess and compare the nutritional status and factors which affect the nutritional status of the (100) institutionalized and (100) non-institutionalized elderly above 60 years of age in the city of Chennai. They found that as age advances there was a corresponding decline in the nutritional status of the elderly. It was also found that with lower educational level there was a higher incidence of malnutrition in both institutionalized and non-institutionalized elderly and found to be a decrease in nutrient intake with declining nutritional status.

Hudgen et al. (2004) reported that malnutrition is prevalent in elders with pressure ulcers and is associated with increased morbidity and mortality.

Visvanathan et al. (2005) conducted a study on 1081 elderly people over the age of 60 years residing in publicly funded shelter homes in Peninsular Malaysia. They found that many elderly people may be at risk of under nutrition and were underweight.

Baker et al. (2005) conducted a study to examine the current nutritional status, dental, ophthalmic and physical conditions of the 681 elderly aged 60 years and above in selected rural and urban local government areas of Osun state in South Western part of Nigeria. They reported that more than 80 per cent of the elderly worried about their health status, approximately 46 per cent of the elderly were overweight and only 16 per cent were malnourished. More than two thirds of the participant’s dietary intake was mostly from energy food groups. Dental examination revealed that about 85 per cent of the elderly had calculi deposits
presented in their oral cavity. The highest distribution of partial or total blindness was recorded for those within 60-69 years of age.

According to National Institute on Ageing (2005) there are some of the common reasons older people stop eating right and that is a problem because food provides energy and nutrients, everyone needs to stay healthy. As you grow older, you may need less energy from what you eat. But you still need just as many of the nutrients in food.

Kabir et al. (2006) undertook a study to assess the nutritional status of 850 rural elderly people of Bangladesh and found that health problem rather than age had a negative impact on nutritional status. Level of education and food expenditure were directly associated with nutritional status.

Medhi et al. (2006) studied the morbidity disability along with behavioural and biological correlates of diseases of 230 elderly aged over 60 years and reported that social circumstances and health risk behaviours play an important role in the variation of health and functional status, suggested that there is also need for various medical interventions for improving the health status of elderly population.

Masora (2006) according to “Handbook of the Biology of Ageing” was specifically defined as the process of system’s deterioration with time thus allowing for existence of non-ageing systems (when “old is as good as new”) and anti-ageing interventions (when accumulated damage is repaired).

Jensen (2006) revealed that for obese individuals poor diet quality and micronutrient deficiencies are relatively common concern.

Boechler et al. (2007) revealed that older adults feel less confident about their computer knowledge than younger adults. Older adults are also concerned
about how memory issues may impact their performance. The obstacles older adults experience such as a significant decrease in sensory keenness particularly with vision and hearing, as well as a decrease in motor skills due to health problems, such as arthritis and tremors.

Wilson (2007) conducted a study on more than 300 elderly people who had been discharged from hospital to access the effect of depression and says that depression in elderly people is causing early mortality. The study showed that 41 per cent of elderly people who have depression are often later readmitted to hospital with other illnesses, possibly a result of not receiving appropriate treatment for their depression. The participants, all aged over 75 were interviewed regularly over a two years period following discharge from hospital. Factors including physical illness, breathing capacity and social activity were found to impact on the prevalence of depression and consequently the likelihood of re-admission to medical care and early death.