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Social Services

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THE ASSOCIATIONS BETWEEN SELF-EFFICACY AND
PHYSICAL ACTIVITY AMONG MIDDLE-AGED WOMEN:
KOUVOLAN SEUDUN MUISTIRY PROJECT

Master's Thesis 2013

TO MY LATE MOTHER MARGARET SHIRI

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ABSTRACT

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The Associations Between Self-Efficacy and Physical Activity Among Middle-aged Women: Kouvola Seudun Muisti ry.

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Keywords:

Self-efficacy, physical activity, middle-aged, women, behavior change, lifestyle change, dementia, memory, memory disease, living habits.

The active life of a middle-aged woman should be accompanied by participating in regular physical activities to improve general well-being and keep the memory active. Hence a middle-aged woman needs a certain level of self-efficacy to plan and accomplish a successful physical activity level.

The purpose of this study was to promote physical activity among middle age women. Research questions were: What was the association between self-efficacy and change in physical activity? To answer this question the following indirect questions were asked: (a) what were the goals set by the women? (b) What were the physical activities of the participant? How many times per week and how many hours and minutes per day did women participate in physical activity?

A correlations study design was used to determine the relationship between two variables, self-efficacy and change in physical activity. The participants were middle-aged women between 40-65 years, $N=43$. The data was collected using structured, non disguised questionnaires. Self-efficacy and physical activity questionnaire were analyzed using IBM SPSS statistics version 20.

There was a positive correlation between self-efficacy and change in physical activity, and a significant statistical relationship with the two variables. Middle-aged women with a higher level of self-efficacy do more physical activity, than their middle-aged women with a lower self-efficacy. They are also more committed to their goals and focus on the activities. Individuals with a higher level of self-efficacy will look at challenging situations as a task to be mastered. It would be beneficial for this project to emphasize more on enhancing self-efficacy and organize more physical activities programs.

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Minäpystyvyys, fyysinen liikunta, keski-ikä, naiset, muutos, elämäntavan muutos, dementia, muisti, muistisairaus, elämäntavat.

Keski-ikäisten naisten aktiivista elämää pitäisi lisätä osallistumalla säännölliseen liikuntaan, joka parantaisi yleistä hyvinvointia ja pitäisi muistin ahkerana. Näin ollen tarvitaan tietty taso omaa pystyvyyttä suunnittelemaan ja toteuttamaan onnistunut fyysinen toiminta.

Tämän työn tarkoituksena oli ajaa keski-ikäisiä naisia lisäämään liikuntaa jotta vältettäisiin muistin terveysongelmat myöhemmällä iällä. Tutkimuskysymys: Mikä yhdistää keski-ikäisten naisten minäpystyvyyden ja muutokset fyysisissä toiminnoissa? Saadaksemme vastauksen tähän kysymykseen teimme seuraavat kysymykset: (a) mitkä tavoitteet oli asetettu? (b) minkälaista toimintaa osallistuja harrasti, montako kertaa viikossa ja kuinka pitkän ajan päivässä?

Menetelmä: Vertailevan tutkimuksen suunnittelua käytettiin määrittämään kahden muuttujan, oman pystyvyyden ja muutokset liikunnassa, välistä suhdetta. Osallistujat olivat 40-65 -vuotiaita naisia, N=43. Arvot muuttujiin saatiin jäsenneltyä, avointa kyselylomaketta. Tiedot analysoitiin IBM SPSS tilasto-ohjelmaa (versio 20) käyttäen.

Johtopäätös: Löytyi positiivinen vastaavuus oman pystyvyyden ja liikunnallisuuden muutoksessa, sekä merkittävä tilastollinen yhteneväisyys näiden kahden muuttujan välillä. Keski-ikäiset naiset jotka pystyvät tekemään enemmän, myös liikkuvat enemmän ja he ovat sitoutuneempia saavuttamaan päämääränsä sekä keskittyneempiä suunnittelemiinsa aktiviteetteihin. Tehokkaimmat yksilöt etsivät haastavia tilanteita, koska haluavat hallita tehtävän. Projektille voisi olla tärkeätä korostaa oman pystyvyyden parantamista ja järjestää enemmän liikuntaohjelmia, esimerkiksi hankkimalla järjestönsä liikuntakeskuksen jäsenilleen.

The Associations between Self-Efficacy and Physical Activity among Middle-aged Women: Kouvolan Seudun Muisti ry Project

1 INTRODUCTION

Maintaining memory health should be the key problem for individuals and policy makers. However the burden of taking care of individuals suffering with memory problems in later life is shifted to a need based approach, which will enable the individual to achieve self-fulfillment, dignity, independence and sovereignty over his/her own life

Some of the most common memory problems in later life are dementia and Alzheimer. About 100 million people will suffer from Alzheimer disease by the year 2050 (Alzheimer's disease International 2008). Economically about 604 billion US dollars is estimated to be spent on treating memory diseases like dementia (Alzheimer's Diseases International 2008). In 2005, about 24000 Euros were spent per year in Finland taking care of one individual suffering from dementia, and there were about 85000 people suffering with at least middle severe dementia. Additionally the Finnish government estimates that about six per cent of all health and social lost goes to dementia care (National Institute for Health and Welfare 2011).

Harvey, Skelton-Robinson and Rossor (2003) did a cross sectional study in the UK on the prevalence of dementia and the results shows that about 54 per 100000 people around the age 30-64 has dementia. The prevalence of dementia among 30 – 64 year is about 0.26 per cent in Finland (Stakes 2006). Some patients suffering with dementia are unable to take care of themselves, so a 24-hour care from care-givers is needed to help with activity of daily living. The Finnish Welfare Compass (2013) for monitoring regional welfare estimated the life expectancy at birth among women in Finland from 1990-2011 at about 84 years as compare to men 76 years (Statistics Finland 2009). These figures may indicate that, people will continue to live longer and might need care in later life if they have memory health problem. In an interview conducted by (Alzheimer Europe 2011) with the Finnish minister of health and social services, it was reported that memory health problems affect many individuals of the working age

in Finland. Hence more action is needed to prevent memory health problems as early as possible, and consequently this number will continue to increase if nothing is done.

In a recent report, the Director General of National Institute for Health and Welfare on the 2011 lääkäripäivä in Helsinki laid more emphasis on the fact that dementia is a challenge for the healthcare system at the moment, and there will even be more challenges in the future. The Director General was most concerned if the lessons learned from prevention and health promotion of some diseases could not be adapted to preventing and promotion of Alzheimer and dementia disease. Memory health problem is one of the reasons why most people may be institutionalized in later life. Some of these problems maybe brought about by the lifestyle choices of individuals. According to some studies, engaging in the process of changing lifestyle includes setting short term goals. In order to successfully, go through the process of making healthy lifestyle change, individual needs to have a certain level of self-efficacy. The objective of this study is to promote physical activity among middle age women. Some studies show that physical activity is a beneficial factor in preventing chronic diseases and improving the general well-being (Pratt, Eppin and Dietz 2009). To investigate physical activity a quantitative research method will be use.

The association between self-efficacy and change in physical activity is assess to answer the main research question. The material for this study was gathered with two separate questionnaires. The first questionnaire will content ten items of self-efficacy and the second one will content physical activity.

1.1 Significance of this topic

Personal interest in self-efficacy inspired the choice of this thesis, which in my opinion is a significant determinant in making lifestyle changes. Although the benefit of physical activity is well known, it is difficult at middle age to do regular physical activity taking into consideration the various responsibilities a middle age woman might have. Looking at this topic I feel that it might be the solution to understand my continuous failure to exercise regularly. Furthermore, it is particularly crucial to meet a project that takes the health of women as it main focus. Finally being a woman and, approaching middle age it is essential to inquire how to make healthy lifestyle choices.

Women with a higher level of self-efficacy make healthy lifestyle changes. Middle age is defined in this thesis as women between, 40- 65years.

1.2 Relevance of the study

The outcome of this study will enable more projects that aim at promoting physical activity. This study helps to clarify some doubts why it is hard to do regular physical activity, despite its vast benefits on health. The outcome of this study will also confirm that physical activity can be promoted through the intervention of a memory health project. In the future, more researchers can use this study as a foundation to carry out a longitudinal study on this topic. Furthermore, since so many researches has been carry out about memory, self-efficacy and physical activity, this study may help to some extent to bridge the gap between opposing ideas. Finally, policy makers may use the outcome of this study as a base for formulating policies that will encourage women to do more physical activity.

1.3 Kouvola Seudun Muistiry Project

This study is part of the Kouvola Seudun Muistiry project, its main purpose is to promote memory health. The office of the project is situated in Kouvola municipality. This association was founded in 1990, and it has about 300 members. Memory health project is funded by Finland's slot machine association RAY for 2011 – 2014 and the project is currently in its first phase. One of the sub-projects in this organization is gear towards middle age women, 40-65 years. The vision of Kouvola Seudun Muistiry is to provide a memory accessible Kymenlaakso, where local associations, public administration, companies and schools collaborate seamlessly to promote brain health, as well as support both people with a memory disorder and their families in managing daily functions.

1.4 Background

Memory is the ability, capacity or faculty of the mind to recall past events, persons or ideas. MedicineNet.com (2011) divides into short and long-term memory. Eysenck and Keane (2000) elaborate on this idea that, people need their memory to encode, store and retrieve information. The short-term memory stores information for a limited time meanwhile the long-term memory stores information for a longer time. There is a lot going on inside the memory without individuals knowing. For example, Eysenck and Keane (2000) suggested that while reading a book, the mind at the same time is solving a problem that requires the use of the language skills, the visual perception and attention. In the process of learning, people use their emotional state to understand what they are reading and storing the information in the long term memory, etc. Sometimes individuals take advantage of these qualities. In later life memory problem can affect the capacity to function or all processes that effects remembering. The importance of memory is to fill up all the complex strategy, does the selection of what people want, plan, retrieve, check, evaluate and accomplish a task.

Memory disease like Alzheimer and dementia may damage the short term memory. Remembering is a crucial aspect to maintain a balance healthy life. Lifestyle can change the way individual's memory responds to demands or requests to repeat past or current events. Individuals may find themselves in a situation wherein they have forgotten where their car keys are, or the name of someone important. A person needs his memory to remember pertinent facts, events, places and social norms. Similarly, memory is crucial in remembering how to perform basic routine like taking a bus or making breakfast and, other activities of daily living. To accomplish all this, the brain sorts through information, evaluates the importance of the information, stores off the information, and then retrieves it when needed, usually within seconds. Eysenck and Keane (2000) compare the human mind to a computer that has a central processor. Limitations may occur if individuals do not maintain the mind so that it continues to function normally. Some lifestyle behavior may alter the way the memory functions; and lead to a poor quality of life and well-being in later life. Some memory problems develop slowly while others occur spontaneously (Kalat 2003). Some types of memory problem can be reversible through medical care and therapy and others may continue to deteriorate in a systematic and continuing decline. Mild cognitive

impairment is assumed, not severe enough can later on be diagnosed as dementia. (Busse, Bsichkopt and Riedel-Heller 2003). There are different types of dementia: the levy body dementia, vascular dementia and mixed dementia. The reality of this disease calls for concern; hence there is a critical gap in knowledge concerning middle age women who do not have their own occupational health services, in perception relative to physical activity and self-efficacy in Finland.

