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MEMORY HEALTH PROMOTION: MIDDLE AGED WOMEN`S MOTIVATION FOR PHYSICAL EXERCISE TOWARDS CHANGING THEIR LIVING HABIT.

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ABSTRACT

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WEGYE EDWARD	Memory Health Promotion: Middle Aged Women`s Motivation for Physical Exercise towards Changing their Living Habit.
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Global number of people with Alzheimer's disease and other dementias is increasing dramatically. In 2010 it was estimated that about 66 million people will be affected by Alzheimer's by the year 2030 and this number will increase to 115 million by the year 2050 as a result of global ageing. Physical active lifestyle has many measurable benefits to human wellbeing; this includes the reduced risk of several severe conditions such as coronary heart disease, hypertension, stroke and diabetes mellitus, obesity, osteoporosis and memory health problems including Alzheimer's disease.

The purpose of this research was to find out some essential motivation factors for physical exercise for memory health promotion among middle aged women participating in Kouvola memory health project, Eastern Finland in Kymenlaakso municipalities. This global ageing continues and the number of people affected by Alzheimer's disease and other dementia is increasing so rapidly which makes memory health promotion a currently crucial field of research work.

This Research was conducted via quantitative descriptive method using questionnaires. The total number of participants were (N=45) respondents out of 100 clients chosen from the two memory health promotion project sites namely Kouvola and Kotka in Kymenlaakso areas. The research questionnaires were developed by the researcher and the data was analyzed using descriptive Statistical Package for Social Sciences (SPPS version 19).

Result shows that the sample of these women as clients in Kouvola memory project has set a goal for physical exercise in order to promote their memory health. The result also indicates that most of these women are graduates of professional schools and they are retired from their jobs. Most important reason that these women take part in physical exercise is to improve their physical wellbeing and more importantly to have more energy.

In conclusion this research result indicated that there is need for further investigation in this topic about memory health using different approaches such as nutritional approaches lifestyle modification etc. It is worth mentioning that there is also need to continue to educate general public and the women in particular about Alzheimer disease and memory health as women are more susceptible to this disease at old age.

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Lastly I owe my respectful gratitude to Nina Saarelainen coordinator of Kouvola Memory Health Association who and the working team gave me permission to contact this study in their organisation and assisted me by translating the questionnaires in Finnish, making photocopies and acting on my behalf in collecting raw data from the clients as far as this research is concerned. I extend my grateful thanks to Tarmo Ahvenainen, Lic. Phil., Principal Lecturer for the English language editing. Finally I say hello to my dear friends and colleagues for their continuous support, encouragement and cooperation that I received from them during these years of studies.

1.0 INTRODUCTION

Motivation refers to reasons that underlie behaviour of individuals that is characterized by willingness and volition. Hence, motivation is broadly define as the attribute that moves individuals to do or not to do something according to (Broussard and Garrison 2004, p. 106). This means that the words motivation and volition refer to goal setting and goal pursuit, respectively and both processes require self-regulatory efforts. There are two types of motivation in humans: Intrinsic motivation which is animated by personal enjoyment, interest, or pleasure, whereas extrinsic motivation is governed by reinforcement contingencies. An example of such a motivational and volitional construct is perceived self-efficacy.

Therefore the task of self-efficacy is supposed to facilitate the forming of behavioural intentions, the development of action plans, and the initiation of action. This means self-efficacy can support the translation of intentions into real action (Schwarzer & Hallum 2008). Healthy lifestyle is one of the 21st century's 21 health objectives; it involves a simple concept that members of society should have adopted a healthy lifestyle by the year 2015 and they emphasizes that healthy behaviors concerning physical activity should be considerably increased (Aktan & Isik, 2007: 8).

Over the past five decades, many epidemiological studies have been dedicated to improving the quality of life and public health. A physically active lifestyle has many measurable benefits, including the reduced risk of several severe conditions such as coronary heart disease, hypertension, stroke, and noninsulin dependent diabetes mellitus, cancer of the colon, obesity and osteoporosis. On the other hand, psychological benefits of physical activities include reduced levels of stress and depression, and an increased sense of well-being, heightened energy levels, and improved self-confidence.

Health promotion is the science and art of helping people change their lifestyle to move toward a state of optimal health. Optimal health is a balance of physical, emotional, social, spiritual, and intellectual health (Michael O´Donnell 1989). Lifestyle change can be facilitated through a combination of efforts to enhance awareness, change behaviour and create environments that support good health practices.

Health promotion is the process of enabling people to increase control over their lifestyles and to improve their health. To reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment. Health is, therefore, seen as a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities. Therefore, health promotion goes beyond healthy life-styles to well-being according to World Health Organization (WHO, 1986).

2. 0 AIM, OBJECTIVE AND RESEARCH QUESTIONS

The aim of this research is to identify some essential motivational factors for physical activities for middle-aged women in order to keep their memory active from the danger of being affected by the Alzheimer's' disease during old age and to examine some correlation factors that motive these women to carry on physical activities. More important as objective in this research is to understand the baseline motivational determinants associated with physical activity and possible come up with an intervention to improve motivational beliefs among these women and try to change the beliefs and perceptions to increase level or participation in physical activity of these women in the Kouvola memory association project.

The target groups of this resarch were women from Kymenlaakso area in eastern Finland. More specifically they consist of women from Kouvola and Kotka Municipality aged 40-65 years. These women are clients in Kouvola memory Association. To participate in Kouvola memory association project, the client should have one of the memory risk factors identified which may lead to memory disorder in later life age. Other criteria for selecting these participants are they don't have occupational health care services; they may be unemployed, housewives, mothers with small companies, retired, and farmers.

To achieve the above mentioned objectives, the following research questions are explored for the aim of this study.

1. What motivates women in Kouvola memory association project to participate actively in physical activities?
2. What are other essential motivational factors that might generate from this research that can motivate these women to engage in physical activities?
3. Do women participating in Kouvola memory association set a goal for themselves to reduce dementia risk through means of physical activities?

3.0 KOUVOLA MEMORY ASSOCIATION

Kouvola memory association was established in 1990. It is a non-governmental organization or association and basically its field of activity is in Kouvola and Iitti area, but currently the organization activity also has been extends to Kotka, Hamina, Pyhtää and Miehikkälä. The population of Kouvola and Iitti is about 95,077 inhabitants (väestötietojärjestelmä rekisteritilanne 28.2.2013). The association is currently having about 297 members which consist of memory disorder sufferers, their relatives, as well as professionals from health care organizations. The association is guided by the administration board and the current chairperson for 2012 - 2013 is Tiina Könink. The main goal of this association is to initiate activities of dementia work for individuals affected by this disease and their families, as well as providing memory health promotion activities for the middle aged women (40-65) years old in the area.

The current ongoing projects in Kouvola memory association are summarized as follows: First is health empowerment discussions for those women aged 40-65 years in kymenlaakso area which began since 2011 as a pilot project and now the project is extended and will run through 2014. The project workers are Nonna Vanhalakka and Nina Saarelainen. Secondly, the empowerments of health talks are tailored to the customer, this means they take into account the customer's needs, strengths and thus contribute to health behavior change and support self-health.

Health discussions consist of listening, dialogue, self-evaluation, identification of clients' own practices, group activities, as well as online assistance. Activities are based on the memory, disease prevention, based on evidence from studies and such discussion on memory risk factors such as cholesterol, blood sugar, blood pressure, diet, physical activity, obesity, stress and the importance of disease risk reduction. Memory health will also promote balanced social relations, adequate sleep and rest, and good self-knowledge. The main aim of health discussions is to strengthen the healthy side of individuals and to provide background information for the Kymenlaakso residents in different areas of health situation in the field of the memory health for regional policy makers, industry experts, and possibly researchers. This association is being sponsored by RAY, slot automatic machine of Finland.

4.0 LITERATURE REVIEW

4.1 Definition of dementia

Dementia is a Latin term *de mens*, which means *without mind*. It is not a single disease entity, but dementia is a concept that refers to mental impairment severe enough to disrupt the individual's activities of daily living. There are different sets of criteria for dementia but the most widely used definition is that presented in the Diagnostic and Statistical Manual of Mental Disorders, fourth edition, (DSM-IV-TR) (American Psychiatric Association, 2000). These criteria require the development of multiple cognitive deficits including memory impairment and at least one of the following cognitive disturbances: aphasia, apraxia, agnosia or disturbances in executive functioning.

