

# **REVIEW ON MOBILITY SYSTEMS IN ELDERLY CARE INSTITUTIONS**

An approach to manage physical activity related decondition-  
ing

Evilyn Kuria

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<p>Tiivistelmä:</p> <p>Tutkimusten mukaan toimettomuus ja fyysisen toiminnan puute, jossa riittämätön määrä tietoa, motivaatiota ja sosiaalisia taitoja vaikuttaa voimakkaasti vanhusten toimintakykyyn ja myöhemmin sopeuttamiseen. Tämän tutkimuksen tavoite oli tarkastella fyysisistä toimintaa liittyen sopeuttamiseen tavoitteenaan arvioida terveyden edistämiseen vaikuttavia tekijöitä ja esitellä parhaat toimintatavat, joita voisi käyttää edistämään hyvinvointia ja elämänlaatua. Tässä tutkimuksessa käytettiin laadullisen kirjallisuuden tutkimusmenetelmiä fyysisestä toiminnasta, toimintakyvyn heikkenemisestä ja sopeuttamisesta. Artikkeleita analysoitiin käyttäen induktiivista analysointia. Aineisto käytiin ensin läpi, jonka jälkeen luotiin teemat. Samankaltaiset teemat ryhmiteltiin kategorioihin, jolloin saatiin luotua yleiskäsite, mikä johti tulosten syntyyn.</p> <p>Tämän tutkimuksen tulokset viittaavat siihen, että kohderyhmän tarkan seulonnan ja aikaisten toimien ansiosta vanhusten menettäminen on vältettävissä. Toimintaa, joka perustuu olemassa olevaan tietoon, sekä motivaatiota ja sosiaalisia taitoja on pidetty tehokkaina. Yksilön henkiset ja fyysiset ominaisuudet tulisi ottaa huomioon suunniteltaessa ja toteutettaessa tehokkaita toimintatapoja. Terveydenhuollon ammattilaisten tulisi ymmärtää heidän mahdollisuudet vaikuttaa toimintakykyyn. Siksi kokonaisvaltainen lähestymistapa on välttämätön, kun halutaan edistää vanhusten terveyttä.</p>	
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DEGREE THESIS	
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<p>Abstract:</p> <p>According to researches, inactivity and sedentary lifestyle dominated by inadequate knowledge, motivation and behavior skills impact heavily on elderly people's functional capabilities and subsequently deconditioning. The aim of this study was to examine physical activity association with deconditioning with the aim of assessing factors affecting health promotion and presenting best practices being that could be used to improve well-being and quality of life. Qualitative literature review research methodology was used for this study on the subject of physical activity, functional decline and deconditioning. The articles were analyzed using inductive content analysis. Raw data was coded and themes generated. Similar themes were grouped into categories to generate an abstraction thus results.</p> <p>The results of this study suggest screening methods and early interventions to be useful in assisting to mediate losses in elderly people. Interventions utilizing information, motivation and behavior skills in strategies have been considered effective. Individual's mental and physical characteristics should be considered for effective intervention implementation and accomplishment. Health care professionals should realize their potential in impacting functional capacity. Therefore, Holistic approach to health promotion in managing deconditioning is undisputable.</p>	
Keywords:	Deconditioning, Physical activity, Functional decline, Quality of life, Elderly people, Elderly Institution Care
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## **FORWARD**

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Helsinki, September 16, 2013.

Evilyn Kuria.

# 1 INTRODUCTION

Finland's ageing policy aim is to increase opportunities for elderly independent living in their homes as long as possible among others (Ministry of Social Affairs and Health 2008 p.21). With the increasing life expectancy of elderly people between the 65 and 80 years of age in Finland predicted in the next 25 years, imminent increase in the demand for institution care is anticipated (Beckerman et al 2012 p.2).

Increased life expectancy comes along with decline in certain functions that are crucial for independent living especially in old age. According to a baseline results of health 2000 health examination survey in Finland, the ability to manage activities of daily living deteriorate highly between 80 to 85 years of age (Aromaa & Koskinen 2004 p.147). It is therefore important to consider putting in place measures to support health and wellbeing of this elderly people with expected age associated functional decline. A health examination survey carried out in Finland in 2000, suggested implementation of policies supporting better quality services and environments for elderly people especially above the age of 75 years due to evident sensory, cognitive and physical declines (Aromaa & Koskinen 2004 p.136).

Poor physical condition is among the key issues leading to the elderly peoples need for care in old age in Finland. Finland's structure for high quality services for older people outlines early intervention into declining health and functional capacity and improving exercising possibilities among key strategies in promoting health and wellbeing among the older people (Ministry of Social Affairs and Health 2008 p.20). Recommendations to transforming operation methods in service delivery in health and wellbeing promotion by the Finland's National framework for high quality services for older people highlights the need to consider approaches centered on early intervention and prevention measures (Ministry of Social Affairs and Health 2008 p. 28).

A study by English & Paddon-jones (2010) to highlight on protecting muscle mass and function in older adults, points out that mobility functional capacity among other key factor highly determine elderly people's independence. Hospitalization and institutionalization has been associated with limited mobility and thereafter a decline in the func-

tion especially in elderly people. The associations established between the effects of mobility levels on functional outcomes necessitate the need for this study (Zisberg et al. 2011). English & Paddon-jones (2010) recommends broad based approach in preventive older peoples muscle and functional loss. This approach entails development of realistic systems and methods that are client friendly and client centered in order to realize targeted objectives. Zisberg et al (2011) highlight on the value for assessment and improvement of strategies supporting primary interventions on mobility functions that are effective to assist elderly people's functional capacity adaptation even after hospitalization.

## **1.1 MOTIVATION FOR THE STUDY**

The author having being part of professional team training and working with elderly people, noted with concern the numerous number of elderly people in long term care facilities that have been confined to their bed, Geriatric chair or wheelchair for the better part of the day.

The author also noted with a lot of concern the anguish and vulnerability with the deconditioned elderly people, perhaps by their realization of the terrible consequences from the condition especially when they could not be able to perform some of their previous functions especially in the activities of daily living.

These elements coupled with the author's responsibility as a forthcoming geriatric nurse stimulated the eagerness to explore more into the subject of functional capacities in later years and the dreadful deconditioning condition.

## **1.2 AIM AND RESEARCH QUESTIONS**

The purpose of this study is to examine mobility and functional capacity association with deconditioning in elderly people living in Long term care facilities. In order to understand this association this study intends to answer the following research questions:

1. What is the impact of immobility on deconditioning relative to physiologic and functional losses
2. What are the factors influencing physical activity related health promotion among the elderly people?
3. What best practices to maintain physical activity for the elderly in elderly care institutions has been effective?