2. FACTORS RELATED TO BEHAVIOR CHANGE

2.1 Setting individual physical activity goals

Every commitment is goal oriented human goals are multidimensional; pursuing goal might result in accomplishing many other goals. Meanwhile, individuals usually organize their goals in a hierarchical structure, some super ordinate others subordinate (Mischel, Shoda and Smith 2003). The women in this project were assisted during the counseling period, in making short term goals. Setting goals is a form of self help, which requires an individual to predict the future, and prepare for consequences. Goal setting is also a crucial factor in predicting individuals' performance. For example, a study carry out about student's performance self-regulation and self-efficacy concluded that goals affected the student's performance and level of self-efficacy (Kitsantas, Reiser and Doster 2004). Individuals who set goals have the possibility to improve their self-efficacy and performance in the process of meeting that goal. Consequently when goal setting is accompanied by positive feedback, performance will increase (West and Thorn 2001). It is important to start physical activity with short term goal because it is easier to maintain.

The goals of the women were mainly focusing on increasing the level of physical activity for at least two times a week. For examples physical activities like walking, swimming, cycling, jogging, pool gymnastics, gardening, Nordic walking, yoga and balance training activities. Some of these activities are activities the person may perform in the process of carrying out activity of daily living. Although setting physical activity goals and self-efficacy are not the only determinants that lead to a successful regular activity, Zimmermann-Sloutskis (2010) argue that attitudes, motivation, age, gender and social class are some of the factors that might influence physical activity. In order for mediating organization to assist middle age women to change to a healthy behavior, its members have to have high self-efficacy (Luszczynska, Sheng, Mallach, Pietron, Mazurkiewicz and Schwarzer 2010).

2.2 Self-efficacy

Theories are keys when addressing the issue of changes lifestyle for health reasons (Concoran 2010). In order to develop a program to promote the memory health of middle age women, organizations have to take into consideration the capabilities of its members, health belief goals and objectives (Shu-Fen and Chiu-Chu 2010). The concept of self-efficacy lays at the center of Bandura's social cognitive theory, which emphasizes the role of observational learning and social experience in the development of personality. According to psychologist Albert Bandura (1977), self-efficacy is the belief one has of his ability to succeed in specific situation. One's sense of self-efficacy can play a significant role in how one approaches goals, tasks, and challenges. According to Bandura's theory, people with high self-efficacy are more likely to view difficult tasks as something to be mastered rather than to be avoided. Models are used to guide the development of health promotion based on that people's behavior can be predicted by focusing on their attitude and beliefs towards health (Green and Fones 2010). For example, a middle age woman who wants to quit alcohol; must believe that quitting will be beneficial to her health and also that she is capable.

According to Murray's model (Pervin 2003), people adopt unhealthy behavior in the first place because they have needs that they want to satisfy. He assumed that needs are derived from an internal force in the brain aroused by internal or external stimuli. In Pervin 2003, Murray explained that the desire to reduce tension gives a partial explanation of the process of human motivation to drink, smoke or to eat unhealthy diets. On the other hand, the desire for individuals to reduce the tension needs which they cannot express is the most satisfying. However people are pushed to the wall with an abundance of everything, everything is so easily accessible that to effect change is not an easy issue. However as Mahatma Gandhi said; *"Men often become what they believe themselves to be. If I have the belief that I can do it, I shall surely acquire the capacity to do it, even if I may not have it at the beginning"* (WOQ 2011). The conviction that one can successfully perform the behavior require to effect change will be the main emphasis in this paper.

2.3 Determinants of self-efficacy

Self-efficacy emphasizes the prediction of behavior change. It hypothesized that when individual is expected to change their behavior, personal efficacy will be determine if sustaining behavior will be initiated, how much personal effort will be spent or squander in changing behavior. Aversive experiences might prevent a middle-aged woman from changing; when behavior changes require withstanding obstacles. Thus, self-efficacy is determined by the way an individual think/feel and believes in his ability to succeed in a situation. Also how individuals view and interpret the world around them determine their belief and lifestyle choices (Bandura 1977). Individuals might think that good, as opposed to unpleasant things will occur in their life continuum, if they attempt to change their habits. Being optimistic about one's ability to change is a definite move to oppose obstacles of behavior change; this idea is clarified by some psychologists who found out that individual's optimism can be stable for a period of three years even when a tragedy occurs. It is a good coping mechanism, as opposed to defense mechanism that individual use to reject change (Pervin 2003). Middle age women need support in these aspects so as to be able to establish positive health behavior change. When these qualities are missing individuals become pessimistic; a pessimist quits trying when difficulties arise, they tend to avoid, become angry, anxious and disengaged.

2.3 Enhancing self-efficacy

To alter self-development changes in one's life, belief in efficacy is one of the main factors to consider. Pessimistic or optimistic thinking depend on belief and the way of interpreting the world.. These ways of thinking affect not only goals and aspiration of individuals, but also motivation and outcome prediction of a task (Bandura and Adams 1977). However, there are some sources that an individual may require to enhance self-efficacy.

Self-efficacy begins to develop from childhood and continue throughout the course of lives as individuals gain new skills experiences and understanding (Cole & Cole 2001). Mastery, social persuasion and psychological responses influence a person's self-efficacy perception. When people engage in a task and successfully complete it,

their sense of efficiency is strengthened (Bandura 1994). Furthermore, experiencing a situation first hand is an effective way of establishing one's performance expectancy (Aisha; Hazel and Holloway 2001). People with low self-efficacy will consider a challenging task as a threat that has to be avoided. Individual with high efficacy set high goals and face it with determination and commitment, and see failure as something that has to be mastered and needs more knowledge to accomplish. Faced with; a challenging task, an individual with a high self-efficacy will approach it with certainty and confidence. However, failing to perform a task might hinder one's self-efficacy and create significant doubt in performing a task. If people tend to seek only easy task, when faced with challenges, they will consequently make little or no attempt.

Seeing others do it successfully, especially when there are people similar to us will encourage individuals to change their lifestyle. Behavior can be learned through seeing and doing or imitating those individuals admired as a model. On the other hand, observing others fail might also be a hindrance to one's endeavor. Therefore, the ideal people observed should be similar to them. If not, it will have little or no effect on their effort (Bandura 1994).

Mobilizing with greater effort might be persuaded by the information about one's ability to perform a task like losing weight walking at least 30 minutes a day. Organizations and peer groups may be a good place to convince individuals to overcome their hesitancy. Positive influences enhance people's self-efficacy to put more effort in a task enhances skills and senses of personal ability. To encourage people to improve self-efficacy, it is advisable to allocate them with easier task that they can perform. Effectiveness should be seen as a sense of improvement, not as a triumph. Emotional responses or expressions and experiences of one's ability significantly affect performance.

Mood, emotional state, physical reactions and stress level all counts in performing a task; these might also be seen as a disability to perform a task successfully. For example, having to perform in front of a crowd for the first time is nerve wracking to someone with little potential; as such disposition determines the assessment of perceived capability. Intervention can help to reduce people's stress and encourage

them to overcome them when faced with challenges. Individuals react when they feel safe. Self-efficacy does not refer to a global self-concept; it only refers to the specific situation and task involving cognitive contributions to motivational goals and standard. Faced with a cognitive challenge, the result may be affected by the external representation and assessment imposed by others on the individual. People rely on performance feedback to maintain commitment to a goal. High self-efficacy judgment maintains individual's motivation for a goal attainment. This implies that outcome expectations affect individual behavior (Pervin 2003). The effectiveness is the construct of motivational behavior to a change, and as such facilitates the forming of behavior change in individuals, in terms of taking action and initiation of action (Bandura 1977). For behavior change to take place, emphasis has to be placed on the health confidence and attitude of individuals (Concoran 2010). Change is a whole process that needs cognitive confidence in planning and implementation.

2.4 Self-efficacy and Memory

Confidence and self-belief are some of the main factors to memory capability. However, memory self-efficacy is the belief that an individual has about his memory. Also, that his memory has changed, and it can be control. Mastery in the memory domain can a person long time to accept that it is possible to increase memory capacity by doing regular physical activity. This ability helps people to confront rejection and criticism. Some of the most significant achievements in most people's life today are back by the fact that they have been able to withstand rejection. The strong self confidence they possess makes them exceptionally strong. The relationship between memory and self-efficacy depends on what we tell ourselves; it thus reflects on how we see and interpret the world around us. Perception of a situation, personal efficacy and the willingness to change are some of the cognitive indicators that individuals need to change their lifestyle and adopt a healthy lifestyle. When individuals prepare their mind to change behavior they may want to seek for help, use services provided for them and engage in the process to change. Memory self-efficacy plays a vital role in determining if one is pessimistic or optimistic by self-evaluating the way they perceive a task. Those high in memory self-efficacy will see memory problem as an issue that can be fixed with mastery of a task and intervention (Lovelace 1990). Women in this project accept to participate in activities by setting

personal goals, following their goals, adjusting and self-regulating as time goes ahead. In my opinion, these processes require a lot of mental readjustment. In order to keep the memory active, individuals need to participate in physical activity.

3. PHYSICAL ACTIVITY

According to the WHO physical activity is any bodily activity produced by skeletal muscles that necessitate energy. These activities may include cycling, running, swimming, jogging, and gymnastic and so on. Physical activity is a valuable way of preventing disease and increase better feeling. Participating in regular physical activity increases a woman's life span by 1, 5 to 3, and 7 per year (Health-EU 2013). Physical activities can be categorized as aerobic or muscles strengthening and balance activity. In England, about 70% of women consider to be insufficiently involved in physical activity; hence government spent about 2.5 million pounds each year to encourage people to be active (Boehler, Milton Bull and Fox-Rushby 2011). More still In the United States; African American women have the lowest participation level of physical activity (Gletsu and Tovin 2010). Finnish and Bosnia women who have immigrated to Sweden are prone to cardiovascular mortality due to lack of physical activity, as compare to other Swedish women as study shows (Dawson, Sundquist and Johansson 2005).