The first Alzheimer disease patient was described at a meeting for psychiatrists by the German psychiatrist called Alois Alzheimer in 1906 as presenile dementia (Alzheimer, 1907). The patient was a 51-year old Woman, called *Auguste Deter*, as she came to be known later as *Auguste D*, who had been admitted to an asylum for delirium and frenzied jealousy of her husband. During her life time, Auguste D experienced a progressive decline in cognitive function, disorientation, aphasia, delusions and psychosocial incompetence. Alzheimer also had expertise in neuropathology, and when Auguste D died in 1906, Alzheimer arranged a neuropathological examination of her brain, which revealed plaques and neurofibrillary tangles (NFT) as well as arteriosclerotic changes (Maurer et al 1997).

This illness was later named as *Alzheimer's disease* by Alzheimer's mentor and colleague, psychiatrist Emil Kraepelin. Initially, Alzheimer disease was considered as a rarity, affecting individuals in midlife of age. Only many decades later was it realized that Alzheimer disease is also the most common cause of senile dementia (Blessed et al 1968). Currently, Alzheimer disease is recognized as the most common cause of dementia, accounting for 60-70 % of the cases, and as the longevity of the population increases, the prevalence of this disease is growing worldwide.

Thus, the risk factors of Alzheimer disease as well as biomarkers permitting early detection and the introduction of possible disease-modifying treatments are the focus of enormous global research interest. The onset of Alzheimer disease varies from 40 to 90 years of age, and typically the disease is characterized by a gradual, progressive loss of memory and other cognitive functions. The etiology of Alzheimer disease is multifactorial, and the disease is a result of a complex interplay of genetic and environmental risk factors.

4.2 Prevalence and incidence of dementia

The global number of people with Alzheimer's disease and other dementias was 36 million in the year 2010 and it is estimated to rise up to 66 million by the year 2030 and 115 million by 2050 as a result of global ageing. The cost of the disease was $604 billion in 2010 (World Alzheimer Report 2010). These diseases will hurt the sustainability of health and finance systems in the future if the health care expertise does not act to prevent its earlier onset. The European Union suffers from dement and according to EU report, 9.9 million people were affected. (European parliament täysistunto raportti 2011). Studies by (Chen, Lin and Chen 2009) estimate that dementia amounts will increase exponentially in the world, hence fair treatment of memory disorders is recommended by the Finnish public health authorities because among people over 65 years of age, every three people indicate a symptoms of memory loss, and each year 13 000 new cases of dementia associated with memory-disorder were diagnosed. Working-age progressive memory disorder is estimated around 7000 - 10 000 (käypä hoito 2013).

The age-specific prevalence of dementia almost doubles every five years, from approximately 1.5% in persons aged 60–69 years to 40% in nonagenarians. An expert panel (Ferri et al 2005) estimated that the global dementia prevalence in people aged 60 years was 3.9%, with the regional prevalence being 1.6% in Africa, 3.9% in eastern Europe, 4.0% in China, 4.6% in Latin America, 5.4% in western Europe, and 6.4% in North America. There is a similar pattern of dementia subtypes across the world, with the two most common forms of Alzheimer's disease and vascular dementia accounting for 50–70% and 15–25% of all dementia cases, respectively (Zhang et al 2005). The global annual incidence of dementia is estimated to be around 7.5 per 1000 population with no substantial variations across continents except Africa, where incidence rates are reported to be lower than in other regions (Ferri et al 2005).

4.3 Midlife exercise and reduced risks of dementia

The American Centre for Disease Control and Prevention and the American College of Sports Medicine recommend adults to have 30 min or more of moderate-intensity physical activity on five days of the week, due to the strong evidence of an association between physical activity and the primary prevention of type 2 diabetes, cardiovascular disease and premature mortality (Haskell, Lee, Pate, Powell, 2007).

Mechanisms for such an effect include the reduction of inflammation and increasing trophic factor production and neurogenesis in addition to the reduction in cardiovascular disease. Several studies have explored whether regular physical activity would reduce the risk for AD, and in a recent meta-analysis, a beneficial effect of physical activity on the reduced risk for AD was indeed found (Hamer & Chida, 2009).

According to recent meta-analysis of prospective cohort studies, adults who routinely engaged in physical activities, sports, or regular exercise in midlife carried a significantly lower risk of dementia years later (Hamer & Chida 2009). Thus, reduction of dementia risk was documented in 10 of 11 studies, with an estimated relative risk of 0.72 ($p<.OO1$). Several prospective cohort investigations have reported significantly reduced subsequent risks of midlife cognitive impairment (MCI) associated with midlife exercise (Laurin 2001, Singh-Manoux 2005 and Jedrziewski 2010). A population-based, case-control study similarly found that moderate exercise retrospectively reported for midlife was associated with a significantly reduced risk of MCI (Geda, Roberts & Knopman 2010). Reduction of MCI risk with retrospectively reported earlier life exercise was also documented in a cross-sectional study of a large female cohort (Middleton et al 2010).

4.4 Motivational factors towards physical exercise

The concept of motivation was described earlier as an integrated cognitive and emotional Process supported by personal goal which one follows, and that support can manage one's behavior so as to reach these goals (Ford 1992). The area of goals setting suggested that motivation is a dynamic and comprehensive cognitive process based on the subjective evaluation of meeting a chosen goal (Roberts 2001). Personal goals can be culturally or socially determined, but they can also be applied as a part of motivation if an individual adopts them as his or her own and such motivation is then reflected in goals,

activities and their significance for the individual (Maehr & Nicholls 1980). Physical activity relates this to the choice of activities which one would possibly do. The choice is related to self-perception as well as perception of personal competencies and they thus become a part of personal identity (Fox 2000).

The social psychological cognitive theory explains that any motivation to performance is accompanied by variables which are associated with self-concept, awareness of oneself, and explanations of one's own behavior (Roberts 2001). An important aspect of motivation to perform is the increase of the feeling of one's own value and the experience of pride in one`s own performance (Kuhl 1983). Individuals are motivated to participate in activities in some areas of life where they experience positive feelings of competence and self-efficacy (Biddle 1997 & Roberts 2001). If people perceive themselves as being successful in activities they do, they are more motivated to fulfill their dreams and meet their goals, therefore expectations to meet goals must be realistic, otherwise they can become demotivating (Roberts 2001).

One motivational factor to make changes in an established lifestyle is regular physical activity (Heinzelmann & Bagley, 1970; Marcus et al., 1998). Some researches confirm this in their study which shows that six months of a regular exercise program with applied dance aerobic pieces can motivate people in late adulthood to adopt healthy lifestyle habits (Song, June, and Kim & Jeon 2004). Some studies has examined the effect of physical activity on one`s own wellbeing in late adulthood. They examined the roles of social support and participation in physical activity. These findings show that personal wellbeing significantly increases after physical activity intervention and this state lasts for six months after the intervention. The frequency of exercising also had a positive effect on life satisfaction, which is understood as a broader concept in this study than wellbeing. Reducing of feelings of loneliness and the improvement of social relationships were identified in study participants (McAuley, Courneya & Rudolph, 1994).

Women exercise more frequently than men with an aim to lose weight and strengthen the body and for appearance related reasons (Frederic & Ryan 1993). Women of middle age associate in physical activity mainly with changes in body shape and therefore they participate in physical activity due to body focused motives.

Among the body shape goals that is to say appearance related goals, women rate losing weight to improving body shape and strengthening of muscles. Some women engage in physical activities for non-body shape goals that is to say nonappearance related goals and they includes: physical and psychological wellbeing, feeling stronger, sleeping better, enjoying physical activity, enjoying outdoor activities, aerobic exercise, relaxing, having fun, and stress reduction (Segar, Spruijt-Metz & Nolen-Hoeksema 2006).