## **1.3 DEFINATION OF CONCEPTS**

According to Oxfords online dictionary, concepts can be defined as the abstract idea or mental image about something (oxford dictionaries 2013).

### **Theories**

According to Nutbeam et al. (2004), a theory can be termed as a basic illustration of reality. Theory compromises of structured models related to a certain context that defines main factors and their relationship to influencing an occurrence as well as conditions that influence or constrain these relationships. Nursing theories can be applied to guide and develop nursing practice (Nutbeam et al. 2004).

### **Elderly people**

According to the world health organization WHO (2001), there is no general accepted definition of when to describe a person as 'old'. In the developed countries, a person could be defined as old after achieving the pension age usually at 60 or 65 years while the WHO projects in Africa accepted 50 years of age as a definition of older people.



## **Aging process**

This can be defined as continuing and lifelong development of biological changes within our bodies that are mainly influenced by factors like lifestyle, environment and background (Lewis 2002).

## **Deconditioning**

Deconditioning has been defined as impaired physical mobility following by prolonged inactivity, bed rest or sedentary lifestyle that eventually results in reduced functional capacity of multiple body system. Among elderly people, hospitalization after illness or hip fractures could result to sudden termination of activity resulting on acute deconditioning. Often, consequences of life circumstances accompanying old age like bereavement or old age related diseases like arthritis could slowly over time diminish activity resulting to chronic deconditioning (Eliopoulos 2010).

## **Functional decline**

Functional decline as a consequence of acute illness during hospitalization, deconditioning, introduction of medical or surgical therapies (Wu et al 2006) has been defined as incapability to perform ADL's resulting from reduced muscle strength, weakness and reduced ability to exercise (Slaughter et al. 2011).

## **Mobility**

Mobility refers to one's capability '*to move oneself*' which is regarded an important contributor to achieving good health and quality of life especially in older people. Main mobility determinants can be classified as cognitive, psychological, physical, environmental and financial (Webber et al 2010).

## **Health promotion**

*'The process of enabling people to increase control over, and to improve, their health'* considering not only the individuals behavior but social and environmental factors. WHO further refer to the accomplishment of health promotion as the obligation of the individual as well as the field of health care. Health promotion aims is to achieve complete mental, social and physical well-being. This can be realized if individual's environment is conducive, needs are satisfied and goals attained (WHO 2009).

## **1.4 BACKGROUND**

Adverse effects often realized following immobility have major effects on body function and overall quality of life of an individual (Webber et al 2010). A narrow review on how researches mobility in old age has been studied revealed that it has been associated with different concepts that influence quality of life and wellbeing. A study by Fox & Gooding (1998) associated mobility with elderly people's subjective wellbeing while Mathieson et al (2002) has conducted a study investigating mobility and health status in maintaining functional independence of elderly people. Mobility association with functional decline in relation to independence and quality of life of elderly people especially in institution care has been reviewed by wood et al. (2005) concluding that there is possibility to achieve positive motivation to maintain functional abilities.

### **1.4.1 Institutionalization determinant's in Finland's context**

A study report by Böckerman et al. (2011) on institutionalization and quality of life for elderly people established out there that several predictors of institutionalization in Finland. Urge incontinence along with other disabilities creates a high risk to end up in Long term institution care. Chronic diseases and the ability to perform activities of daily living (ADL's) have also been listed as risk factors for admittance to Long term care Institutions. Complications of aging like Parkinson's disease, stroke and mental problems were as well considered high risk factors. A review on the marital status of elderly

people in Finland and institutionalization established that men living alone have a 70% risk than women who have 29% and in case of spouse death, the risk is within the 1<sup>st</sup> month of bereavement. Elderly single women with low social – economic status are as well a high risk group for institutionalization in this context.

Evidence from previous research reveals the damaging effects of long periods of inactivity in association to low quality of life and functional decline. Most elderly people in care institutions spend long periods of time lying in bed or sitting on wheel chairs. Some major factors that influence this are high risk of serious medical problems, falls, pressure ulcers, incontinence, and loss of the ability to perform ADL's and decline in health related quality of life. The elderly are therefore exposed to increased dependency as a result in significant functional decline. These adverse effects of immobility are preventable for the benefit of the vulnerable elderly people (Slaughter et al. 2011).

#### **1.4.2 Aging process and the musculoskeletal changes**

Musculoskeletal system is formed by bones, muscles, and connective tissues which forms the body framework. This structure therefore dictates movements and flexibility. There is evidence of interrelation between the musculoskeletal system aging process and functional capacity. Prominent changes associated with the body composition changes of the musculoskeletal system are in flexibility, strength, posture, gait and internal pain. Older person's changes in lifestyle have a high effect of these elements. These aging associated physiologic changes and disease expose the elderly to adverse consequences. (Lewis 2002 p.105).

Pain, loss of strength, difficulties in walking and performing ADL's could be associated with poor nutrition and collagen changes influence which have a huge effect on flexibility. Collagen is fibrous protein component of the skin, tendons, cartilage and connective tissues. Decrease in functional activities in older persons could result muscles tightening. Muscles exposure to shortened position like sitting long, results in decreased flexibility. Stability limitations in elderly persons can as well be associated to the different

types of arthritis. Pain, Muscle weakness, knees and hips joints deterioration as effects of arthritis could result to limitations (Lewis 2002 p.106-109).

Muscle fibers are normally used in daily activities and much more in much vigorous activities. Decrease in muscles fibers size and number with aging leads to strength loss. Decline in the speed of muscle contractions and coordination is realized. The less an elderly person engages in activities the less strength in these muscles thus loss of strength. Poor flexibility and strength could leads to poor posture in elderly persons (Lewis 200 p.109-116).

Biological Limitations in strength, flexibility and posture contribute to changes in the manner and style of walking known as gait. Stiffness in joints and muscles results in shorter strides, reduction in the limbs movements and stability thus high risk of falls and fractures. Bony changes in the foot as well as improper footwear are the main contributions to improper gait in elderly persons (Lewis 2002 p.116-121).

According to Lewis (2002) p.122, pain in elderly persons could lead to the limitation in functional capacity. Aging accompanied reduction of enkephalins affects an elderly person's sensitivity to pain resulting to discomfort. Lewis describes Enkephalins as the naturally occurring pain killers in the body. Fractures and arthritis have been described as the main causes of disease related pain in older persons. Identifying and treating the main cause of pain in an elderly person with encourage functional capability maintenance.