However, in Finland leisure time physical activity among adult between 15-64 years has increased among the working people. Meanwhile commuting activity is in a decline. Educated men participate more in physical activity and eat healthier meal than women. On the other hand, Finnish women's physical activity level has not changed for the past few years (National Institute for health and welfare 2013). According to the UKK institute 2010 review of Finland, health benefit from physical activity most not only come from vigorous well planed exercise performed in traditional areas like the gymnasium, but also from increasing the level of physical activity on a regular basis. This has ample justification on successful aging. The greatest achievement comes from when one goes from not doing any physical activity at all to doing some physical activity at least two times a week. More importantly activities like walking, gardening, swimming cycling, has no obligation to go to a formal environment to practice .In order for physical activity to be enjoyable, individual have to choose the activity they like best.

3.1 Choice of physical activity

Choosing a physical activity that is fun is a critical aspect in thinking about engaging in physical activity. In a brochure, presented during the 2010 World cup in South Africa, one of the 3 fives for healthy living, was an appropriate choice of physical activity (WHO 2013). For example, individuals might choose to walk, swim, cycle, gymnastics, yoga, balance training and heavy gardening to improve health. Finland is doing well as compared to other European countries in the face of physical activity in the past 20 years. Although only 30 to 50 percent of the adult are active enough, 31 per cent of women age 15-64 and 27 per cent of men meet the recommended amount and engage in moderate physical activity for at least 4 times a week (Stakes 2006 p. 33).

However, physical activity may also have a negative impact on an individual. Negative consequences like injury may constrain the amount of physical activity a person may require. For example, when individuals are advised to choose the activity they enjoy, a person chooses to jog. While jogging, she falls and suffers an injury to the leg that keeps her in bed for a month. This might be a reason discouraging the person from not to undertaking any activity in the future. However, when people are aware of the benefit of physical activity, they will adopt a positive attitude towards physical activity.

3.2 Attitude towards physical activity

Most individuals do physical activity for different reasons. Some have positive, while others have a negative attitude towards physical activity. However those individuals with a positive attitude are more attracted in physical activity (Poobalan, Aucott, Clark and Smith 2012). According to a study carried out in Sweden by (Eurenius, Biguet and Stenstöm 2003) attitude towards physical activity is considered in relation to attitude towards a disease. In this light, person may be less or more motivated to physical activity if they find themselves sick or unfit. According to this group of individuals, only meeting physiotherapist and activity carried out in a formal environment, is considered physical activity past behavior and perceived attitude towards physical activity are beneficial relationship factors towards participating in

regular health enhancing physical activity (Carter-Parker, Edwards and McCleary-Jones 2012). In a study carried out in the USA, African American women think child care, house work, and care-giving as physical activity (Buchholz and Artinian 2009).

3.3 Physical activity and Memory

Increasing additional activity level of regular activity has a beneficial health outcome in later life including cardiovascular and pulmonary fitness decrease in blood pressure, improve functional status, increase mobility, and improve cognitive function. In spite of all these health beneficial factors, the levels of physical activity among women still remain low, especially amongst the elderly population (Snowden, Steinman, Mochan, Grodstein, Prohaska, Thurman, Brown, Laditka, Soares, Zweiback, Little, and Anderson 2011). Recent research has shown that memory is also influenced by other non cognitive factors. An example is that depression; age; poor sleep etc and some emotional factors have an adverse effect on memory performance and increase the number of visiting time to the doctor. Physical activity has a beneficial effect on the memory. Furthermore, participating in leisure time activity in middle age, may reduce the chances of having memory problems (Rovio, Kåreholt, Helkala, Viitanen, Winblad, Tuomilehto, Soininen, Nissinen and Kivipelto 2005)

3.4 Social Environmental and genetic factors related to behavior change

Women sometimes have less social support from the community to change behavior; on the other hand, they may be individually more motivated to change because of the environment they find themselves. A recent study shows that women have less spontaneous ability to change lifestyle, which might be a reflection from their environment. During an intervention process, if women increase able to increase their efficiency in doing activity, they will probably achieve a healthy lifestyle (Hankonen, Absetz, Ghisletta, Renner and Uutela 2010). Self-assertion may also be an enhancer for women if rules to change habits behaviors are straightforward and easy to understand. Otherwise, if the rules are too cognitively challenging individuals might leave or reject the idea quickly (Mata, Peter, Todd and Lippke 2009). An example of environmental factor that have an impact on most women in a negative way is the

average promotion of slim women as the ideal woman. When women try to look that thin and are unable, they may become frustrated and may give up easily because they think they do not have the capability to become slim. This may lead to a lower self-esteem; and consequently to lost confidence. However, if trying to be thin and look like the perfect woman succeeds, there could be an improvement in self-efficacy to alter behavior in middle age (Fulcher, and Janosik 2008). The cultural context of Finland has changed rapidly, the early traditional sources of lifestyle that gave people the benefit of belonging is now fragmented. Lost identity may affect unhealthy behavior because people just cling to whatever gives them the most satisfaction like drinking and smoking (Stakes 2006). Consequently stable environment will facilitate the lifestyle choices individuals make.

Most of the environmental laws patterning to health introduced in the community are not specifically directed to women. Most of these laws only prevent excessive drinking; as such the decision is left for individuals to choice (Shore 1985). Finland provides a supportive food environment for the citizens, which means that everywhere people live; there is at least a shop wherein all kinds of food can be found. A strategy that aims at changing people's behavior has a lesser effect if the individuals have little control over their environment (Hill, Brophy, Brunt, Storey, Thomas, Thornton, Palmer, Dunstan, Paranjothy, McClure, Rodgers, and Lyons 2010). Smoking is an environmental threat to health; living in an environment where people smoke is harmful. Smokers do not only cause harm to themselves but also to those around them. The number of people exposed to smoking in Finland is about 150 000 and about 60 people die of lung cancer annually while 700 contract cardiovascular diseases and 20 000 – 30 000 with respiratory symptoms (STAKES 2006). It would be worth for the government to strengthen the laws in smoking so as to reduce this threat on people's health. Chou, Hsu, Kuo and Kuo (2008) did a study where women are exposed to environment that smoking is allow, the consequences were that women in this type of environment had a lower capacity of breastfeeding their babies. Nevertheless women in most parts of the world women smoke more than men despite the restrained on smoking, it is harder for most women than men to give up smoking. For example, 18 percent of Finnish women smoke daily since 1960, and it is surprising to find out that from 1978 – 2005, the rate of smoking among women has increased, especially among working age women (STAKES 2009). The situation is the

same in Asia where women smoke more than men despite the restrictions (Y-Wen, Tzu, Chung-Lin and Kuo 2008). Hence more attention should be paid to the determinant of smoking behaviors with groups, particularly women.

Obese people have a lower confidence to keep on with daily life. Obesity has an impact on peoples' usefulness by lowering the prospects of changing because they need to work extremely hard to make achieve change (Keller, Larkey, Distefano, , Boehm-Smith, Records, Robillard, Veres, Al-Zadjali, and O'Brian 2010). Obesity is also considered one of the root causes of cardiovascular disease. Middle age women might contract this health problem if they live an unhealthy lifestyle. Women who are aware of the consequences of this health problem are willing to commit to change to and improve their well-being. Hence maintaining a healthy life at middle age may reduce individual chances of memory problems in later life (Kerwin, Gaussoin, Chlebowsky, Kuller, Vitolins, Coker, Kotchen, Nicklas, Wassertheil-Smoller, Hoffmann, and Espeland 2011). Hence choosing and participating in a physical activity that might improve the memory in later life requires some level of responsibility. The modern society puts a lot of pressure on women's perspective; social pressure can force women to go to extremes (Salmon, Crawford, Dane and Zuberbier 2008). On the other hand, women are managers of the family in many cultures; they buy food and make sure what to cook. People's situation and the circumstances in which they work strongly influence their health. An environment where in the accessed to health care is limited, low level of education, increase access to alcohol consumptions, cigarette smoking, affects the well-being of individuals (Shih, Ghosh-Dastidar, Margolis, Slaughter, Jewell, Bird, Eibner, Denburg, Ockene, J, Messina, Ghosh-Dastidar and Espeland, 2011).

Women will change their lifestyle when they understand that their health is in danger, and a lifestyle change is an option for a healthy condition. Women are ready to go through difficult situation if they are told they might develop cancer in the future. Crozier, Robinson, Borland , Godfrey , Cooper and Inskip (2009) examined about 1490 women's diet behavior before and after pregnancy found out that most women will choose a healthy lifestyle because of their unborn child. This implies that women weigh the convenience of having a healthy child as being more valuable than sticking to the unhealthy diet. Genetically, the human brain is plastic, i.e. it is constantly

changing within its limits significant changes occur in the brain anatomy during early development and continue as a result of the learning, experience and responds to brain damage. It is difficult to relate memory diseases like dementia to a single genetic factor (Kalat 2003). Alzheimer can strikes individuals as early as the age of 30 but becomes more serious and frequent with age. However, not all memory problems can be change with life style choices (Godfrey 2004). In a related research middle-aged women were asked to relate changes in their memory as they approach menopause, they reported forgetting words event, change in mood poor concentration, stress and age. However middle-aged women could not explain if this is genetically attributed, or it was age related (Mitchell and Woods 2001). The consequences of these diseases are fatal and may be delayed from middle age. Some individuals may be lucky that this condition is diagnosed early; especially those who have occupational health care available. None-the-less, a memory health problem can be improved if it is identified early with health promotion intervention.

4. HEALTH PROMOTION INTERVENTIONS

Empowerment

Health promotion is a way, of empowering people or individuals to take control over their life and improve their health, so as to improve quality of life and well-being (Green and Fones 2010). For an organization to improve memory health of middle age women, it needs to set up health promotional safe activities and improve the efficacy of its members to participate in these activities. This is because self-efficacy and mastery of an activity may reduce the defensive behavior that might be one of the biggest obstacles to behavior change. Sometimes these same sound promotional activities may pose a psychological subjective threat to individuals, because of the difficulties to change a routine (Bandura 1977). People in a community sometimes live ignorantly about some health complication. So it is beneficial for a community to be aware of these diseases and get more information about how to manage the health problems. Health promotion is also the promotion of healthy ideas and concepts to people, which may benefit their health status and the community. Ways to achieve this objective is by holding seminars counseling, sharing handout and through the media.