External motivation which is a prior focused on physical appearance and is enhanced by cultural ideals conveyed and supported in the media can lead to Starting participation in physical activity and exercise programs but it will not have a lasting effect (Biddle & Mutrie, 1991; Ryan et al., 1997). If physical activity in middle aged women is dependent on unrealistic weight loss expectations or body shape motives, then not meeting these expectations and the feeling of failure can cause a break in exercising until another wave of trying it again motivation appears (Polivy & Herman, 2000). There are two motives in women with a prevailing sedentary lifestyle which influence the decision to start regular physical activity. One of them is to improve perceived health and the other one is to improve appearance general physical appearance. This research concluded that there is no significant relationship between either of the motives and the extent of participation in exercising (Annessi 2004).

Women who exercise regularly show a more positive attitude towards their own body, especially concerning the level of their energy and health. Another finding of the study was that women perceived their physical activity as satisfying and beneficial (Snyder and Kivlin 1975). There are three factors in exercising women: Pleasant physical activity, self-acceptance of oneself in her body and non-dietary eating. Females enjoyed the atmosphere of relaxation and friendship in the experimental sport program. They considered themselves to be healthier; to be more themselves and bad dietary behavior was reduced (Lyons & Miller 1999).

Motivation to participate in physical activity needs to be examined along with adherence and the importance of clearly defined goals such as that of stimulating factors is enhancing targeted behavior and such as that of measurements of one's own progress fitness improvement, weight loss and body shaping.

Goal setting theory emphasizes the need for clear planning of how to achieve one`s goals. Furthermore, the self-regulatory theory argues that goal setting, self-monitoring and self-motivation are necessary in order to carry out the intended behavior and to surpass personal and situational obstacles (Annesi 2004).

Therefore according to **(**Tomarken & Kirschenbaum 1982**)** perceived self-efficacy, and success or failure at achieving the set goals expected on its basis, is one of the key factors influencing the adherence level, which also complies with Bandera's self-efficacy construct (Bandura 1973). The social support provided within organized regular physical activity helps participants to cope with the strains of changes typical for women in middle and late adulthood (Štěrbova, Hruba, Harvanova, Elfmark, & Otipkova, 2008).

5.0 MEMORY RISK FACTORS

Old age and genetic susceptibility are the only well-established risk factors for dementia and Alzheimer's disease. Female sex is often associated with an increased risk of Alzheimer's disease, especially at the oldest old age. Of the modifiable factors, recent research has led to two major etiological hypotheses that imply a great potential for the prevention of dementia. Firstly, the vascular hypothesis suggests that vascular factors and disorders occurring over the lifespan are involved in the pathogenesis and clinical expression of dementia and Alzheimer's disease (Qiu, Winblad, & Fratiglioni 2005). Secondly, the psychosocial hypothesis means that active and socially integrated lifestyles in middle age or late life may protect against or postpone the onset of dementia by providing functional reserve and by reducing psychological stress and vascular damage (Fratiglioni, Paillard-Borg,& Winblad 2004).

According to recent studies risk factors for memory health are high cholesterol levels, high blood pressure, disturbances in sugar levels, not enough exercise, drinking, smoking, not enough social contacts i.e. loneliness, overweight, depression, nutrition and pain medicine. All these can have the effect on memory of the humans in later life.

5.1 Hypertension

Hypertension or high blood pressure, also known as arterial hypertension, is a chronic medical condition in which the blood pressure in the arteries is elevated. This requires the heart to work harder than normal to circulate blood through the blood vessels. Blood pressure involves two measurements, systolic and diastolic, which depend on whether the heart muscle is contracting known as systole or relaxed known as diastole between beats. Normal blood pressure is at or below 120/80 mmHg. High blood pressure is said to be present if it is persistently above 140/90 mmHg. Hypertension is classified as either primary also known as essential hypertension or secondary hypertension; about 90–95% of cases are categorized as "primary hypertension" which means high blood pressure with no obvious underlying medical cause. (Carretero & Oparil 2000).

The remaining 5–10% of cases or secondary hypertension are caused by other conditions that affect the kidneys, arteries, heart or endocrine system. On the subject of vascular risk factors and dementia most studies have focused on hypertension and the risk of dementia. Several cohort studies with long follow-up have consistently associated hypertension in middle-aged subjects with an increased risk of dementia and cognitive decline later in life (Launer et al 2000, Kivipelto & Helkala et al 2001). This association is less clear for hypertension in late life and the relation appears to be age-dependent (Kennelly & Lawlor 2009).

In fact, some longitudinal studies have shown that low blood pressure in later life such as above 75 years of age is associated with an increased risk of future dementia (Morris et al 2001, Varghese , Lipton et al 2003). In addition, several cross-sectional studies in late life have shown an association between high blood pressure and better cognitive functioning and between low blood pressure and prevalent dementia (Guo, Viitanen et al 1996). Medical treatment of hypertension has been associated with a decreased incidence of dementia in several longitudinal studies, but results are difficult to interpret due to the mentioned sources of bias inherent to such analyses of associations (Haag et al 2009, Peila 2006).

5.2 Cholesterol level

Hypercholesterolemia in midlife has consistently been associated with an increased risk of future dementia (Kivipelto, et al 2002). Hypercholesterolemia in late life, however, has been associated with a decreased risk of dementia in some longitudinal studies by (Reitz, Tang et al 2007). No association between statin use and incident dementia has been observed in several large prospective cohort studies (Shobab et al (2005).

5.3 Diabetes mellitus

Diabetes mellitus (DM) is a chronic disorder of carbohydrate metabolism caused by abnormal insulin function or insulin deficiency, which results in elevated blood sugars. The influence of DM on human health is enormous and, unfortunately, is increasing steadily, in terms of overall health, mortality and economic impacts Centre for Disease Control and Prevention (CDC 2002).

World-wide prevalence rates have risen dramatically over the past 10 years in every age, sex, race, and education category according to (Crooks, Buckwalter, & Petitti, 2003). Reports about the association between DM and incident dementia are fairly consistent that the only vascular risk factor which is associated with an increased dementia risk independent of age is DM (Kloppenborg et al 2008). This was shown in several longitudinal cohort studies on both midlife DM (Ott et al 1999) and late life DM (Luchsinger et al 2005), and the risk of incident dementia. In addition, the occurrence of severe hypoglycaemia in patients with type 2 DM has been associated with an increased risk of future dementia; this risk increases with the number of hypoglycaemic episodes (Whitmer et al 2009).

5.4 Obesity and physical exercise

Midlife obesity has been associated with an increased risk of future dementia in several cohort studies with a very long follow-up (Gustafson D, Rothenberg et al 2003). As with hypertension, this relationship seems to be modified by age, as in late life a higher BMI is associated with a decreased risk of dementia, whereas a low BMI is associated with an increased risk of dementia (Hughes 2009). Physical activity both in midlife and in late life has repeatedly been reported to be associated with a decreased risk of dementia (Andel & Crowe 2003). The presence of several risk factors in one subject probably has an additive effect and the constellation of vascular risk factors defined as the 'metabolic syndrome' has been associated to an increased dementia risk as well (Vanhanen , Koivisto et al 2006)

Interpretation and comparison of the results from different prospective cohort studies is difficult for several reasons. In the first place the operationalization of risk factors differs across the studies. There is no uniform definition of hypertension, hypercholesterolemia, obesity or lack of physical exercise and different values or algorithms have been used in different studies. In addition, different outcome parameters have been used. Some studies used Alzheimer's disease as an outcome, some studies vascular dementia and some studies dementia in general. Considering the increasing awareness that the strict division between Alzheimer's disease and vascular dementia is no longer tenable and the probably high percentage of cases suffering from mixed dementia in most of the studies mentioned, all incident dementia outcomes are included in this review.

5.5 Nutritional factors

Current epidemiological data are in favour of a protective role of certain micronutrients (group B vitamins related to homocystein metabolism, the antioxidant vitamins C and E, flavonoids, polyunsatured omega-3 fatty acids) and macronutrients (fish) in the prevention of cognitive decline and dementia (Gillette-Guyonnet et al 2007). At the present time, it is still difficult to propose specific recommendations for the prevention of Alzheimer disease , because recent findings show that subjects with Alzheimer disease already have inadequate nutrient intakes of calcium, iron, zinc, vitamin A, omega-3 and omega-6 unsaturated fatty acids in the early stages of the disease (Schatenstein , Kergoat and Reid 2007).