Lewis further describes biological changes to the musculoskeletal system resulting from the aging process to be correctable and eventually preventable with physical exercise and good nutrition. Early intervention is therefore important in restoration and maintenance of functional capacity (Lewis 2002 p.122-125).

### **1.4.3 Deconditioning epidemiology**

In elderly patient, deconditioning could happen within two days of bed rest. Signs of deconditioning could in hospitalized elderly suffering from acute illnesses can be observed through signs like decreased mobility, malnutrition, incontinence, skin breakdown and pressure sores. About 30% of elderly patients admitted with acute illness are likely to develop functional impairments within 3 months after hospital discharge (Jones & brand 2005).

Some adverse consequences of functional decline are lengthened hospitalization, permanent functional decline and high risk of mortality (Cornette et al 2005). There is in some cases delayed or gradual functional recovery after hospitalization of elderly people and in most cases recovery to pre-hospitalization functional capacity will be determined by the recovery from the acute illness (Wu et al 2006).

### **1.4.4 Factors contributing to Deconditioning**

#### **Aging process**

Elderly people are more vulnerable to decrease in functional capacity following physiologic system decline as a result of the normal aging process which exposes them to the risks of deconditioning. Some of the changes in normal ageing that expose elderly to consequences of hospitalization include, reduced muscle strength and aerobic activity, low bone density and high risk of urinary incontinence (Wu et al 2006).

#### **Malnutrition**

About 40-60 hospitalized elderly are likely to develop malnutrition. In hospitalized elderly this is one of the reasons for lengthened hospital stay which is a major risk of deconditioning. In elderly persons levels of physical activity are highly related to Nutrition. Ill-health and mortality in elderly has been in most cases been associated with effects of poor nutrition. (Jones & brand 2005).

Normal ageing changes in the digestive system affect an elderly nutrition in different ways. These changes include saliva production decrease, dentation changes, slower peristalsis, constipation, and sensory changes. The consequences include loss of appetite, insufficient nutrition coupled with loss of appetite and weight loss affects physical activity in elderly people. On the contrary increased physical activity will result to increased calories need which will stimulates appetite (English & Paddon-jones 2010).

### **Immobility**

Slaughter (2011) reports that consequences of immobility in elderly people leads to decline in ability to carry out ADL's, increased falls, medical problems, pressure ulcers and incontinence. This will eventually lead to increased dependency which consequently results to admission to long term care facility. Slaughter further explains that about 90% of long term care facilities have limited mobility related to the above consequences.

Mobility during hospitalization of elderly people with functional decline is relative to their functional outcome after discharge (Zisberg et al 2011).Elderly person's mobility status and ability to perform activities of daily living is related to their strength, balance and endurance. Poor balance, reduced muscle strength and lack of endurance are likely to be consequences of decreased mobility and falls. Elderly independence and Functional capability can be maintained through maintenance of strength, balance and endurance (Australian Health Ministers' Advisory Council 2004 p.64-65).

### **Risk of falls**

Among the elderly people above the age of 65, the leading cause of hospitalization due to injury related incidences is usually associated with falls. About 30% of the elderly people living at home fall annually and about 40% of the elderly people who experience falls end up in serious outcomes or even mortality (Lord & Sherrington et al. 2001).

Elderly people living in long care facility have been identified to be among the high risk group of falls. The results of a study in Finland suggest that musculoskeletal system de-

cline associated with aging expose the elderly people to a higher risk of falls. Musculoskeletal changes leading to weakness and unstable gait problems are among the most noticeable risk factors to falls (Luukinen et al 1995).

Fall related recovery in elderly people takes long resulting to delay in discharge from hospital. Lengthened hospital stays have been highly associated with the risk of deconditioning due to reduced activity. As a consequence, the elderly person sustains a high risk of subsequent falls (Rubenstein 2006).

### **Incontinence**

Urinary incontinence coupled with other comorbid conditions has been mentioned among the risk factors to admittance in LTC facilities in elderly people. This group is therefore mentioned to be at a high risk of recurrent Hospital admissions and admission to LTC facilities. As mentioned earlier in this study, hospitalization, multiple hospitalization and admittance to LTC facilities are a major threat to frail elderly in relation to deconditioning (Thom et al 1997).

The results of a review study on urinary incontinence (UI) in nursing homes in England found that immobility was highly associated to incontinence with 82.1% of bed bound patients reporting UI in comparison to 21% who were independent on care. The study further found that about half of functionally impaired elderly people living in LTC facilities in the USA suffered from UI in comparison to those living at home (Durrant & snape 2003).

### **1.4.5 Interventions**

Co-existing medical conditions, physical and psychosocial health, environmental conditions, social situations, nutrition and the way of life are important factors that determine elderly person's independence and quality of life. Interventions for functional decline should therefore focus on the health and social wellbeing of the elderly person. Broad based approach integrating multidisciplinary team of social and health workers and tai-

lored to meet individual needs and preferences should therefore be carefully considered (Beswick & Rees 2008).

### **Pharmacological interventions**

Functional decline due to normal ageing coupled with comorbid conditions have been mentioned earlier in this study as the main factors for deconditioning. Geriatric screening and multidimensional assessments health care systems for elderly people aid in identification and treatment of comorbidities .Comorbidity as a recognized risk factor for immobility and eventual deconditioning, explains the need for drug use and therefore the associated risks (Beswick & Rees 2008).

Polypharmacy in the treatment of comorbid conditions has been associated highly with functional decline and falls. Drugs used to treat these conditions come along with the risk of risk drugs which are the major concern in drug related functional decline consequences. Some drugs used by elderly people increase the risk of functional decline independent of comorbid conditions. Careful evaluation of the risk drugs is therefore important for the elderly people who cannot avoid polypharmacy (Zeire et al 2006).

### **Non- Pharmacological interventions**

Non-pharmacological intervention involves therapy with no use of drugs. Non-pharmacological functional decline intervention in elderly people focus on body mass preservation with the aim of avoiding negative impacts. Some functional changes experienced as a result of normal aging can be reversed or managed successfully through non-pharmacological interventions (Basharat et al 2012).

### ***Mobility assistive devices***

Active ageing in elderly people as well preserving their independence is highly associated with mobility function preservation (Webber et al 2010). Most often, Mobility aids are prescribed for the elderly people with mobility and gait problems. Enough instruc-



tions and encouragement on how to use these devices is however important so as to achieve the desired goals (Bateni & Maki 2005).

According to Bateni & Maki (2005), mobility and balance aids can quite useful for elderly people with medical conditions that affect their balance and independent mobility function. They further explain that on the contrary, some research has associated mobility assistive devices with higher risk of falls especially for those elderly people with difficulties in using them. Though this risk is not very clear, tripping and other forms of balance control disruption have been associated with use of these assistive devices.