Self-efficacy is a fundamental determinant for promoting health behavior changes, and disease prevention in individuals. Evidence-based research is an appropriate means by which health promoters may relay on to empower individual. This is because studies on behavior change will enhance understanding of the process of people's behavior. Health-belief model and theory have served as a yard stick for intervention, initiatives in promoting people's health. The importance of empowering individuals is to make them to believe that they could exercise control over the events that affect their lives, and this will influence the way they think feel and act in the future. Kouvola Memory Association uses different approaches to empower middle age women. For example, they use methods like, lectures, seminars, peer support memory clinic and café to give advice on memory problem to groups individual and their families. However they also do more counseling with the members. Counseling is a process in which the relationship and communication between the counselor and individual provided, allows the

development and understanding of oneself. This process explore the possibilities and incorporate behavioral changes problem solving, personal growth and self improvement when it is properly implemented. Counseling can be as individual or in a group. Individual counseling has an advantage over group counseling in that it allows the counselor to work in isolation with the individual. The individual's problem is looked into separately and with the participation of the client or patient. The duty of the counselor is to listen more and assist the individual to overcome the obstacle and make changes in behavior. This method is use to promote health and well-being. Ramsay, Ramsay and Main (2007) found out that those individuals who receive counseling before surgery recover faster than those who do not. The shortcoming of this method is that in the face of advisory, the individual might not have the potential to withstand, which is part of expected behavior changes. An individual with a low self-efficacy will look at an obstacle as something that is above her competence such the process is bound to fail. This measures used by association usually occur before the onset of disease. Actions like health promotion and protection are the essential part of this process. Hence at the beginning of 2012, the coordinators of Kouvola Memory Association met with the women individual twice individually meetings, the women were then separated into 5 groups and have met with them 10times. Next fall the coordinators will still arrange meeting with the women in 1-2 individual meetings.

5. AIM AND RESEARCH QUESTIONS

The purpose of this study is to promote physical activity among middle age women to, provide evidence that there is a correlation between self-efficacy and change in physical activity. Promoting physical activity is the responsibility of individual and policy maker. By empowering individuals, they will do more physical activities. The recommendation of the UKK institute about health enhancing physical activity is about 10 minute of physical activity that accumulate to 2hours 30 minutes per week. However those who manage to perform physical activities need just half the time to attain this recommendation level of physical activity. More still an individual needs activity that improves strength and balance at least twice a week. By regular physical activity, there is an increase in the efficiency of the circulatory and respiratory system that might intern improve the overall health condition (UKK physical activity pie 2010). To achieve this goal the following research questions were asked

1. What was the physical activity goals set by the women?
- 2 What were the physical activities of the participant, how many times per week and how much time in hours and minutes per day did they participate in physical activity?
3. What is the association between self-efficacy and changes in physical activity?

To answer these research questions, a quantitative analysis will be the most appropriate method to use.

6. METHODOLOGY

6.1 Design

A correlation study design is used to compare two variables. Correlation design, is use to examine the association between the two variables, self-efficacy and change in physical activity. According to (Thompson, Diamond, McWilliam, Snyder, and Snyder 2005), a correlation design is a quantitative research wherein participants are not randomly assigned to a treatment condition. The purpose of a correlations design is to demonstrate that there is an association and strength of relationship between two or more quantifiable variables based on a coefficient value. A correlation design is most relevant to use for this study because it allow the variables to confirm if they have a positive or negative association.

6.2 Participants

The inclusion criteria was that they should be middle age women between 40-65 years old, and should have one risk factor for memory health, retired, unemployed, business owner, farmer, and do not have own occupational health care. The sample size was about 43; only women who live in Kouvola and Kotka were chosen for this study. The sample population was recruited through the Kouvola Memory Association. The project coordinators wrote an article in a newspaper announcing the intention of the project, and asking women to join, about 50 women responded to this advert. Another method was contacting the unemployment office to find out if women of these criteria could be contacted the outcome was poor. The third method that was used to recruit more women was by organizing a 4 hours Health café in Kotka during the Team Day. In this health café people were introduced to the objectives of the project, and were given the opportunity to explore more about the project and join, this encourages more women to join the project. At the beginning of the project, the women were encouraged to set short term physical activity goals. However, of the 43 participants, who took part in the study, 30 participants respond to the physical activity questionnaire and 13 were missing, additionally 37 participants responded to the general self-efficacy questionnaire and 6 did not. Moreover, health check was not

done for women because most of them knew their cholesterol levels, BP, weight, BMI and so on.

6.3 Data collection and data analysis

Data was collected by the coordinators of Kouvolan Seudun Muisti ry during counseling. Two separate questionnaires were established the first questionnaires were distributed in April, and the second in September in Kouvola and Kotka during the counseling period. Physical activity was measured by using a structured non, disguise questionnaire. The respondents were told about the purpose of collecting data. The questions were closed ended wherein the respondents were asked to choose from a fixed list of replies. The first questionnaire was copied from the general self-efficacy English version questionnaire of ten items by (Schwarzer and Jerusalem 1995) which can be found in appendix (ii). The Finnish version is adopted from the Sosiaali- ja terveysturvan tutkimuksia 86, Kelan tutkimusosasto Helsinki 2007, page 81. The second questionnaire was mostly about physical activity, which can also be found in appendix (iii). Setting the physical activity questionnaire were based on the goals set by the women in their capacity in the beginning. The physical activity pie recommended by the UKK Institute was used as the standard for preparing the questionnaire. The questionnaires were separated into three sections. Section one include the level of physical activity on a scale from 1-5 wherein 1 was inactive, 2 sedentary active, 3 moderately active, 4 vigorously active and 5 extremely active. The second section contains the actual physical activities. Participant where asked to indicate which box best correspond to the physical activity of their choice. In this section participants were require to mark how often and how much time in hours and minutes they reach a specific physical activity. For example: (1) was not at all, (2) 1-2 times a week, (3) 2-3 times a week, (4) 3-4 times a week, (5) Daily. In the third section participants were to indicate which answer best suit the level of change in physical activity: (1) Much less (2) less (3) about the same (4) more or (5) much more. Finally there was no question in the questionnaire sheet inquiring about the goals set by the women, but the counselors improve during the counseling stage and request the women to write their target or physical activity goal on the original questionnaire sheets. The goals were written in a free style; however, the women use simple short phrase to articulate their goals, these phrases were later on combine on a separate

sheet of paper, see (appendix iii). Although the goals were written in Finnish language, it was later on unofficially translated by the counselors in English language. Self-efficacy and physical activity questionnaire were analyzed using IBM SPSS statistics version 20.

6.4 Limitations

Collecting material for literature review for this study was to a certain extent challenging. It was difficult to get enough English articles dealing with the Finnish population; most of the good articles were in Finnish language. More over this study deals only with middle age women, finding articles even in English language that deal straight forward with this concept was also challenging. Most articles deal with both sexes or mainly with the elderly +65 when they concern memory health problems. Some of the participant in the sample population did not respond to all the two questionnaires, making it difficult to get the actual respondents intended at the beginning. The method use in this study is a diverted method from the original, which was intended only to measures how middle age women perceived their chances of making a behavior change. By this the self-efficacy questionnaire were sent out first then, after some months, the physical activity questionnaire were prepared and handed to the participant. This might explain the reason why there are some missing responses in the data. Indeed the most challenging issue was to measure change in physical activity at the end of the question, wherein physical activity was not measures in the beginning. This situation in research is known as recall error wherein participants are ask to recall past events in a questionnaire, there is a possibility that individuals will insufficiently acquire, process and recall the correct information. However people differ in the error that they make (Rumpler, Kramer, Rhodes, Moshfegh and Paul 2008). Furthermore, it is not only physical activity and self-efficacy that may improve the memory of middle age women, other aspects like eating habits, smoking and drinking etc, which could not be dealt with sufficiently in this study, might have also influenced the main idea. Only middle age Finnish women who live in Kotka and Kouvola were use in this study, future research should include testing women from different background, who are at risk of memory health problem in later life.

7. RESULTS

Basic characteristics of the sample describe in mean (M) standard deviation (SD) and range (R). Measures of central tendency were computed to summarize the key characteristic of the sample for the age variables of the participants. Measures of dispersion were also computed to understand the variability of scores for the age variables of the participants. The following are the results of the analysis M=58, 95, SD=6, 22, R=69-44, and N=43. 45 participants took part in the beginning of the project and only 2 drop out or did not respond to both questionnaires. When look at the mean, it seems that most women who took part in this project were below 60 years old. However based on the standard deviation it looks like the ages varied quite a bit.

7.1 What was the physical activity goals set by the women?

The summary of the results for goal setting was accumulated into a table with sub headings as activities, goal/statement and time. Some of the goals statements were reworded so that they could properly fit into the context of this study. The following table 1 was then completed with the various statements the participant promised them self to undertake physical activity in their daily routine. Most of the goals expressed by the participants see (appendix I) were for example, 'I will like to walk 1-2 times a week for at least 30minuts', 'I will like to do gymnastic 2 times a week'. Majority of the participants expressed their goals as wishes. Some participant just wrote in the physical activity questionnaire that they will want to exercise at least twice a week.

7.2. What were the physical activities of the participant, how many times per week and how much time in hours and minutes per day did they participate in physical activity?

Physical activity is categorized into aerobic, muscle strengthening and balance activity, and it is sub-categorized into various types of physical activity as presented in table 1 and 2.

Table 1- Aerobic physical activity among middle age women, expressed in mean and standard deviation

How many times a week			how much time in hours/minutes a day	
Variable	Mean	SD	Mean	SD
Walking	2, 78	1, 08	3, 59	0, 85
Swimming	1, 96	1, 08	2, 71	1, 41
Running	1, 06	0, 24	1, 17	0, 57
Jogging	1, 18	0, 39	1, 27	0, 64
Nordic walk	2, 05	0, 80	2, 90	1, 33
Cycling	2, 06	1, 11	2, 75	1, 57
Gardening	2, 21	1, 18	3, 17	1, 24

Table 2- Muscle strengthening and balance activity among middle age women expressed in mean and standard deviation

How many times a week			how much time in hours/minutes a day	
Variable	Mean	SD	Mean	SD
Gymnastic	2, 05	1, 32	2, 67	1, 37
Pool gym	1, 78	0, 90	1, 50	0, 65
Yoga	1, 08	0, 27	2, 58	1, 42
Dumbbell training	1, 63	0, 71	2, 00	0, 97
Heavy gardening	1, 67	0, 68	2, 76	1, 20
Balance training	1, 80	1, 08	1, 45	1, 03