Epidemiological analysis of the relations between nutrient consumption and cognitive decline is complex and it is highly unlikely that a single component plays a major role. There is need to pursue studies which will improve our knowledge of the biochemical mechanisms underlying the pathophysiological processes and will identify potential therapeutic agents, and which in a public health perspective will examine food groups and dietary patterns. A recently published paper, based on the findings of the French three Cities study, suggested that a diet with little variety may increase the risk of dementia and daily consumption of fruits and vegetables was associated with reduced risk of dementia.

Weekly consumption of fish was associated with reduced risk of Alzheimer disease and dementia only in ApoE epsilon 4 noncarriers. Regular consumption of oil or fish rich in omega-3 fatty acids was associated with reduced risk of dementia, whereas regular consumption of oils rich in omega-6 fatty acids increased this risk (Barberger-Gateau 2007). Another study has shown decreased risk of Alzheimer disease in subjects with a diet similar to the Mediterranean diet. All these works highlight the need to consider the interactions between micro- and macronutrients in future studies. The impact of classic social determinants of diet, such as regional cultures, social status and educational level, must of course be taken into account **(**Scarmeas et al 2006).

5.6 Education

Epidemiological studies have suggested that some psychosocial factors such as educational attainment, social network, and leisure activities play a part in the development of dementia. There is strong evidence suggesting that illiteracy and low education increase the risk of dementia and Alzheimer's disease (Karp et al 2004). Educational attainment as well as lifespan mental activity associated with childhood education may explain the protective effect of high education against dementia and cognitive decline and according to Stern (2006), the biological plausibility may rest on cognitive reserve hypothesis: education could stimulate compensatory mechanisms of cognitive function.

Individuals with higher reserve need more Alzheimer-type lesions or cerebrovascular changes than those with lower reserve to express a dementia syndrome. Education, however, may play different roles in dementia and may have more than one role at the same time education not only is an indicator of cognitive stimulation, but also an indicator of early life circumstances, a surrogate of intelligent quotient, and an indicator of socioeconomic status. An alternative interpretation is that subjects with low education are more likely to be clinically diagnosed as having dementia at an earlier neuropathological stage than more highly educated persons (Karp, Kareholt, Qiu, et al 2004) , (De Ronchi , Berardi , Menchetti , et al 2005)

5.7 Social network

Several studies have shown an association between levels of social activity and risk of dementia. Loneliness was recently shown to be associated with an increased risk of cognitive decline and dementia (Wilson et al 2007). Social network size was found to mediate the relationship between Alzheimer's disease pathology and cognitive function (Bennett et al 2006). According to some studies, higher levels of mental, physical and social activity within leisure activities were all found to be associated with a reduced risk of dementia, and those whose activities included high levels of two or all three components had the lowest risk (Karp et al 2006).

Unprompted, social activity was suggested by an average of only 13% of people as a way to reduce risk, whereas a majority of people agreed that social activity or keeping socially connected would reduce risk when prompted. These findings indicates that few people associate in social activity with a lower risk of dementia unless prompted with the idea, and increasing evidence that social isolation increases dementia risk, suggest a need to raise awareness of this association.

There is some evidence that people who have limited interaction with other people may be more likely to develop dementia when compared to those with more active social lives. Activities which combine mental, physical and social stimulation may be even better for reducing the risk of dementia, such as day or evening classes, walking with a group or taking part in community groups. Low social support such as loneliness in individuals age 65+ has been linked to a higher risk of dementia according to study Rising Tide: The Impact of Dementia on Canadian Society (2010)

6.0 THEORETICAL FRAMEWORK

6.1 Health Belief Model (HBM)

According to (Rosenstock 1974), theories of Health Behavior Include the Health Belief Model (HBM). This model was widely used as a theoretical framework in the field of health behavior since 1970s, and the original version consists of five constructs as follows: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and cues to action (Strecher et al., 1997). Perceived susceptibility and perceived severity determine the threat perception component of this model, and perceived benefits, perceived barriers, and cues to action determine the behavioral evaluation component of this model (Sheeran & Abraham, 1996). Research by (Becker, Haefner, and Maiman 1977) added health motivation in a later version of HBM. After that, two additional components were included, which were demographic and socio-psychological variables (Becker, 1990). According to health believe model, if individuals perceive the threat of disease such as their vulnerability to disease and the severity of disease, and are aware of the benefits of performing certain behaviors, individuals therefore take action to prevent actions. As a result, individuals may be motivated to behave in a healthily.

Dissertation done by Xiaoyan Xu (2009), explains that the theory of health behavior model has been applied to a wide range of health behaviors control. Therefore according to study by Sheeran and Abraham, the health behavior model has been applied into the following three areas: preventive health behaviors such as diet, physical exercise, smoking and sick role behaviors such as medical regimens, and in clinical use, such as by the physician.

In other words perceived barriers were found to be the most powerful predictive factor of the health belief model. It was recently discovered that the health belief model was weakly associated with health behaviors. Although, this model has provided researchers a very useful theoretical framework to understand a variety of behaviors, it has limitations. One of the criticisms this model received is that its components are poorly defined (Armitage & Conner, 2000; Sheeran & Abraham, 1996).

6.2 Understanding Motivation

Motivation is a dynamic inner process that produces an internal force that energizes and orients individuals to select preferred behaviors and try to fulfill pre-set goals. Individuals usually have different motives at one time such as achievement, affiliation, health, religion and their action is guided by one or more than one of their motives. The goal oriented motivation process includes several sequential stages. First, individuals generate motivational tendencies towards certain goals based upon certain personal or environmental factors. Second, among these tendencies, individuals make plans for salient ones which are most important for them. Third, those salient tendencies motivate individuals to take actions to achieve them. The last stage is a volition stage. Individuals persist in their action and work towards the ending point of their motivational tendencies established at the first stage. Individuals may be able to fulfill their goals at this stage, but they may not due to many factors, for instance, they give up or are interrupted before achieving the goals.

The understanding of motivation has evolved over time and is characterized by diversity. One way to categorize the distinct theories of motivation is to describe it by influential psychological schools. In early last century, Freud, the founder of the psychoanalytic school and father of psychotherapy, believed that people were driven by aggression and sex (Freud, 1915/1963). Lewin (1935) in his expectancy value theory proposed that motivation is a function of the expectation that the behavior will produce specific outcomes and the value of these outcomes. Similarly, Vroom (1964) believed that an action is directed by instrumentality that ensures the happening of desirable consequences and nonoccurrence of undesirable effects. Kelly (1962) perceived motivation as a personal construct which guides individuals' action and finally, Maslow (1970) believed that motivation is the integration of emergence of the desire, the actions it stimulates, and the satisfaction that is produced by the accomplishment of the goal object. Recently, motivation has been construed in terms of personal action constructs (Little, 1999). Such personal action constructs include personal strivings, goals or pursuits that an individual is trying to accomplish (Emmons, 1986) or states of having a particular unsatisfied goal (Klinger, 1975). Although these theories differ from each other, components of initiation, goal-directedness, intention, and persistence of behavior have always been the key components (Halisch, & Kuhl, 1987).

Motivation is conceptualized as a dynamic process by many researchers. For instance, Maslow postulated three stages of motivation: appearance of desire, action, and satisfaction of goal accomplishment. Two major components of motivation have been proposed: drive and goal. The drive refers to the internal process that guards a person into action; and reaching a particular goal terminates a motivation (Murray, 1964, p. 7-8).

The path from motivation to action involves three intermediate processes: resultant motivational tendency, intention formation, and initiation of action. Normally several motivation tendencies may be active at the same time, and only the strongest resultant motivation is translated into action. A resultant motivation tendency itself must evolve into an intention to strive individuals to perform an appropriate action. After intentions formed, one intention will be implemented because anticipated opportunities are favorable for it (Heckhausen 1991).