### ***Environmental Modification***

In regard to changes that occur with ageing, appropriate consideration of suitable environment that makes coping easier for the elderly persons is crucial. Positive environment for the elderly persons supports life satisfaction and quality of life. The environmental conditions worth most considerations are in this case the local surroundings with which they interact most on a daily basis (Australian Health Ministers' Advisory Council 2004 p. 36).

Falls and the fear of falls in elderly people have been highly associated with the environmental conditions. Some of the main negative factors related to fall and the environment are poor lighting, unsuitable footwear, loose rugs, unsuitable walking aids and unfamiliar environment. Comfortable environments enable the elderly people to interact positively thus supporting they ability to stay active. Environmental modification like railings increase the confidence to move around safely without the fear of falls (Pho. et al 2012).

Elderly persons environment in the Institution care have as well been much associated with Immobilization hence functional decline. These factors are High beds, bed rails, restrains, indwelling catheters and intravenous lines. These contributes to decrease in

muscle mass, strength and stability hence ensuing functional decline (Australian Health Ministers' Advisory Council 2004 p. 36).

### *Activity*

Physical activity is a key determinant of elderly people independence. A decline in activity with age is relative to decline in muscle mass, cardiac functioning and aerobic capacity. Ability to function independently for the elder persons is therefore highly determined by the above mentioned three measurements. Physical activity and exercise capacity have big impact to the health and wellbeing of elderly persons in prevention of a decline in the ADL's (Landi et al 2006).

A skeletal muscle maintenance through activity and especially training practice and procedure is one quite has been highly recommended for older people so as to preserve their functional capacity and well-being. Decline in aerobic capacity, muscle mass and strength psychological changes of aging should be considered while planning intervention strategies (Basharat et al 2012).

Early activity intervention in the life of an elderly person ensures better muscle condition thus enhanced functional capacity. Training that focus on muscle mass and strength is the most important for elderly people with the aim of functional ability maintenance. Interventions strategies development comprises multiple elements targeting providing relevant information, increasing physical activity behavior as well as considering cognitive behavior (Landi. et al 2006).

Strength training and resistance exercises have been much associated with reduced risk of falls. Resistance and strength training help combat weakness and frailty by enhancing muscle function. The ability to perform tasks especially related to ADL's with ease is

enhanced with improved muscle quality. Improved aerobic capacity supports the ability to participate in physical activity and exercise spontaneously (Basharat et al 2012).

## **2 THEORETICAL FRAME**

Inactivity and sedentary lifestyle especially in older people are among the main factors that have been associated with functional decline (Wu et al 2006). Change of lifestyle can be very challenging especially for this group of people considering that most often they adapt to a certain kind of routine. This therefore explains the impact of cognitive and psychomotor possibilities in considering health promotion and prevention of health related behavior. Psychomotor can be further explained as relating to muscular activity related with mental effects while cognition relates to thinking and reasoning (Lewis 2002 p.105).

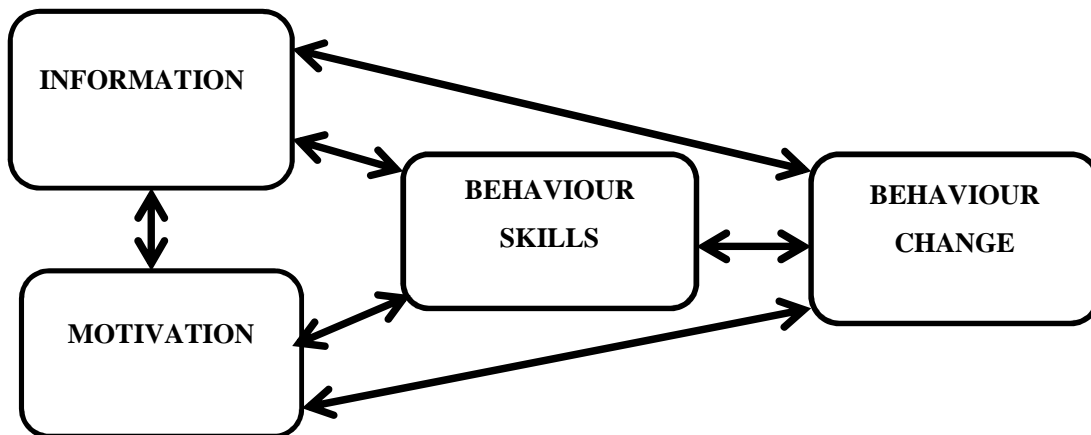
Information-Motivation-Behaviors Skills (IMB) Model has been designed through integration of social and health psychology theories to generate a multidimensional approach to understanding and promoting health behaviors. This model emphasizes on the utilization of health related information, motivation and behavior skill in to achieve positive results of a health promotion intervention. IBM model exploit these three elements to encourage action regarding healthy behavior performance. This model has been used successfully in HIV and AIDS campaigns and interventions and this was the major reason for its development (Fisher et al 2003 p. 82-84).

Information according to the IMB model involves creating awareness and offering guidelines about health promotion in order to achieve the relevant healthy behavior. How well informed the person is relates directly to the realization of a healthy behavior. Being informed enhances the cognitive ability and determination to act in response to the desired effect (Fisher et al 2003 p. 84)

Motivation as a determinant in the outcome of healthy behavior requires both personal and social motivation. Motivation can be defined as the primary determination to attain-

ing one's goals. Motivation as the cognitive response to the knowledge acquired is realized through action. In Motivated individual, achieving positive results supports the healthy behavior reinforcement while failure implies behavior modification when embarked with a positive attitude. Knowledge and motivation alone are not powerful hypotheses to effect behavior change and therefore the need to determine an individual's behavior skills. This can be understood from a highly motivated person lacking the knowhow and vice versa. (Fisher et al 2003 p.85-86).

Behavior skills as a determinant of the outcomes of a healthy behavior entail self-discipline and self-efficiency. Sufficient information and motivation stimulate action using ones available resources to achieve health promotion behavior. These skills facilitate adoption and maintenance of health promotion behavior (Fisher et al 2003 p. 86-88).



*Figure 1 An analysis of the IBM model in health promotion (Fisher et al 2003)*

According to the IMB model above, it can be interpreted that information is essential when targeting behaviors change. On the contrary Information alone is not enough to affect behavior change but rather if an informed person is motivated and have the behavior skills, behavior change likely to be achieved. Further this model portrays that

behavior skills is the main construct to behavior change when coupled with information and motivation. Information and motivation as independent constructs are not strong enough to influence behavior change but strong enough to influence adherence to behavior change (Fisher et al 2003).