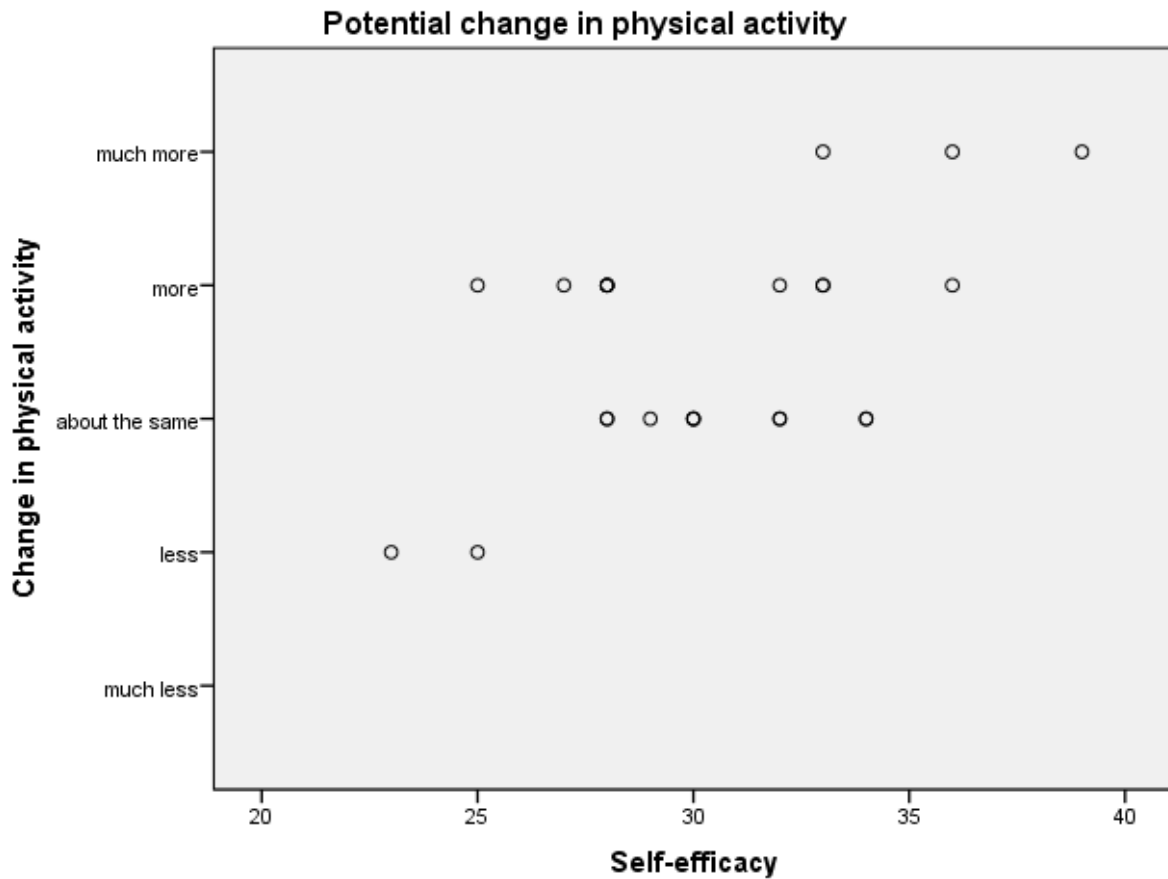
Measures of central tendency were computed to recapitulate the data for the types of physical activity variables. Measures of dispersion were also computed to understand the variability of score for types of physical activity variables; tables 1 and 2 indicate

the results of the analysis. Most women in this project do more walking than running in number of times per week and in number of hours and minutes in a week, looking at the mean on table 1. Also most women do more gymnastics and balance training, in number of times per week and in number of hours and minutes in a week, looking at the mean on table 2. However, for aerobic physical activity table 1, 'walking' number of times a week and how much time in hour/minutes indicate that the data point is close to the mean. On the other hand, the number of times that the participants engage in muscle strengthening and balance training physical activity 'gymnastic and balance training' per week and in how many times in hour/minutes also is normally distributed.

7.3 The association between Self-efficacy and change in physical activity

The 10 item self-efficacy questionnaire is encompass into 1 question and rename as 'total self-efficacy', this is use to correlate change in physical activity. The reason behind this is because it the total responds of the ten items that determined the level of self-efficacy of an individual. Measures of central tendency were computed to summarize the basic characteristics of the samples for physical activity level and change in physical activity variables. Measures of dispersion were also computed to understand the variability of scores for the two variables of the participants. The following are the results of the analysis, physical activity level $M=2,67$, $SD=,758$. Change in physical activity $M=3,50$, $SD=,820$. Looking at the mean of the two variables it seems that they was an improvement in the level of physical activity when the women join the project, based on the fact that the mean of change in physical activity is higher than the level of physical activity.

A person correlation coefficient was computed to assess the relationship between self-efficacy and change in physical activity. Self-efficacy was computed as a numeric expression. There was a positive correlation between the two variables, $r=0,528$, $P=,007$. Correlation was significant at the 0,01level (2tailed). A scatter plot summarizes the results see (figure 1) below. Overall there was a positive correlation between self-efficacy and change in physical activity. An increase in self-efficacy level was correlated with an increase in physical activity change.



An increase in self-efficacy leads to a change in physical activity among middle age women

Figure 1 Scattered plot indicating an increase in self-efficacy that leads to an increase in physical activity change.

However when self-efficacy individual items were computed and correlated with change in physical activity, the following were the results. There was a positive correlation between ‘I can always manage to solve complex problems if I try hard enough, $r=0,443$, $P=, 027$, correlation was significant at the 0,05level 2tailed, some of the variables negatively correlated, and the significance level was low.

8. DISCUSSION

This study has concerned with association between self-efficacy and change in physical activity among middle-aged women. The findings provide some evidence that self-efficacy is associated with change in physical activity and it is clinically significant. These results replicate the findings of a study conducted by McAuley (1992) upon which the amended concept is base. Certainly differences in the approach, to look at self-efficacy and change in physical activity, could contribute to the differences between the present study and that of McAuley. For example, investigating the relationship between self-efficacy and physical activity among middle-aged women in this study is similar to the study McAuley did, but the differences lie in the focus group. It could also be argued that self-efficacy and physical activity are not the only factors that affect change in physical activity, attitude motivation age gender and social class are also useful when investigating change in physical activity. Consequently the questionnaire did not address the issue of other related factors that might influence change in physical activity among middle age women.

Physical activity was measured by looking into the various types of physical activity, level of self-efficacy and goals for physical activity set by the women. However physical activity has been identified as one of the most useful contributors to the general well-being of individuals. Activities are those that were carried out independently in a group or for the purpose of rehabilitation. Some of the activities of the participant seem to be those that women have established earlier because they continue to have the same needs, wants and values. The more active middle age women are the likely they are to be satisfied with their life, thus a potential reduction in memory health problems in later life. Physical activity is said to improve the ability of an individual to perform a task successfully, it increases the confidence of a middle age woman. Participating in a group that deals with similar issues provides a sense of belonging reduces loneliness, anxiety, depression and enhance the mood of individuals and hence keeping the memory activity. In some cases individual need assistance in order to stay on track about what they want to achieve. Kouvolan Memory project provides middle age women with more information about memory

health problems. In this project, women are empowered to make individual physical activity plan.

The goals the women create for themselves were common and reasonable in that, it involves every day to day activity of daily living. Setting goals help to maximize time and increase performance. It is always possible in every weather condition to do some exercise either indoors or outdoors. However, people need motivation, aspiration and confidence to improve these needs. Hence joining an association or a club is one way to build up one's confidence. Most of the outcome goals were achievable by doing physical activity independently, yet these goals can be attainable in a group wherein individuals support one another. Setting goals to some individuals is easy but attaining the goal needs a higher level of self-efficacy. The most common goal set was aimed at walking and gymnastic in the pool. The least popular among the participant was yoga and running. It was imperative that most of the participant a least set a goal for the future. Schunk (1990) emphasis the importance of goal setting and self-efficacy among student, the outcome of the research shows that when students set goals for an activity themselves, they are able to adjust along the process by observing their own performance, evaluating as they progress.

Making a flashback to the goals participant in this project made, it could also be argued that with the assistance of a project individual could increase the level of physical activity if they create short term goals. The changes that the individuals were able to achieve their goals, in the short term support the assumption that women with a higher level of self-efficacy have the ability to plan and execute a task. However the data did not determine how self-efficacy affects changes in physical activity. On the contrary, it does indicate that there is a significant correlation between self-efficacy and change in physical activity. Physical activity can be subdivided into aerobic and muscle strengthening and balance activity.

Aerobic physical activity is an activity that is constant moderate intense that uses oxygen in a rate that refills oxygen in the muscles. Aerobic activity depends on the duration and muscular intensity involve. The benefit of aerobic activity includes strengthening the muscles which include respiration that facilitate the flow of air in and out of the lungs. It also enlarges the heart muscles to improve the efficiency of

pumping, improve circulation, develop cardio respiratory endurance, reduces blood pressure, facilitate oxygen transportation, improve mental health, reduces stress, depression, diabetic and more importantly reduces the risk of dying from cardiovascular problems (Brosseau, Wells, Macleay, Lamothe, Michaud, Lambert, Robinson, Pelland and Tugwell 2004). Muscles strengthening and balance activity are activity that person say a few words without stopping to catch their breath. It is the amount of energy muscle produces using a single maximal effort (UKK physical activity pie 2010). Muscle strengthening activity improves body image and self esteem, it increase muscle strength and mass and also increases body-metabolism. Some examples of muscle strengthening activity among the participants of this study included gymnastics, yoga, balance training, dumbbell training, water/pool gymnastics and heavy gardening. These activities need that women would plan ahead if possible put some money apart if they want to go to formal sport hall. It is recommended to do muscle strengthening and balance training for at least 2 times a week (UKK institute 2009). Yoga seems to appeals less to the participants followed by dumbbell training, mean while, the participant seems to do more gymnastic. Those women who are physically active have a lower risk of functional limitations than those women who are inactive.

However, self reported physical activity is the only variable that significantly predict adherence to exercise during the period the women were in this association. This is significant because it falls among the recommended physical activity level. Nevertheless, since the woman has the upper hand to choose their activity themselves, not all the women took part in all the activities. They choose only the once they want and are capable of doing in their own time. Some activities like walking were more popular than yoga and running. One would argue that the most popular activities like walking is the traditional circumstances the humans use for locomotion from one place to another. Most individual in normal good physical condition will walk to places if they do not want to use the bus or own car. The implication of the above statement results is that most middle age women will prefer to choose walking as a way to improve memory health. From comparing the various physical activities there are some variation in the response of the women. Most women will choose to do other forms of physical activity and calculate their input in number of time per week. This might indicate the level of difficulties the women may face in including regular

physical activity in daily routine. On the other hand, it may also indicate that women do more physical activity to the extent that it is part and parcel of their daily life. Women may not want to remember how many or how much time they have to put into activity, or if it were an aerobic or muscle strengthening and balance activity.

Those women who had a higher self-efficacy were able to set realistic reasonable physical activity goals, understand them and make a change in living habit. Most of the women had strong confidence and score higher in most items from the general self-efficacy questionnaire. The increase in physical activity level maybe attributed to exposure to guidance and counseling given by the organization of memory health. This project was essential for the participants to understand how valuable doing regular physical activity could keep their memory active.