Similar to Heckhausen's perspective on motivation, another study was done by Gollwitzer which proposed a model of action phases for his goal theory. The model describes different objectives and tasks within the course of wish fulfillment. Subsequently, these objectives are setting preferences between or among wishes, making plans for goal-directed actions, bringing initiated actions to a successful ending, and evaluating action outcomes, because originally, the purpose of this model was set to identify potential difficulties individuals may encounter when trying to bring wishes and desires into reality but it is a good example to show the process theory of motivation. Several concepts such as goals, intentions, volitions, and values have been used interchangeably with motivation. To better understand motivation in a broad way, it is essential to see and specify similarities and differences among these terms. A goal is therefore defined as the object or aim of an action, while motivation is goal-directed process. Thus, a goal is a conceptual ending point of motivation (Gollwitzer, 1990; 1993; Golliwitzer & Oettingen, 1998).

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(Kuhl 1987 p. 282) defined intention as an activated plan to which an actor has committed herself or himself, and according to Nuttin, intentions are part of motivational process as instrumental goals or aims, and are selected or preferred to achieve the goals (Nuttin 1987). Motivational process is divided into two successive psychological states: motivation known as predecisional state and volition preferred to as post decisional state.

Motivation state involves the decision making process, whereas volition concerns how and when to implement the decision which has been made. Although putting in mind that values involve things that individual's desire, it is a mixture of their needs, which includes social norms, and social demands, hence it emphasizes what people ought to do whereas motivation indicates what people want to do or strive to do (Emmons 1989).

7.0 RESEARCH METHOD

This research was carried out using quantitative descriptive research method in order to enable the description of data as sought by the goals, aims and the purpose of this research. The use of a descriptive form of quantitative research method was adopted because it enables the study and the explanation of occurrence in daily practice specially the epidemiological studies. Health care discipline uses descriptive research design in order to create theoretical information, establish the cause of certain problems, guide in decision making or to ascertain the issues practiced by those in the same state as those under the study.

In addition, quantitative descriptive research enables the interpretation of data in a numerical way by providing answers to the research questions. Quantitative research method also enables the use of closed-ended questionnaires that allows for the objective feedback of the respondents (Gerrish & Lacey 2006, 155-163). Another useful benefit of quantitative research is that it focuses on establishing the relationships that exist between the dependent variables and the independent variables according (Polit & Beck 2008, 61). The use of questionnaires enables one to describe data in an elaborate way as well as with exact information from an extensive group of people without necessarily disclosing their identity (Salanterä 1999).

7.1 Data Collection Method

Data was collected by means of questionnaire. A questionnaire is a data collection method in which the researcher presents a pattern of questions to a selected group of people (Routio & Pentti, 2007). Therefore after production of an English version of the questionnaires for this research by the researcher, the translation to Finnish was done by Nina Saarelainen who is a Kouvola memory association project coordinator and was checked twice by the researcher together with the thesis instructor supervisor to minimize translation of errors of related words and sentences. The questionnaire consisted of three parts with a total of 25 closed-ended questions that these women can rate the level of their motivation for physical exercises. The first part of the questionnaire consisted of demographic information such as personal information, while the second and third part comprised of questions testing on the women's motives toward motivational factors for exercise.

The target group of this research comprise of 100 women in the Kouvola memory project. According to the project coordinator, those 45 women were chosen out of 100 women because they were the ones who had made goals to increase their physical exercise level. Data collection took place in spring between April and May 2012 and it takes about ten minutes to answer the questionnaire. The researcher did not participate in the data collection process because it was agreed that the data will be collected through Kouvola memory association. Therefore Kouvola memory association project coordinator acted as contact persons between the women participating in project and a researcher in collecting a data. The questionnaires answered were submitted via project manager in sealed envelopes to the master's degree programme coordinator and the thesis supervisor lecturer who during the summer 2012 posted the answered returned questionnaires to my home address in a sealed envelope to ensure privacy.

An ethical consideration in any research is important and in this research it was taken into consideration in all phases of the research process because its acknowledgement was needed for legal aspect of any kind of the research. In this case the researcher contacted Kouvola memory association project coordinator and the lecturer supervisor to how the permission for contacting the research could be obtained. It was considered that the researcher needs not to obtain a separate permission from the client or the organization, because the memory association has taken the responsibility since this research is under its umbrella of the association (Kouvola Seudun Muisti ry 2012).

7.2 Data Analysis Method

The result of this research was analyzed quantitatively because of its nature and the data collection method. The common features of quantitative analysis are graphical representations of statistically analyzed data. The use of descriptive statistical analysis is to indicate the quantities, frequencies, distributions and classifications of phenomena. This form of analysis often forms a basis for a more detailed analysis of the phenomena such as correlation or causality. It also involves the basic concepts of the various methods of quantitative analysis such as variables, statistics, measurement scales, distributions, deviations and tabulations, and how to calculate values involved in them (Torchim & William 2006).

Therefore in this research quantity, frequencies, distributions and classifications of phenomena were much used in the final result presentation. In order to achieve the aims of this research, Statistical Package for Social Sciences (SPSS version 19) was used as a means of data analysis and interpretation. The data was first coded in the exile work sheet where it was easy to transfer to SPSS for analysis. Statistical analysis is necessary in the analysis of quantitative data as it helps in describing the data, exploring co-relationships, testing hypothesis, predicting outcomes and generally answering the research questions and according to Polit, descriptive statistics also enables data to be described and summarized in a way that allows easy understanding with the help of averages and percentages (Polit 2010).

After receiving all the filled questionnaires (N=45), Kouvola (n= 21) and Kotka (n=24), the researcher validated all the data against the given instructions for answering the questionnaires, and it was during the coding of the data to the excel work sheet process that one paper questionnaire (n=1) was not included in the excel work sheet before transferring it to the SPSS 19 program. Therefore all the data that were considered relevant for analysis were (N=44), representing 99% of the total sample. Coding is the use of numbers to represent a given variable written in words, thus enabling mathematical interpretation of data. Data analysis was carried out by using descriptive statistics. This included the analysis of demographic data as well as total scores answered correctly (Polit 2010, 4; Polit & Beck 2008, 67).

8.0 RESULTS

The background information of the clients who participate in this study consisted of the basic demographic data such as the age, female gender, marital status, educational level and the employment status. Therefore clients rated their motivational feeling on the scale of 0-10 points what motivates them to do physical exercise. The themes were divided into the following: Physical health, preventive health, social and psychological wellbeing, owns motivational level and finally the life enhancement theme.

Figure 1 below shows the background information of this research that consisted of the research sites, demographic data of the clients such as age, martial states, education attainment, occupation and setting goals for the physical activities as one of the most important factor. Data was collected from two different municipalities of Kymenlaakso area namely Kouvola and Kotka. According to the results of this research, Kotka municipality represents 52. 3% of the participants and Kouvola represents 47. 7% OF the samples.

Figure 1: Participants according to municipalities of Kouvola and Kotka.

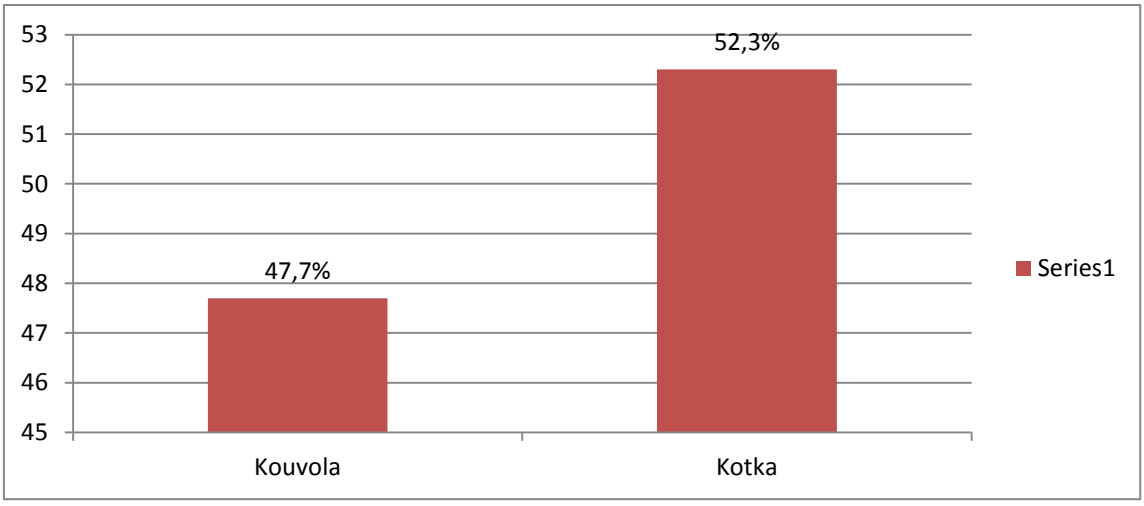


Figure 2 below shows age distribution of the women both Kouvola and Kotka and it indicates the following: women under 50 years of age represents 18.2% of the sample, women 50-60 years represent 38.6% and final women over 60 years of age in this research represents 43.2% of the sample. This concludes that women over 60 years of age represents majority of the participants in the sample of this research.