### **3 METHODOLOGY**

The research method selected for this study is Literature review. The author intends to explore more in to the foundations of the IMB model which are Information, Motivation and Behavior skills, so as to explore what research has described about them in relation to the research questions that this study seeks to answer.

Literature review is the systematic critical evaluation of existing knowledge on a specific topic in connection with the aims of the study and the research questions and justifying the process to provide credibility of the results generated. A clear relationship between the topic being studied, the methodology chosen and the conclusions reached should be established (Aveyard 2010 p. 19-20).

Qualitative literature review methodology and inductive content analysis been used for this study involves scrutinizing data systematically and empirically while testing hypothesis to give a better understanding of the data. The methodology aims to achieve a summarized and extensive description of the phenomena (Elo & kyngäs 2008).

Researcher piece together all the data collected by reading through severally. Smaller categories are created from the text and classified to generate unit of analysis which can be a word or Subject. The Researcher reads the contents of the data noting down the main points and headings. All features of the content are described by headings which are then collected into a coding sheet to generate categories. These categories enhance grouping of the categorized data that belong together to enhance comparison and generation of knowledge. Generated categories facilitate formulation of a general description of the phenomena (Elo & kyngäs 2008).

Academic databases used for this study subject are Academic Search Elite (EBSCO), PUBMED, GOOGLE SCHOLAR and CINAHL (EBSCO) as well as published books. The research study was conducted using literature related to functional decline and physical activity health promotion and specially targeting the elderly people with functional decline or vulnerable to functional decline. During the search, relevant free articles with abstracts were identified by limiting the year of publication to 2003. Several key words listed below were used in conducting the search.

*Figure 2 Key words used in the database search*

<b>Words or phrases used associated with Elderly people</b>	<b>Words or phrases used associated with Healthy behavior change</b>	<b>Words or phrases used associated with Deconditioning</b>
Elderly people, old people, old age, old, elderly, older adults, hospitalized elderly people, elderly people in institution care	Motivation, Knowledge, Information, behavior skills, Self-efficacy, attitudes, Health promotion	Functional decline, functional capacities chronic illness, exercise, physical activity, activity, sedentary lifestyle, lifestyle change, healthy behaviors, inactivity, mobility

### 3.1 LITERATURE SEARCH PROCESS

Figure 3 An analysis of the literature search process

DATABASE	SEARCH TERMS	YEAR RANGE	RESULTS	SELECTED ARTICLES	ARTICLES USED
GOOGLE SCHOLAR	Health promotion for elderly people or Factors influencing Health promotion or Factors influencing Health promotion for elderly people	2003-2013	9800		1
PUBMED	Health promotion education and exercises for elderly people or Health promotion education and exercises	2003-2013	11	3	1
ACADEMIC SEARCH ELITE (EBSCO)	Factors influencing Health promotion for elderly people or Health promotion determinants in elderly people or Health promotion attitudes in elderly people	2003-2013	5290	30	9
CINAHL (EBSCO)	Factors influencing Health promotion for elderly people or Health promotion determinants in elderly people or Health promotion attitudes in elderly people	2003-2013	82	0	0

### **3.2 PROBLEMS ENCOUNTERED IN THE STUDY**

Inductive content analysis methodology has been identified as suitable for this study. This method involves proper evaluation of the aims of the study as well as the research questions being addressed. The articles must be read thoroughly severally and coding to produce categories (Elo & kyngäs 2008).

This method is quite complicated and demanding. The author had to read broadly on this methodology and its application to be able to apply it effectively to achieve the desired goals. The coding process to produce categories and categories groupings in terms of similarities was a vigorous and extensive considering that a considerable number of articles had to be reviewed.

Considering the comprehensiveness of the results expected from this study which was what the author aimed for, author had to manage balance between family and time dedicated to this process which was sometimes a big sacrifice.

### **3.3 VALIDITY AND RELIABILITY**

According to Aveyard (2010), plagiarism can be defined as taking someone else's works and ideas and presenting them as own and it is not acceptable in research. References provide evidence for the arguments made during the study. This study has addressed plagiarism by acknowledging the authors of all the books and articles used to through proper citation and referencing. Direct quotations have been quoted and put in italics font.

Literature review as the method chosen for this study was considered most appropriate to meet the study objectives due to the fact that this kind of method seeks to explore and summarize existing literature on that topic. Substantial literature in the health and social care has made information in different relative topics affordable (Aveyard 2010). This study utilized scientific articles related to the subject in question and limited the study to



updated knowledge between 2003 and to date 2013 to produce results that are contemporary.

### **3.4 ETHICAL CONSIDERATIONS**

The author read well and understood the good practice and ethical rules in the good scientific practice in studies in Arcada in accordance to the National Advisory Board on Research Ethics in Finland 2002 and WMA declaration of Helsinki- Ethical principles for medical research involving human subjects. According to above good practice in Research, negligence, dishonesty, fabrication, falsification, plagiarism and misappropriation have serious consequences.

In adherence to Arcada good research practice, the results of this study have been well backed with the database sources and results clearly recorded in the methodology and content analysis section .To avoid negligence and use of unreliable information and data, all the materials used this study were retrieved from academic databases and the search process as well as the results achieved well described and analyzed in a table format and further discussed in the results section.

All the authors whose works have been used for the purposes of this study reference have been acknowledged through proper citation and referencing. Referencing provides evidence of all the materials and points made through a study (Aveyard 2010 p. 156-157). References that used for this study have been listed in the list of references. Direct quotations presented in this study directly from the literature reviewed have been put in quotation marks and italics format. The author has made all absolute efforts to present all ideas as they have been presented by the relevant research without manipulating or twisting them.

### 3.5 CONTENT ANALYSIS

Content analysis is a research method that systematically and objectively scrutinize and compresses data into fewer contents and categories by analyzing documents to give better understanding of the data. This method allows the researcher to make relations in the data by breaking it down into categories. Reliable interpretations of the data can therefore be achieved in order to generate new knowledge or opinion (Elo & kyngäs 2008).

The author read through all the articles severally to get familiar with them. All the articles were then analyzed and the table below was generated.