Memory is an extremely valuable part of the human living, forgetting where we leave the car or where we left the keys or even the name of our best friend or children or the way to our own house, is not a life one will choose in later life. Later life should be a time that individuals sit and look back with joy and not difficulties in remembering events. Regular physical activity, healthy eating habit and increasing self-efficacy are some of the key to living a successful life. Intervention or training programs that target older adults to develop self-efficacy and memory like reading, doing writing and tutorial discussion have a significant potential to improve memory (West and Thorn 2008). However, some study shows, that as individual age, they lost the confidence to their memory capabilities. Ageism stereotype and various environmental factors may alter this belief. Wells and Esopenko 2008, argue that stereotype and environmental factors may increase individual susceptibility and decrease motivation to perform a task.

8.1 CONCLUSION

To summarize, self-efficacy is the ability of one to plan and execute a task successfully. Individuals with a higher level of self-efficacy will look at challenging situations as a task to be mastered. Additionally yet they will develop a stronger interest in the activities in which they have to accomplish. They will be more committed to their goals and focus on their activities, and will be able to face

obstacles. On the contrary, individuals with a lower level of self-efficacy will avoid challenging task, believe that difficult situations are beyond their capabilities, and will primarily focus on pessimistic views, and quickly lose confidence in the personal ability. Without confidence, an individual cannot accomplish a task successfully to her potentials. A confidence person may outsmart someone with high performance, just because the confident person belief in herself. Intra personal counseling is a beneficial way to motivate individuals to plan and execute a task. Physical activity is not the only denominator that helps to improve memory health problems in later life. Living habits the environments where we find ourselves can also hamper memory in future lives. Healthy eating habits are particularly vital when it comes to health enhancing issues. It is recommended to eat regular healthy meals every day, like fruits and vegetables. Smoking and drinking also destroy the cognitive faculty. Regular physical activity should be part and parcel of people life. In contrast the environment is constantly changing, locomotion is being improve every day, people want to go faster, and faster, time is money, shops schools and work places are in the back yard of houses, globalization is reducing the world into a small village every aspect in the human generation is fast. It is possible in this society to get up in the morning take an elevator to the parking spot, drive the car to work take the elevator to the office and sit on a rolling chair and communicate with co-workers through the internal mail. Middle age women should develop a habit of walking to the work place, instead of using a car. Women are part of the constantly changing environment. Why should they walk or cycle to the shop or work place when one can work at home or order food from the internet. The answer to this question is in the fact that the human body needs regular physical activity to remain healthy. Individual should be motivated by peer; organization and society with positive feedback that will assist them continue to the physical activity.

Providing feedback can be tricky in some situations, especially to women, positive feedback has to be provided in order to elicit better performance and keep participant interested in continuing their physical activity. Individuals should relay on the past performance experience, observing models, perform, verbal persuasion, and skill training, to increase confidence in ability to complete a task.

It may perhaps be better to, assess physical activity of the sample at the beginning of the project and use the same questionnaire to measure change at the end. It is not clear in this study how self-efficacy has caused the change in physical activity. Demographic, biological, psychological, physical and social factors might have influence the results of this study. Moreover, while the term self-efficacy is meaningful only to those who understand it, it was easier to look for self-efficacy in the light of capability and ability to carry out a task. Because of these inconsistencies, in usage it will be argue that the findings of this study should be interpreted with caution. However since, this study objective was to measure change in physical activity and self-efficacy, perhaps from the results, we might tentatively hypothesize that self-efficacy influences change in physical activity among middle age women, when individual set goals themselves. This information may be useful for individuals who might not understand why they could not plan and carry out regular physical activity. I participated in Kouvolan memory association seminar recently, were I was a speaker, and presented the result of this study.

8.2 Recommendations

It would be necessary for Kouvolan Seudun Muisti ry project to provide more emphasize on enhancing self-efficacy and organized more physical activities programs, provide a hall wherein members can use for physical activity. It will also be recommended to improve the well-being of a community by recruiting volunteers, trained them on the issues of dementia so they could meet a larger population. Volunteers are the backbone of successful community development, when spreading health information. Using volunteers is imperative because they usually serve two purposes; they are members of the community for which the service is intended.

City planners might benefit from this research by planning and building, the physical and social environmental structure to be physical activity friendly, residential areas, schools, work place, roads, should be socially and psychologically accessible for everyone. For example, more pedestrian and cycling track should be added to the cities to increase the accessibility for individual to cycle inside the city. Additionally, occupational health services should be provided to those who do not have one like the sample population in this study. More seminars that focus on physical activity should be organized for inhabitants and the public should be educated about memory health

issues and prevention. More policies to promote healthy living and regular physical activity should be encouraged. Lastly more projects that seek to identify and prevent memory health problems as early as possible should be encouraged.

Individuals may join physical activity club near their home, buy a dog, so as to walk it every morning and evening, sell the car if it not necessary and take the bus. Additionally, park the car in a distance, walk to your work place, take the stairs at least 3 times a week instead of the lift, cycle to the shop or walk, join a cooking club to learn how to cook healthy meals, and ultimately encourage the whole family, in making healthy life style choices.

8.3 Validity of the Study

The validity of these results is generalized only to the participant of this project and not to the whole population. In the process of reviewing the literature for this study, articles were selected randomly, which has to deal primarily with self-efficacy or physical activity. The reason behind this choice is that, most articles did not deal with significant issue self-efficacy and change in physical activity among middle age women and how memory health problem could be reduce in later life. This crucial gap in research prompted this study to be carried out. Hence most of the literature did not address this issue in a straight forward approach. The material use in this study is primarily scientific review. These are scholarly article recommended by the school and can be retrieving from EBSCO and Google scholar database. The data for this study is collected from original source directly from the participant making it unique and provide direct evidence concerning this topic.

Indeed if, self-efficacy and physical activity are obviously advantageous in the initial phase of a short term project, more research to examine the relationship between self-efficacy and physical activity amongst middle age women is needed. Also to, investigate the effect of self-efficacy and physical activity on memory which might help us understand this complex health behavior.

9. REFERENCES

Alzheimer Europe: (interview) The Minister of Health and Social Services in Finland, Paula Risikko, talks with Alzheimer Europe about the announcement that Finland will develop a national dementia strategy. Available at; <http://www.alzheimer-europe.org/Policy-in-Practice2/National-Dementia-Plans/Finland#> accessed March 1, 2013.

Alzheimer's disease International *The prevalence of dementia worldwide* 2008 available at; <http://www.alz.co.uk/adi/pdf/prevalence.pdf> accessed February 21 2012.

Bandura Albert and Nancy E. Adams *Analysis of self-efficacy Theory of Behavioral Change* 1977 available at, <http://des.emory.edu/mfp/Bandura1977CTR-Adams.pdf> Accessed February 22, 2012.

Bandura Albert *Self-efficacy* 1994 available at <http://des.emory.edu/mfp/Bandura1994EHB.pdf> accessed February, 21 2012.

Bandura Albert *Guide for Constructing Self-Efficacy Scale* 2006 available online at, <http://www.ravansanji.ir/files/ravansanji-ir/21655425banduraguide2006.pdf> Accessed February 18, 2013.

Boehler C, Milton K, Bull F, Fox-Rushby J. The cost of changing physical activity behavior: evidence from a "physical activity pathway" in the primary care setting. *BMC Public Health* [serial online]. January 5, 2011;11 (Suppl 4):370-381. Available from: Academic Search Elite, Ipswich, MA. Accessed February 8, 2013.

Brosseau, L, Pelland, L, Wells, G, Macleay, L, Lamothe, C, Michaud, G, Lambert, J, Robinson, V, & Tugwell, P, 'Efficacy of Aerobic Exercises For Osteoarthritis (part II) 2004: A Meta-analysis', *Physical Therapy Reviews*, 9, 3, pp. 125-145, Academic Search Elite, EBSCOhost, viewed 15 May 2013.

Buchholz S, Artinian N. Dimensions of Physical Activity in African American Women. *Health Care For Women International* [serial online]. April 2009;30(4):308-323. Available from: Academic Search Elite, Ipswich, MA. Accessed February 12, 2013.

Busse A, Bischof J, Riedel-Heller SG; Source: *British journal of psychiatry* Volume: 182 Pages: 449-454 DOI: 10.1192/bjp.182.5.449 2003; Mild cognitive impairment: prevalence and incidence according to different diagnostic criteria Results of the Leipzig Longitudinal Study of the Aged.

Carter-Parker K, Edwards K, McCleary-Jones V. Correlates of Physical Activity and the Theory of Planned Behavior between African American Women Who are Physically Active and Those Who are Not. *ABNF Journal* [serial online].

Summer2012 2012;23(3):51-58. Available from: Academic Search Elite, Ipswich, MA, accessed February 12, 2013.

Cassidy K, Kotynia-English R, Acres J, Flicker L, Lautenschlager N, Almeida O. Association between lifestyle factors and mental health measures among community-dwelling older women. *Australian & New Zealand Journal Of Psychiatry* [serial online]. November 2004;38(11/12):940-947. Available from: Academic Search Elite, Ipswich, MA. Accessed December 27, 2011.

Chou S, Hsu H, Kuo H, Kuo H. Association between exposure to environmental tobacco smoke (ETS) and breastfeeding behaviour. *Acta Paediatrica* [serial online]. January 2008;97(1):76-80. Available from: Academic Search Elite, Ipswich, MA, accessed January 18, 2012.

Cole and Cole, S: R. *The Development of the Children* 2001 New York: Worth publishers.

Concoran Nova *Communicating Health Strategies for health promotion* 2010 Sage publication.

Crozier S, Robinson S, Borland S, Godfrey K, Cooper C, Inskip H. Do women change their health behaviours in pregnancy? Findings from the Southampton Women's Survey. *Paediatric & Perinatal referencing in alphEpidemiology* [serial online]. September 2009;23(5):446-453. Available from: Academic Search Elite, Ipswich, MA. Accessed December 27, 2011.

Dawson A, Sundquist J, Johansson S. The Influence of Ethnicity and Length of Time since Immigration on Physical Activity. *Ethnicity & Health* [serial online]. November 2005;10(4):293-309. Available from: Academic Search Elite, Ipswich, MA. Accessed February 8, 2013.

Dorith Zimmermann-Sloutskis Miriam Wanner^a Erwin Zimmermann^a and Brian W Martin 2010 *Physical activity levels and determinants of change in young adults: a longitudinal panel study* available online at. <http://www.ijbnpa.org/content/7/1/2> Accessed March 25, 2013.

Eurenius E, Biguet G, and Stenström C. Attitudes toward physical activity among people with rheumatoid arthritis. *Physiotherapy Theory & Practice* [serial online]. March 2003;19(1):53-62. Available from: Academic Search Elite, Ipswich, MA. Accessed February 12, 201.