Figure 2: Age of the women in years

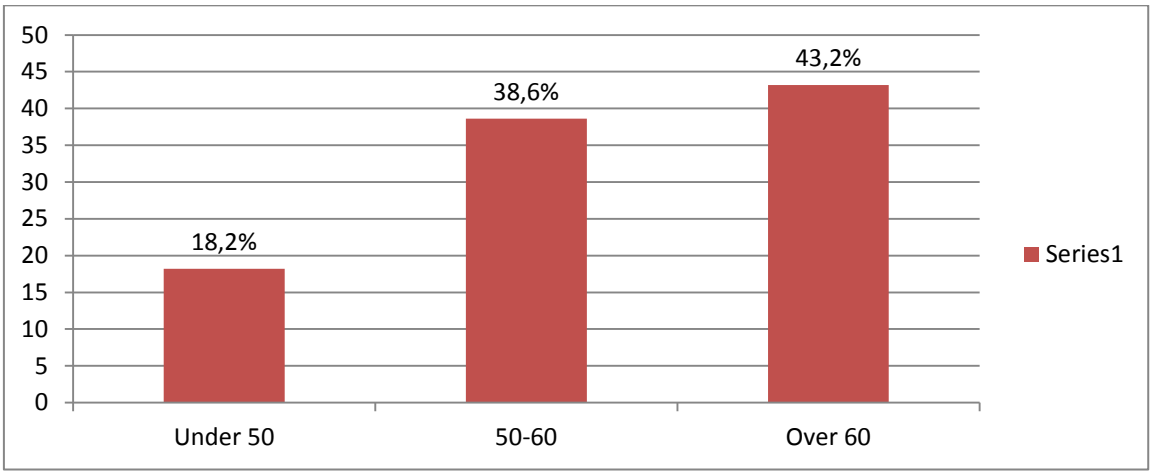


Figure 3 below indicates the marital status of the participants of this research and its main future shows that 63. 6% of the participants are married, 25% of the women are devoiced, followed by unmarried 9.1% and widows represents 2.3% of the sample.

Figure 3: Marital status of the women

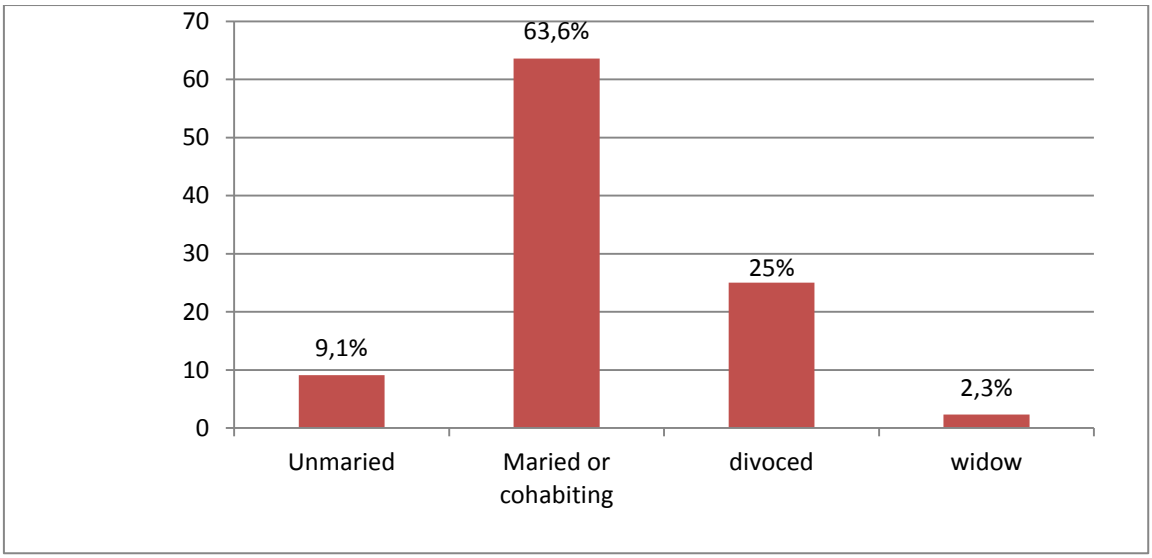


Figure 4 below shows the educational background or attainment of the participants in this research, the mean educational level of these women was 3.9; this indicates that women in Kouvola memory association project are mostly the graduates of the professional schools, known in Finnish as "Ammattikoulu" and they represent 31. 8% of the sample and this also corresponds to those institute graduates which also makes 31.8% and then at least followed by basic or primary school graduated that makes 11. 4%. Polytechnic graduates were 9. 8%, while university graduate represents only 6. 8%.

Figure 4: Educational attainments of the women.

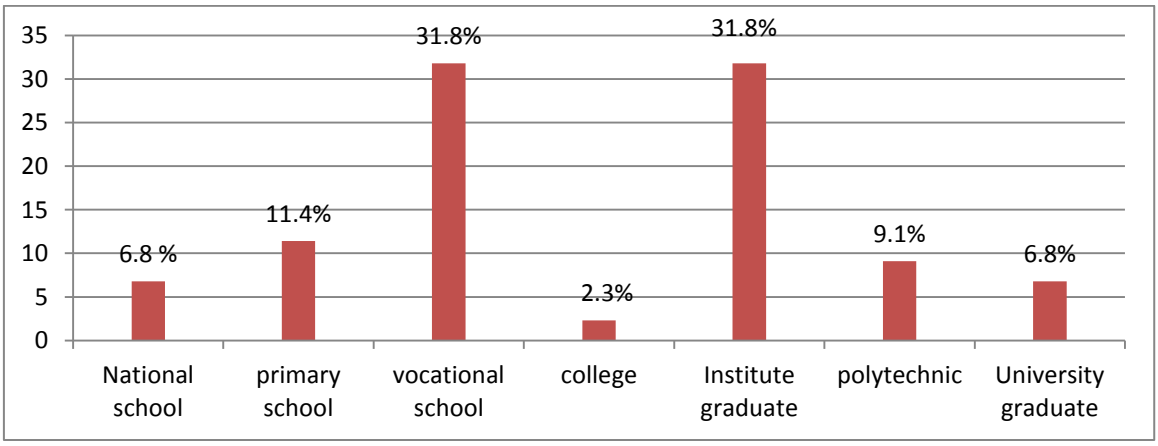


Figure 5 below shows the analysed result of demographic section under the employment background which indicates that huge numbers of participants in Kouvola memory association involved in this research were women that are retired or semi-retired from their jobs making the valid percentage of 47.7%.

The percentage of employed women was so small that account for the least category in employment history when considering the demographic data and they represent 15. 9%, while women in self-business employment represent 18.2 % of the sample, than followed by unemployment and others type of employment.

Graph 5: Employments status of these women as clients in Kouvola memory association.