#### SUMMARY OF SELECTED ARTICLES FOR STUDY

*Figure 4 Summary of the articles used in the literature review*

AUTHOR	TITLE	AIM OF THE STUDY/PAPER	MAIN FINDINGS /CONCLUSIONS
Conner et al. 2011	Changing exercise through targeting affective or cognitive attitudes	To examine effects of interventions on behavior.	Communications based on person's feelings can be used to effectively change an exercise behavior.
Bean et al 2006	Do attitudes towards exercise vary with differences in mobility and disability status?	To study attitudes towards exercises by vulnerable group of elderly people.	Intervention programs aimed at improving function among at-risk elders through therapeutic exercises must include interventions to promote self-confidence and to willingness to perform

			exercise.
So & Pierluissi 2012	Attitudes and Expectations Regarding Exercise in the Hospital of Hospitalized Older Adults	To define attitudes and explore motivators for exercise for hospitalized elderly people as well as characterize role of professionals in promoting exercise.	Effectiveness of in hospital exercise maybe realize through removing barriers and integrating motivation factors.
Morowatisharifabad et al. 2006	Self-Efficacy and Health promotion Behaviors of Older Adults in Iran	Examine relationship between self-efficacy and health promotion behaviors.	Health promotion Interventions targeting behavior skills may have greater influence in elderly people.
Groot & Fagerström 2011	Older adults motivating factors and barriers to exercise to prevent falls	To describe motivation factors and barriers for elderly people to exercise and improve health professionals knowledge on how to stimulate adherence.	Each elderly person has different motivators thus crucial to do individual evaluations to stimulate adherence.
Courtney et al. 2010	Improved functional ability and independence in activities of daily living for older adults at high risk of readmission	To describe effectiveness of multidimensional intervention for elderly vulnerable to hospitalization.	Health follow-up after hospitalization and Tailored exercise programs could reduce functional decline.
Pascucchi et al 2012	Health promotion for the oldest old	To describe health promotion contributing factors and barriers among elderly people.	Interventions considering aspects of Health, illness, function and motivation improve elderly people's quality of life.

Morton K 2013	Implementing evidence-based health promotion strategies	To illustrate multidimensional approach strategies to health promotion approaches.	Health professionals should utilize wide range of health promotion approaches to achieve optimum success.
Tambag & öz 2011	Evaluation of the Psychoeducation Given to the Elderly at Nursing homes for a Healthy Lifestyle and Developing Life Satisfaction	To assess Psychoeducation in nursing homes.	Health promotion targeting psychological problems through education promotes their quality of life thus necessity for full time nurses to adopt psychoeducation promotion.
Ellis 2011	Factors Associated with Exercises Behavior in People with Parkinson Disease	To describe potentially modifiable factors influencing exercise behavior in patients with Parkinson Disease.	Exercise interventions for elderly people with chronic illness should target self-efficacy as a potential factor influencing commitment and adherence.
Seifert 2012	Enhancing Intrinsic Motivation in Health promotion and Wellness	To deliver practical information in implementing effective programs.	Variety of features with Interventions programs like Knowledge, Instructions, goals and fun are potential to attraction commitment and adherence.

### 3.6 INDUCTIVE CONTENT ANALYSIS

With the aim of exploring more into the three elements of the IMB theory i.e. Information, Motivation and Behavior skills and validate them in regard to achieving functional capacities in to prevent deconditiong, the author thought inductive content analysis as most appropriate content analysis methodology most suited for this study.

Inductive content analysis could be used when knowledge is fragmented to develop categories from the data. Data is then prepared by analyzing and then grouping it into smaller content categories followed by identifying the units from the categories to be analyzed. In this case the researcher used research questions 2 and 3 to form the unit of analysis so as to give a clear understanding of the data seeking to provide answers to them. This approach is useful when the aim is to validate or extend on a theory or conceptual framework. (Elo & kyngäs 2008).

Second phase involves the researcher to open code, categorize and abstract the data. Researcher reads through the contents one more time and all the features of the content noted to generate categories. Categories generations assist in identifying similarities and discrepancies in observations which is quite useful in the final data interpretation. An abstraction is therefore achieved which means the generated categories are used to provide a general description of the phenomena (Elo & kyngäs 2008).

The author read through the articles one more time and this time all the relevant phrases were assigned a code. Relevant phrases associated to Information and knowledge was assigned code 'I&K', phrases associated with motivation was assigned code 'M' and those associated with Behavior skills assigned code 'BS'.

In the second phase, the author immersed more into the data and the phrases generated, grouping all similar phrases together to develop a theme. The table below was developed as a product of this phase and the themes developed explained on more in the results section.

Research Question 2.

What are the factors influencing physical activity related health promotion among the elderly people?

*Figure 5 Analysis of factors influencing physical activity health promotion interventions among elderly people according to the articles reviewed*

MAIN CAT- EGORY	GENERIC CATEGORY	SUB CATEGORY
INFOR- MATION	Prevention knowledge	<ul style="list-style-type: none"> <li>-Nurses possession of relevant skill to assist elderly with exercises, assistive devices use instructions and use as well as support to overcome barriers of positive behavior change and adherence.</li>   <li>-Staff awareness of their potential positive influence on the elderly to initiate and adopt physical activity healthy behaviors.</li>   <li>-Knowledge of elderly person’s barriers to positive health behaviors by the nurses and therapist.</li>   <li>- Knowledge information availability in simple usable versions to the elderly persons.</li>   <li>-Recommendations, benefits and risks knowledge on healthy behaviors.</li>   <li>-Self-awareness to prevent psychological problems</li> </ul>

MOTIVATION	Education motivation	<ul style="list-style-type: none"> <li>-Meaningful reason to healthy behaviors</li> <li>-Adequate information to support choices</li> <li>-Reliance on health professionals to have knowledge.</li> <li>-Assistance by professionals in making choices and reaching those particular goals</li> </ul>
	Personal motivation	<ul style="list-style-type: none"> <li>-Well-being improvement (absence of pain, boredom and fatigue associated with bed rests)</li> <li>-Emotions surrounding health</li> <li>-Environmental factors that support physical activity</li> <li>-self empowerment to making choices</li> <li>-Enhanced self confidence</li> <li>-Setting own goals</li> <li>-Pleasure in change</li> <li>-Feedback on performance</li> <li>-Assistance by trained staff</li> <li>-Ability to overcome fear and boredom</li> <li>-Sense of belonging</li> <li>-Self confidence</li> </ul>

<b>BEHAVIOUR SKILLS</b>	Prevention behavior skills	<ul style="list-style-type: none"> <li>-Cognitive behavior skills to assist overcome personal barriers to healthy behaviors.</li>   <li>-Individuals affective attitudes</li>   <li>-Cognitive function support factors e.g. Proper nutrition, physical activity, health responsibility, interpersonal relations and stress management.</li> </ul>
	Prevention knowledge information	<ul style="list-style-type: none"> <li>-Education level</li>   <li>-Self-management and self- monitoring skills</li>   <li>-Resources for cognitive stimulation</li>   <li>-Risk factors and benefits awareness</li>   <li>-Initial health assessment and evaluation</li>   <li>-Activity recommendations</li> </ul>
	Prevention personal motivation	<ul style="list-style-type: none"> <li>-Enhanced readiness through proper knowledge and support</li>   <li>-acknowledged achievements</li>   <li>-Feedback to support feelings of achievement</li>   <li>-Supported individual choices</li> </ul>



Research Question 3.