Eysenck M.W, and Keane M.T *Cognitive Psychology* 2000. A Student's Hand Book 4th edition chapter 6 Hove: Erlbaum.

Fulcher K, Janosik S. The Relationship of Disordered Eating Behaviors of Undergraduate Women, Their Living Environment, and Their Academic Standing. *Journal Of College & University Student Housing* [serial online]. October 2008;35(2):34-47. Available from: Academic Search Elite, Ipswich, MA. Accessed January 18, 2012..

Gletsu M, Tovin M. African American women and physical activity. *Physical Therapy Reviews* [serial online]. October 2010;15(5):405-409. Available from: Academic Search Elite, Ipswich, MA. Accessed February 8, 2013.

Godfrey J. Toward Optimal Health: The Experts Discuss Memory Loss in Aging Women. *Journal Of Women's Health* (15409996) [serial online]. October 2004;13(8):856-862. Available from: Academic Search Elite, Ipswich, MA. Accessed February 12, 2013.

Gomberg E. Risk factors for drinking over a woman's life span. *Alcohol Health & Research World* [serial online]. September 1994;18(3):220. Available from: Academic Search Elite, Ipswich, MA. Accessed December 27, 2011.

Hankonen N, Absetz P, Ghisletta P, Renner B, Uutela A. Gender differences in social cognitive determinants of exercise adoption. *Psychology & Health* [serial online]. January 2010;25(1):55-69. Available from: Academic Search Elite, Ipswich, MA. Accessed January 18, 2012.

Harvey R J, Skelton-Robinson M, Rossor M N. The prevalence and causes of dementia in people under the age of 65 years. *Journal Of Neurology, Neurosurgery & Psychiatry* [serial online]. September 2003;74(9):1206. Available from: Academic Search Elite, Ipswich, MA. Accessed March 4, 2013.

Harvey RJ, Skelton-Robinson M, Rossor MN. 2003 The prevalence and causes of dementia in people under the age of 65 years. *J Neurol Neurosurg Psychiatry* 2003; Available at online at <http://ebmh.bmj.com/content/7/2/60.1.full.pdf+html> accessed March 1, 2013.

Health-EU 2013 web page available online at; http://ec.europa.eu/health-eu/my_lifestyle/sports_and_leisure/index_en.htm Accessed February 17, 2013.

Hill, R, Brophy, S, Brunt, H, Storey, M, Thomas, N, Thornton, C, Palmer, S, Dunstan, F, Paranjothy, S, McClure, R, Rodgers, S, & Lyons, R, 'Protocol of the baseline assessment for the Environments for Healthy Living (EHL) Wales cohort study 2010', *BMC Public Health*, 10, pp. 150-157, Academic Search Elite, EBSCOhost, viewed 15 May 2013.

Index Mundi 2011 available online at <http://www.indexmundi.com/g/g.aspx?v=30&c=sw&l=en> accessed 21 February 2012.

Green Jackie and Keith Fones Health Promotion and Strategies 2010 2nd edition SAGA publication.

Jane, Wills Vital Notes for Nursing: Promoting Health 2011; available online at <http://site.ebrary.com.xhalaxng.kyamk.fi:2048/lib/kyam/docDetail.action?docID=10522311&p00=counselling> Accessed February 27, 2013.

Kalat W. James Biological psychology 2003 8th edition library of congress International student edition.

Keller, C, Larkey, L, Distefano, J, Boehm-Smith, E, Records, K, Robillard, A, Veres, S, Al-Zadjali, M, & O'Brian, A, 'Premenopausal Obesity 2010 ', *Journal Of Women's Health (15409996)*, 19, 5, pp. 987-996, Academic Search Elite, EBSCOhost, viewed 15 May 2013.

Kerwin, D, Gaussoin, S, Chlebowski, R, Kuller, L, Vitolins, M, Coker, L, Kotchen, J, Nicklas, B, Wassertheil-Smoller, S, Hoffmann, R, & Espeland, M, 'Interaction Between Body Mass Index and Central Adiposity and Risk of Incident Cognitive Impairment and Dementia: Results from the Women's Health Initiative Memory Study 2011', *Journal Of The American Geriatrics Society*, 59, 1, pp. 107-112, Academic Search Elite, EBSCOhost, viewed 15 May 2013.

Kitsantas A, Reiser R, Doster J. Developing Self-Regulated Learners: Goal Setting, Self-Evaluation, and Organizational Signals During Acquisition of Procedural Skills. *Journal Of Experimental Education* [serial online]. Summer2004 2004;72(4):269-287. Available from: Academic Search Elite, Ipswich, MA; Accessed February 8, 2013.

Kouvolan Seudun Muisti ry web page available online at <http://kouvolanseudunmuisti.fi/> Accessed December 16, 2011.

Lovelace E.A. Aging and cognition: mental processes, self-awareness and interventions advances in psychology 1990 available online at http://www.google.fi/books?hl=en&lr=&id=5x9yk2kk4cyc&oi=fnd&pg=pa189&dq=increase+in+self-efficacy+and+memory+and+memory&ots=s8toewr9n9&sig=kkqgqj3oxljhqa3adhliitr1vjvc&redir_esc=y#v=onepage&q=increase%20in%20self-efficacy%20and%20memory%20and%20memory&f=false accessed 31 January 2013.

Luszczynska Aleksandra, Dian Sheng Cao, Natalie Mallach, Katarzyna Pietron ,Magda Mazurkiewicz, and Ralf Schwarzer 2010 Intentions, planning, and self-efficacy predict physical activity in Chinese and Polish adolescents: Two moderated mediation analyses1. *International journal of clinical and health psychology*, Vol. 10, N° 2, pp. 265-278.

McAuley Edward The role of efficacy cognition in the predication of exercise behavior in middle-aged adults 1992 Available online at; http://www.epl.illinois.edu/files/images/measures/BARSE_article.pdf accessed April 2, 2013.

MedicineNet.com, Definition of memory 2011 available online at; <http://www.medterms.com/script/main/art.asp?articlekey=11642> accessed February 23, 2012.

Mischel, Shoda Smith Introduction to personality 2003 Towards an integration 7th edition. New York.

Mitchell E, Woods N. Midlife Women's Attributions about Perceived Memory Changes: Observations from the Seattle Midlife Women's Health Study. *Journal Of Women's Health & Gender-Based Medicine* [serial online]. May 2001;10(4):351-362. Available from: Academic Search Elite, Ipswich, MA. Accessed February 12, 2013.

National Institute for Health and Welfare; Health Behaviour and Health among the Finnish Adult Population (AVTK) 2001-2007, available online at, http://www.thl.fi/en_US/web/en/research/projects/avtk accessed January 31, 2013.

Pervin A Lawrence The science of personality 2003 2nd edition New York Wiley.

Poobalan A, Aucott L, Clarke A, Smith W. Physical activity attitudes, intentions and behavior among 18-25 year olds: A mixed method study. BMC Public Health [serial online]. January 2012;12(1):640-649. Available from: Academic Search Elite, Ipswich, MA. Accessed February 12, 2013.

Pratt Michael Jacqueline N. Eppin, William H. Dietz Putting physical activity into public health: A historical perspective from the CDC 2009 (online) available at http://www.activelivingresearch.org/files/10_PM2009_Pratt_0.pdf accessed March 25, 2013.

Puska Pekka, Director General, National Institute for Health and Welfare (THL), Helsinki; President, World Heart Federation, The Impact of Ageing and Alzheimer's Disease on Public Health and Health Care (WHF), Geneva; Lääkärpäivät 12 January 2011 : available online at. <http://www.thl.fi/thl-client/pdfs/422c7017-f726-4657-8790-941327db9ae5>, Accessed March 25, 2013.

Schwarzer Ralf Generalized perceived self-efficacy 1998 available online at http://web.fu-berlin.de/gesund/publicat/ehps_cd/health/selfscal.htm accessed February 16, 2012.

Ramsay K, Ramsay J, Main D. Both group peer counselling and individual counseling reduce anxiety and depression, and increase self-esteem and overall life satisfaction in palliative cancer care. *Counseling Psychology Quarterly* [serial online]. June 2007;20(2):157-167. Available from: Academic Search Elite, Ipswich, MA. Accessed February 28, 2013.

Richards M, Jarvis M, Thompson N, Wadsworth M. Cigarette Smoking and Cognitive Decline in Midlife: Evidence From a Prospective Birth Cohort Study. *American Journal Of Public Health* [serial online]. June 2003;93(6):994-998. Available from: Academic Search Elite, Ipswich, MA. Accessed December 27, 2011.

Rovio Survi, Ingemar Kåreholt, Eeva-Liisa Helkala, Matti Viitanen, Bengt Winblad, Jaakko Tuomilehto, Hilkka Soininen, Aulikki Nissinen, Miia Kivipelto 2005 Leisure-time physical activity at midlife and the risk of dementia and Alzheimer's disease 2005 The Lancet Neurology, Volume 4, Issue11,Pages 705-711.

Rumpler W, Kramer M, Rhodes D, Moshfegh A, Paul D. Identifying sources of reporting error using measured food intake. *European Journal Of Clinical Nutrition* [serial online]. April 2008;62(4):544-552. Available from: Academic Search Elite, Ipswich, MA. Accessed March 2, 2013.

Salmon C, Crawford C, Dane L, Zuberbier O. Ancestral Mechanisms in Modern Environments. *Human Nature* [serial online]. March 2008;19(1):103-117. Available from: Academic Search Elite, Ipswich, MA. Accessed January 18, 2012.

Schwarzer, R., & Jerusalem, M. General Self-efficacy Scale (GSE) 1995; available online at; <http://userpage.fu-berlin.de/~health/engscal.htm> accessed February 28, 2013.

Schunk Dale H. Goal Setting and Self-Efficacy During Self-Regulated Learning 1990 *Educational Psychologist* Volume 25, Issue 1.

Shih, R, Ghosh-Dastidar, B, Margolis, K, Slaughter, M, Jewell, A, Bird, C, Eibner, C, Denburg, N, Ockene, J, Messina, C, & Espeland, M, 'Neighborhood Socioeconomic Status and Cognitive Function in Women 2011', *American Journal Of Public Health*, 101, 9, pp. 1721-1728, Academic Search Elite, EBSCOhost, viewed 15 May 2013.

Shore E. Norms Regarding Drinking Behavior in the Business Environment. *Journal Of Social Psychology* [serial online]. December 1985;125(6):735. Available from: Academic Search Elite, Ipswich, MA. Accessed January 18, 2012.

Shu-Fen C, Chiu-Chu L. The predictors of adopting a health-promoting lifestyle among work site adults with prediabetes. *Journal Of Clinical Nursing* [serial online]. October 2010;19(19/20):2713-2719. Available from Academic Search Elite, Ipswich, MA. Accessed December 18, 2011.