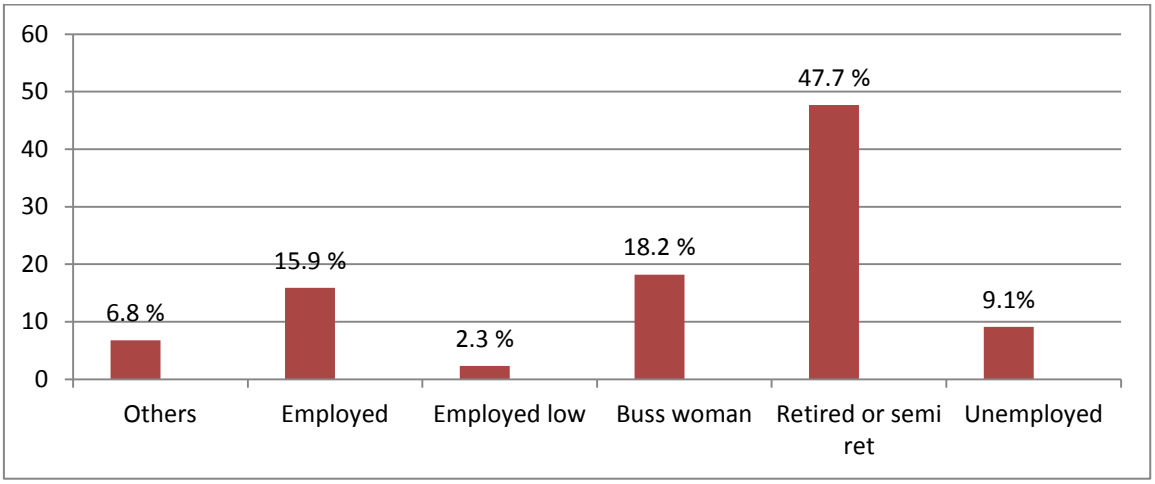
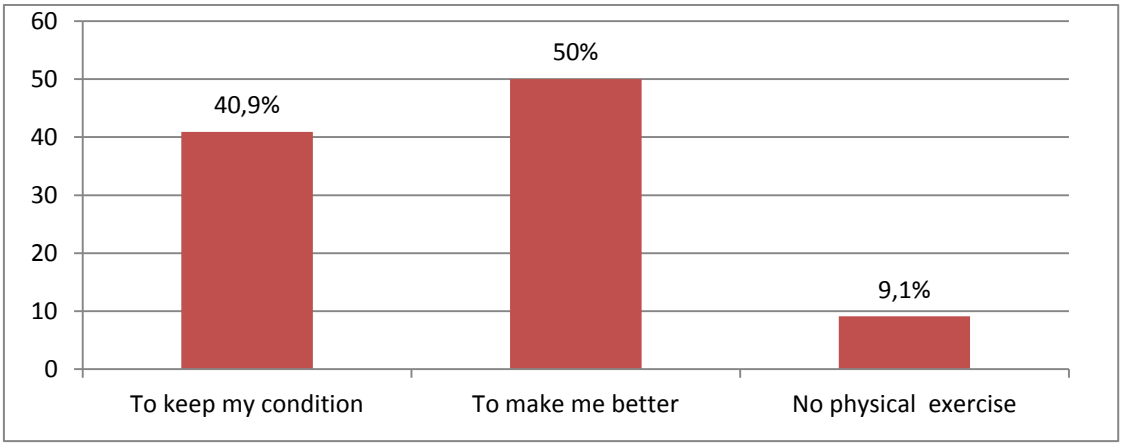


Figure 6 below indicates the participant opinion why they take part in physical exercise, and those who make physical exercise to improve their condition better represents 50% of the sample, followed by those who wanted to keep their current physical condition stable and they constituted 40.9% and finally 9.1% of the sample say they do not take part in physical activities in order to improve their condition better nor to improve their condition.

Figure 6: The Participation in the physical exercise of the women in Kouvola



Therefore the result of this research indicates that majority of women participating in the Kouvola memory association have set the goals for themselves as far as memory health promotion project is concerned and they wanted to improve their general health through physical exercise. This was seen in the response rate of goal setting question that all the participants unanimously answered ***yes*** that they have set the goals for themselves in memory health promotion project giving 100% valid response.

Physical health: Exercising to improve physical health was considered as the first theme to answer the question why women take part in physical activities. Therefore Under physical health, women participating in Kouvola memory association take part in physical exercise in order to be physical fit.

This result is revealed in the respond rate that 25 % agreed so as the highest percentage rate saying they want to be more physical fit which is representing half of the sample. Below are some of the essential results based on exercising to improve physical health.

Figure 7: Women take part in physical exercise because they want to maintain their physical fitness.

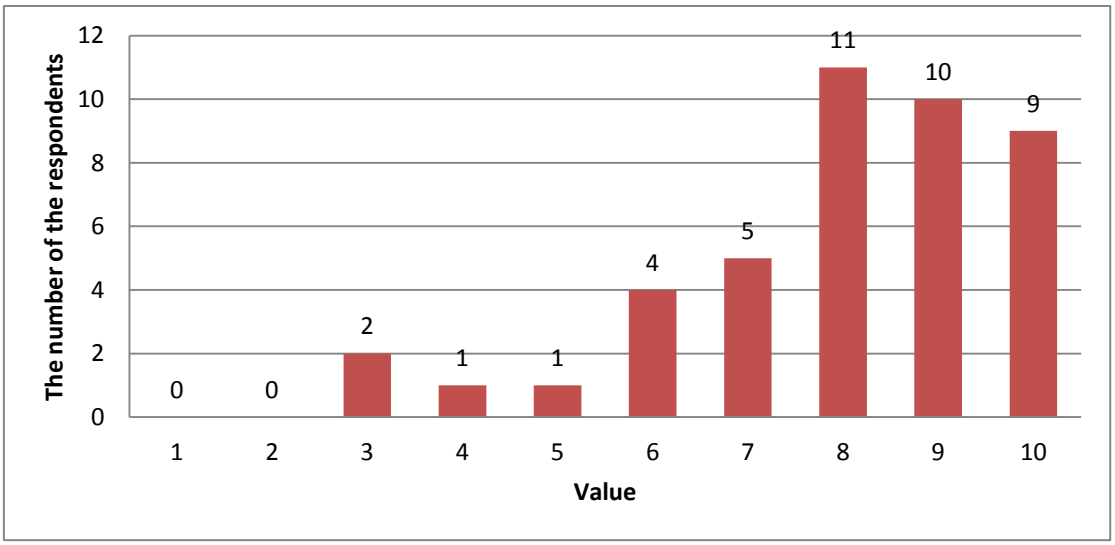


Figure 8: Women take part in exercises to maintain their physically health life styles behavior.