What best practices to maintain physical activity for the elderly in elderly care institutions has been effective?

*Figure 6 An analysis of functional capacity interventions best practices according to the articles reviewed*

MAIN CATEGORY	SUB CATEGORY	EFFECTS
INTERVENTIONS	Analysis	<ul style="list-style-type: none"> <li>-Health assessments provide a meaningful rationale</li> <li>-Initial health history assessments to assess self-efficacy</li> <li>-Individual assessments to identify personal motivating factors and barriers.</li> </ul>
	Plan	<ul style="list-style-type: none"> <li>-Program session’s duration to enhance best effects and long term maintenance.</li> <li>-Sustainable programs to retain morale and adherence</li> <li>-Wellness goals that are clearly communicated and defined in the program</li> <li>-Programs with specified goals to enhance effectiveness for long term adherence to healthy behavior change.</li> <li>-Adding instructions on very particular goals enhance effectiveness.</li> </ul>

		<ul style="list-style-type: none"> <li>-Targeting self-efficacy in interventions to enhance healthy behavior change initiation and adherence.</li> <li>-Programs targeting specific disease</li> <li>-Including education in programs to raise awareness</li> <li>-Psychoeducation promotion strategies in programs to support personal awareness.</li> <li>-Incorporating proactive encouragement strategies from health professionals.</li> <li>-Self-confidence and readiness intervention strategies to improve functional capacity.</li> <li>-Structured care plans incorporating activity as part of nurse's active role.</li> <li>-Instructions in concrete form designed to reveal experiences of other's.</li> </ul>
	Assessment	<ul style="list-style-type: none"> <li>-Self regulation</li> <li>-Follow-up</li> <li>-Feedback</li> <li>-Monitoring feelings</li> </ul>

## 4 RESULTS

In this section the author further discuss the results of the second and third research questions as recorded in the Figure 5 and 6 respectively according the results achieved from literature review.

### *Research question 2*

*What are the factors influencing physical activity health promotion interventions among the elderly people?*

### **INFORMATION**

Knowledge has been supported as the main course to behavior change (Seifert 2012) & (Marton 2013). Research described that elderly people have much trust on the health professional to make recommendations on physical activities for them and especially recommendations from the doctor are hardly questioned (Pascucci et al 2012), (Ellis 2011) & (So & Pierluissi 2012). On the contrary, health care professionals, nurses and therapists lack awareness of their potential to influence elderly people to behavior change. (Groot & Fagerström 2010) & (Pascucci et al 2012).

Benefits, risks and recommendations for behavior change information impact, assist in determining own health priorities which is a powerful cause to motivation to change (Seifert 2012). These three elements provide meaningful reason to adopt behavior change and adherence (Groot & Fagerström 2011) & (Seifert 2012).

Knowledge acquired by the individual can be put into action though providing specific tangible instructions, recommendations and action plans on how to initiate new behaviors. Conveying health promotion knowledge in concrete usable format with clear recommendations and instructions on how to achieve the goals, informs choice and enhances motivation thus resulting in behavior change (Seifert 2012) (Morowatisharifabad et al 2006) & (Conner et al 2011).

Screening methods assist the health professionals with vital information in establishing interventions, to handle the treatments and barriers to physical activity (So & pierluissi 2012) & (Courtney et al 2012). Tethering treatments, poor health especially pain, negative effects of bed rest like fatigue, are among potential barriers for physical activity among elderly people (So & pierluissi 2012). Results of screening procedures create awareness to elderly people on their circumstances and potential problems. This supports a starting point platform for education to support behavior change (Marton 2013).

Self-awareness knowledge supports provide a strong basis for overall well-being especially for elderly living in LTC facilities. Self-awareness knowledge management not only support health behavior change, but assist in adapting and coping with the LTC facility environment by preventing psychological problems (Tambag & öz 2013).

## **MOTIVATION**

Knowledge as a dependent factor in individual motivation enhance decision making and provide a meaningful rationale (Seifert 2012). Accurate and adequate knowledge support decision making, and choice to change (Groot & Fagerström 2011) & (Pascucci et al 2012). Feelings acknowledgement through education and counseling offers social support which produces motivation (Seifert 2012).

Self-awareness education influence participation, satisfaction, self- realization, environmental adaptation, stress management and interpersonal support, which are all factors important in nurturing personal motivation (Tambag & öz 2013). Training individuals on setting their own wellness goals triggers motivation and self-confidence (Seifert 2012) & (Bean et al 2006).

Personal motivation can be boosted by environmental factors that support behavior change e.g. physical exercise (So & pierluissi 2012), (Groot & Fagerström 2011), (Courtney et al 2012), (Marton 2013) & (Ellis et al 2011). Supporting individuals to set own goals act as individual declaration of commitment to achieve them, which is self-empowering and promote self-confidence (Bean et al 2006) & (Seifert 2012).

By addressing emotions surrounding health, through screening methods, knowledge providence and program follow ups, personal motivation is boosted and reinforced. Feedback on performance, facilitate adherence by uplifting feelings of achievement. Finding pleasure in the change promotes adherence (Seifert 2012).

In group programs where individuals have same level of physical capabilities promote self-esteem and foster a sense of belonging, thus boosting participation and assurance (Groot & Fagerström 2011). Recommendations tailored to individual capacities regardless of barriers enhance personal motivation (Pascucci et al 2012).

## **BEHAVIOUR SKILLS**

Ellis et al. (2011), suggest that cognitive behavior training considered productive in assisting vulnerable elderly people overcome barriers to inactivity but a different proposal by Conner et al. (2011), suggest affective behaviors to be much stronger determinants to change and can be manipulated without changing cognitive attitudes.

Affective behaviors can be connected with person's feelings while cognitive attitudes can be associated with intentions. Self-efficacy has been described as a behavior intellect associated with commitment and a strong determinant in engagement in healthy behaviors. This therefore explained the need to incorporate self-efficacy in overall health promotion in elderly people (Morowatisharifabad et al 2006).