Snowden, M, Steinman, L, Mochan, K, Grodstein, F, Prohaska, T, Thurman, D, Brown, D, Laditka, J, Soares, J, Zweiback, D, Little, D, & Anderson, L, 'Effect of Exercise on Cognitive Performance in Community-Dwelling Older Adults 2011: Review of Intervention Trials and Recommendations for Public Health Practice and Research', *Journal Of The American Geriatrics Society*, 59, 4, pp. 704-716, Academic Search Elite, EBSCOhost, viewed 15 May 2013.

Stakes 2006 available online at <http://www.ktl.fi/hif/hif.pdf> accessed 23 February 2012.

Statistics Finland; Death from dementia more double in decades 2010; available online at; http://www.stat.fi/til/ksyyt/2009/ksyyt_2009_2010-12-17_tie_001_en.html accessed January 31, 2013.

Thompson B, Diamond K, McWilliam R, Snyder P, Snyder S. Evaluating the Quality of Evidence From Correlational Research for Evidence-Based Practice. *Exceptional Children* [serial online]. Winter2005 2005;71(2):181-194. Available from: Academic Search Elite, Ipswich, MA. Accessed February 28, 2013.

UKK Institute; Physical activity pie 2010; available online at; http://www.ukkinstituutti.fi/en/products/physical_activity_pie. Accessed February 28, 2012.

Welfare Compass 2013; For monitoring regional welfare available online at;
http://hyvinvointikompassi.thl.fi/en/web/hyvinvointikompassi/indikaattori//indicator/r/494/c/492/g/female/i/4012?_fithlhyvinvointikompassiIndicatorController_WAR_hyvinvointikompassiapp_graph=sparkline accessed March 25, 2013.

Wells G, Esopenko C. Memory Self-Efficacy, Aging, and Memory Performance: The Roles of Effort and Persistence. *Educational Gerontology* [serial online]. June 2008;34(6):520-530. Available from: Academic Search Elite, Ipswich, MA. Accessed February 8, 2013.

West R, Thorn R. Goal-Setting, Self-Efficacy, and Memory Performance in Older and Younger Adults. *Experimental Aging Research* [serial online]. January 2001;27(1):41-65. Available from: Academic Search Elite, Ipswich, MA. Accessed February 8, 2013.

WHO, Healthy choices, Healthy life...; The 3 Fives; available online at;
http://www.who.int/foodsafety/consumer/3x5_SA_en.pdf accessed January 31, 2013.

With a little help from my goals: Integrating inter goal facilitation with the theory of planned behaviour to predict physical activity. *British Journal Of Health Psychology* [serial online]. November 2010;15(4):905-919. Available from: Academic Search Elite, Ipswich, MA. Accessed February 8, 2013.

WOQ 2011 available online at;
<http://www.worldofquotes.com/author/Mahatma+Gandhi/1/index.html> 31 accessed December 2011.

Yi-Wen T, Tzu-I T, Chung-Lin Y, Kuo K. Gender Differences in Smoking Behaviors in an Asian Population. *Journal Of Women's Health* (15409996) [serial online]. July 2008; 17(6):971-978. Available from Academic Search Elite, Ipswich, MA. Accessed January 18, 2012.

10. APPENDICES

Appendix (i)

Individual goals set by women in Kouvola Memory Association

Activity	Goal/statement	Time
walking	Alone, to get my own time	2 times a week
swimming		2 times a week
walking	On Sunday mornings	2 km
gardening	during the summer	
gymnastics	At home	1 time a week
jogging		30mins 5times a week
walking	To the store	
walking/skiing	During winter	1 hour a week
Nordic walking		1 hour a week
Nordic walking/dumbbell training		1 time a week
gardening /swimming	Monday mornings	
gardening/cutting grass		
cycling	To the store	
walking		30 mins
walking		2times a week for 30 Mins
yoga	Because of my nerve pains	1 time a week
walking/swimming		2 hours a week 4km
walking	To work	2 times a week
gymnastics/walking	In the pool	2-3 times a week
gyms/swimming		2 time a week
gyms/yoga		1 time a week
gymnastics/walking	In the pool on Tuesdays and Thursdays	1-2 times a week for 30ms
walking and balance training		
exercising		2 times a week

exercising		4 times a week
exercising		3 times a week
gymnastics/jogging		2-3 times a week
swimming		1-2 times a week
walking		3 times a week
gymnastics/walking		1-3times a week
swimming		2 times a week
regular exercise		1-2 times a week

Appendix (ii)**General Self-efficacy questionnaire**

Ikä.....

Sukupuoli.....

Koulutustaso.....

Siviilisäätö.....

Ammatti.....

Pituus.....

Paino.....

Elämäntilanteessa (Asun yksin, puoliso etc).....

Tietoa muistin terveys (hyvä oikein hyvä, huono, mitään tietoa).....

PYSTYVYYDEN TUNNE –kysely

Tiedustelemme tällä lomakkeella teidän selviytymistänne eri tilanteissa.

Ympyröikää jokaisesta kohdasta se vaihtoehto, joka parhaiten vastaa käsitystännetällä hetkellä

Ei pidä Lainkaan paikkaansa	Ei pidä paikaansa hyvin	Pitää melko paikansa	Pitää täysin paikansa
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1. Selviän aina vaikeistakin haasteista,

jos vain yritän tarpeeksi 1 2 3 4

2. Vaikka kohtaisinkin vastustusta, keksin

kyllä keinot, joilla saavutan päämääräni 1 2 3 4

3. Päämäärissä pysyminen ja niiden

saavuttaminen on minulle helppoa. 1 2 3 4

4. Olen varma, että pystyisin toimimaan
tehokkaasti ennalta-arvaamattomissa

<u>tilanteissa.</u>	1	2	3	4
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5. Neuvokkuuteni ansiosta tiedän miten

<u>toimia yllättävissä tilanteissa.</u>	1	2	3	4
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6. Pystyn ratkaisemaan useimmat

<u>ongelmat, jos vain yritän tarpeeksi.</u>	1	2	3	4
---	---	---	---	---

7. Pysyn ongelmatilanteissa rauhallisena,

<u>koska voin luottaa selviytymiskykyyni.</u>	1	2	3	4
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8. Keksin ongelmille yleensä useita

<u>Ratkaisuja.</u>	1	2	3	4
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9. Jos joudun vaikeuksiin, keksin niihin

<u>yleensä ratkaisun.</u>	1	2	3	4
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10. Selviän yleensä kaikesta, mitä elämä

<u>etteeni tuo.</u>	1	2	3	4
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*Adopted from Sosiaali- ja terveysturvan tutkimuksia 86
Kelan tutkimusosasto / Helsinki 2007 page 81*

Appendix (iii)**RESEARCH QUESTIONNAIRES**

IT TAKES ABOUT 5MINUTS TO ANSWER THESE QUESTIONS

DIRECTIONS, Please mark with an X a number from 1 to 5

PERSONAL**INFORMATION**

Fill in your age in the appropriate space provided for below, then make a circle round a correct answer that matches with your personal status from the given answers:-

AGE: _____

1. BACKGROUND INFORMATION**1.1 MARITAL STATUS**

1. Unmarried
2. Married or cohabiting
3. Divorced or legally separated
4. Widow

1.2 EDUCATION

1. Primary school only
2. Primary, secondary or vocational school
3. High school diploma, polytechnic or college level education
4. Academic education
5. Non

1.3 EMPLOYMENT

1. Employed (Upper worker)
2. Employed (Lower worker)
3. Unemployed
4. Student
5. Retired or semi-retired
6. Other, what? _____

1.4 OCCUPATION

1. Businesswoman
2. Farmer
3. Student
4. Other, what? _____

.

SECTION 1

Level of physical activity

On a scale of 1-5 how will you rate your level of physical activity BEFORE the project, where

1. INACTIVE (No physical activity at all)
2. SEDENTARY ACTIVE (e.g. Sitting most of the times at home or office worker getting little or no exercise)
3. MODERATELY ACTIVE (e.g. Walking, cycling, swimming, running etc. For at least 2hrs 30munits a week)
4. VIGOROUSLY ACTIVE (e.g. Swimming, heavy gardening, yoga, gymnastics etc. For at least 2 times a week)
5. EXTREMELY ACTIVE (e.g. competitive cycling, running etc.)

- 1 ☐ INACTIVE
- 2 ☐ SEDENTARY ACTIVE
- 3 ☐ MODERATELY ACTIVE
- 4 ☐ VIGOROUSLY ACTIVE
- 5 ☐ EXTREMELY ACTIVE

SECTION 2

AEROBIC PHYSICAL ACTIVITY

It is an activity that I can talk while I do them but cannot sing

Activity	In a typical week, HOW OFTEN did you do the following activity					
	Not at all	1-2 times a week	2-3 times a week	3-4 times a week	Daily	
Walking						
Swimming						
Running						
Jogging						
Nordic walking						
Cycling						
General gardening						

What other activity-----

AEROBIC PHYSICAL ACTIVITY Continuous

It is an activity that I can talk while I do them but cannot sing

Activity	In a typical week, how much time in HOURS/MINUTES did you the following activity					
	Not at all	10-15 minutes a day	15-30 minutes a day	30-60 minutes a day	More than 1hr a day	
Walking						
Swimming						
Running						
Jogging						
Nordic walking						
Cycling						
General gardening						

What other activity-----

SECTION 2a

MUSCLE STRENGTHENING AND BALANCE ACTIVITIES

It is an activity that I can only say a few words without stopping to catch my breath.

Activity	In a typical week, HOW OFTEN did you do the following activity					
	Not at all	1-2 times a week	2-3 times a week	3-4 times a week	Daily	
Gymnastics						

Water/pool gymnastics						
Yoga						
Balance training						
Dumbbell training						
Heavy gardening (continuous digging, shoveling or hoeing)						

What other activity-----

MUSCLE STRENGTHENING AND BALANCE ACTIVITIES

It is an activity that I can only say a few words without stopping to catch my breath.

Activity	In a typical week how much time in HOURS/MINUTES did you do the following activity					
	not at all	1-2 times a week	2-3 times a week	3-4 times a week	Daily	
Gymnastics						
Water/pool gymnastics						
Yoga						
Balance training						
Dumbbell training						
Heavy gardening (continuous digging, shoveling or hoeing)						

What other activity-----

SECTION 3**Changes in Physical Activities**

Compare to your physical Activity BEFORE YOU JOIN THIS PROJECT (Kouvolan Muisti Seuden ry), is your physical activity NOW

1. ☐ Much Less, 2. ☐ Less, 3. ☐ About the same, 4. ☐ More, 5. ☐ Much more

Thank you for taking your time to answer these questions