Simple influential communications can successfully change affective attitudes and impact behavior change (Pascucci et al 2012), (Morton 2013) & (Seifert 2012). Education levels and age to great extent contribute to preventive behavior change. High levels of education among older elderly people result in better prevention behavior skills (Morowatisharifabad et al 2006). Constructive feedback support feelings of achievement, thus enhancing preventive behavior skills (Courtney et al 2012).

Cognitive function support through proper nutrition, physical activity, health responsibility, interpersonal relations and stress management enhance individual's ability to

overcome personal barriers to healthy behavior change (Ellis et al 2011) & (Pascucci et al 2012). Cognitive health stimulation through previous and present-day interests, new skills building and socializing support groups enhance preventive behavior skills (Pascucci et al 2012).

Health professionals can promote elderly peoples self-confidence through guidance in making choices and facilitating reaching the goals to promote their self-confidence levels (Bean et al. 2006). Elderly people trust in the health care personnel knowledge, boost their preventive behavior skills when this knowledge is shared (Groot & Fagerström 2011). Instructions and recommendations should therefore be realistic and relevant (Seifert 2012).

Reinforcing individual choice is a personal motivation factor nurturing behavior skills and personal connection to the intervention program. Demonstrating other's sharing similar experiences support preventive personal motivation (Seifer 2012). Confirming outcomes of effective health behavior change support feelings of achievement and communicate social support, (Courtney et al 2011) which support long term maintenance (Morowatisharifabad et al 2006).

### *Research Question 3*

*What best practices to maintain physical activity for the elderly in elderly care institutions has been effective?*

## **INTERVENTIONS ANALYSIS**

Screening methods in the initial stage assist to evaluate some important factors that influence behavior change and intervention adherence. These factors in elderly people are among others, functional capabilities, tethering treatments, motivation barriers and self-efficacy. (Morowatisharifabad et al 2006), (Courtney et al 2011) & (Seifer 2012). These revelations may provide a useful meaning to embrace and adhere to an intervention, aimed at change to healthy behaviors (Seifer 2012).

## **INTERVENTIONS PLANNING**

During interventions planning broad based strategies have been suggested to be effective. According to Courtney et al (2011), exercise only does not improve functional capacities therefore the need for variation depending on the circumstances. Programs that are accommodating and flexible as well as offering choice promote motivation and adherence for the elderly people (Seifert 2012). Targeting specific disease can be even more effective. Group composition of elderly people with the same functional capability, not only promote motivation but self-confidence and self-esteem (Groot & Fagerström 2011).

During these phase, incorporating strategies that address motivation behavior skills and knowledge distribution is fundamental to impacting individuals and effectiveness (Pascucci et al 2012), (Morowatisharifabad et al 2006) & (Conner et al 2011). For the elderly people, shorter sessions that are widely spaced have been proposed to produce best effect for long maintenance than extensive programs that run for a specified period of time (Pascucci et al 2012) & (Courtney et al 2011). Education strategies for both health care professionals and elderly people as well as psych education for wellness, integrated in interventions has been highlighted (Pascucci et al 2012) & (Tambag & öz 2013).

Structured and clear interventions and goals that emphasize personal targets (Seifer 2012) enhance effectiveness, long term adherence and behavior change. This therefore highlights the need for these elements to be incorporated in care plans as nurse's vital role (Marton 2013) & (Conner et al 2011). Instructions on very specific goals attainment plan e.g. simple and '*clear self-guided booklets*' could as well be a way to enhance effectiveness (Seifert 2012).

## **INTERVENTIONS ASSESMENT**

Interventions evaluation helps to monitor progress, effectiveness and facilitate improvement, and tailoring of interventions according to progress. Individual's emotional state monitoring is enhanced, which provides them with support and improve adherence. Self-regulation not only helps tracks progress but promote healthy behavior

change and adherence (Conner et al 2011) & (Seifert 2012). Feedback facilitate adherence by boosting self-confidence and self-regard (Courtney et al 2011).

## **DISCUSSIONS, STRENGTHS AND LIMITATIONS**

The aim of this study was to examine physical activity association with deconditioning. Evidence presented in this study demonstrates that inactivity and sedentary lifestyle dominated by inadequate knowledge, behavior skills and motivation in later year's, impacts heavily on functional capabilities and the consequences are critical.

Functional capacity impact independence of the elderly people as well as their overall quality of life. Screening methods and early interventions could assist in mediating losses. These would consequently ease the burden on dependency and hospitalization consequences. Effective interventions are not only beneficial to the elderly people but can offer them a chance to shape their lives beyond their circumstances.

In order to mediate on losses experienced in later years, consideration of the individual's mental and physical characteristics was brought up as fundamental elements to effectiveness and accomplishment of interventions. Holistic approaches have been suggested to be effective and tailoring quite affective especially in initiation.

Building assurance in the healthcare professional team working with the elderly people to realize their potential in impacting the lives of the elderly people could change the lives of many elderly reliant on them who have enormous expectations.

The strength of this study is the consistency of the background information with the theoretical frame and the findings of the literature review. It was interesting discovery for the author during the whole study, to discover how concepts were associated and the interactions have been illustrated. Another study strength was the existence of reliable extensive literature on the relevant subjects that was addressed in this study. The author's interest on this area of study played a major role as strength to this study due to the enthusiasm and determinations involved to yield concrete results.



Limitations experienced was that, some very good literature relevant to the review of this study could not be used on the basis of language they were written on other than English or they were older than the selection criteria which were not older than 2003 which was regarded as selection criteria. As another limitation in this study, cognitive aspects of behavior training has been proposed to be useful in interventions strategies (Ellis et al 2011) but there lacked enough evidence of how this can be achieved in interventions by health professionals.

## **CONCLUSIONS**

Quality of life according to WHO (2001) has been defined as '*Individuals perception of their position in life in context of their culture and value system in which they live and in relation to their goals, expectations, standards and concerns*'. To realize this, elderly people need to be empowered to take health responsibility.

The author wish to acknowledge the implication of findings of this study with the aim that was to explore deconditioning in the institutionalized elderly people and the influencing factors. The author considers that if these findings are reflected on and practical measures put in place, deconditioning and its dreadful consequences elimination can be managed in elderly care institutions.

## **RECOMMENDATIONS**

Functional capability has been proven by this study to have significant impact on independence and quality of life for the elderly people. Although losses due to normal ageing cannot be avoided they can be managed to maintain dignity and functionality. The author wish to recommend further investigation into practices that could prepare elderly people to discover and manage comorbid effects of these changes, especially those affecting their cognitive abilities.

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