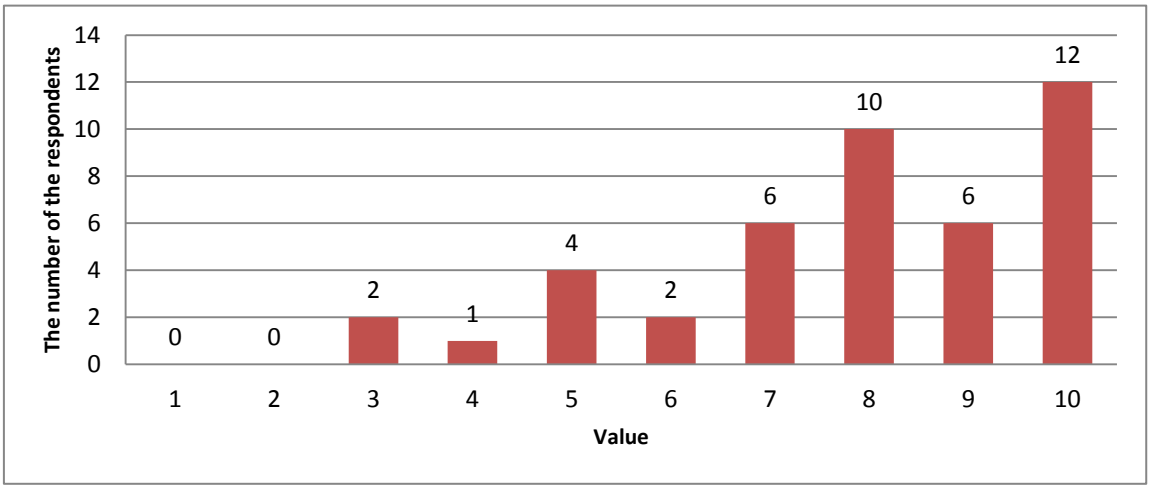
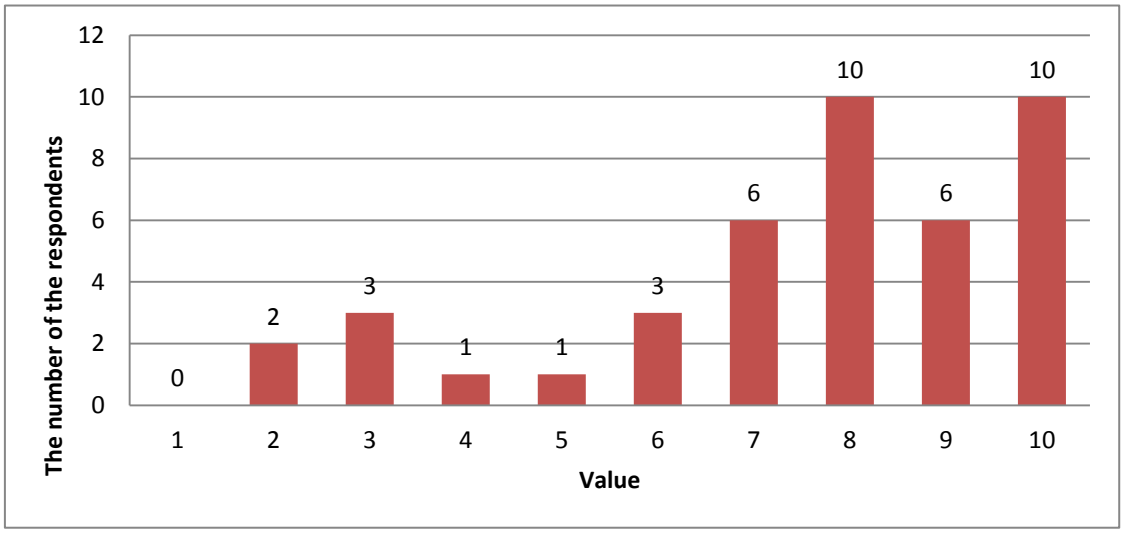


Figure 9: Women take part in exercise because they want to avoid getting overweight.



Preventive Health: Preventive health was considered as the second theme and under "Prevention is better than cure" as well known theme in the field of health promotion activities, women in this study responded that they take part in physical exercise in order to reduce their blood cholesterol level. This is seen in the result that 29. 7 % said so in their response rate as the maximum response rate.

Figure 10: Women exercise in order to reduce high blood cholesterol level.

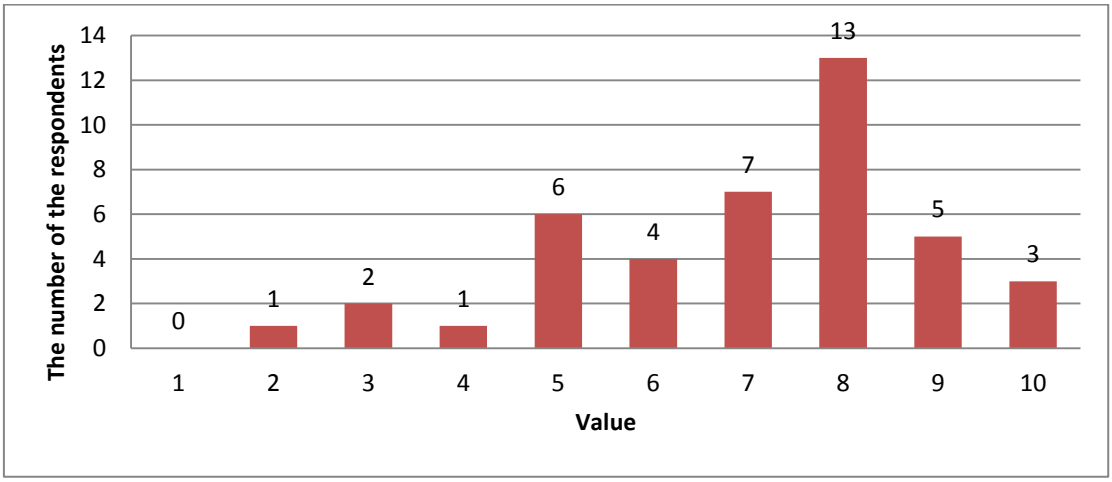


Figure 11: Women take part in physical exercise because they want to reduce their blood pressure by means of exercise.

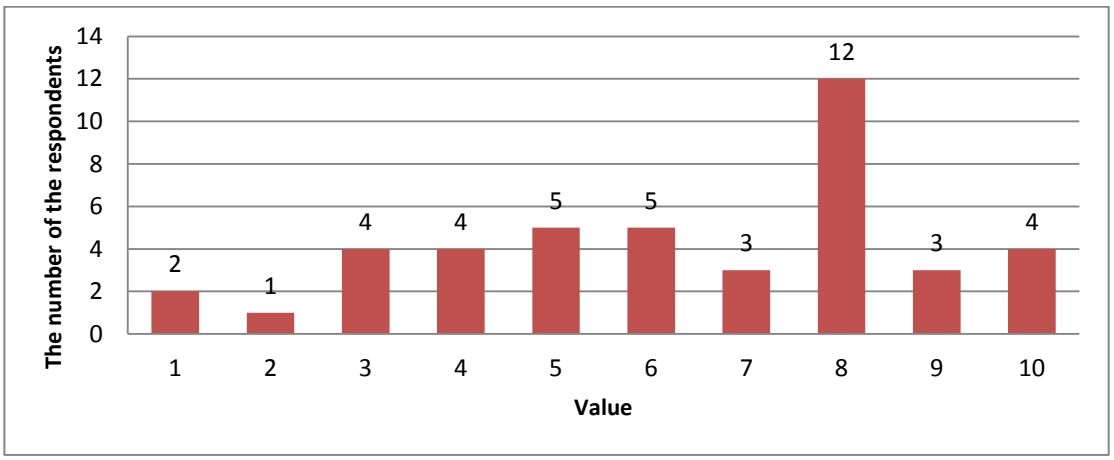


Figure 12: Women exercise in order to improve their memory health.

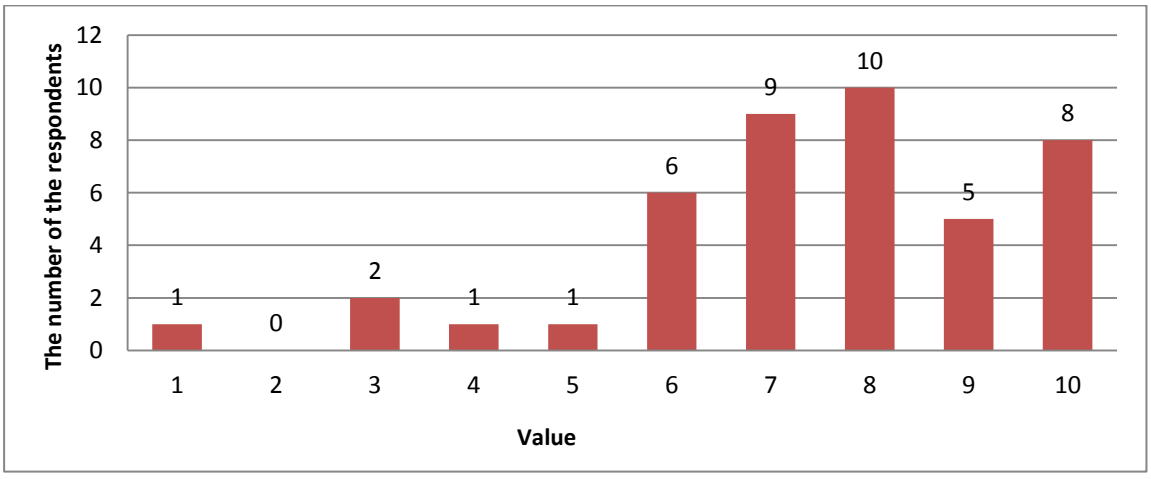
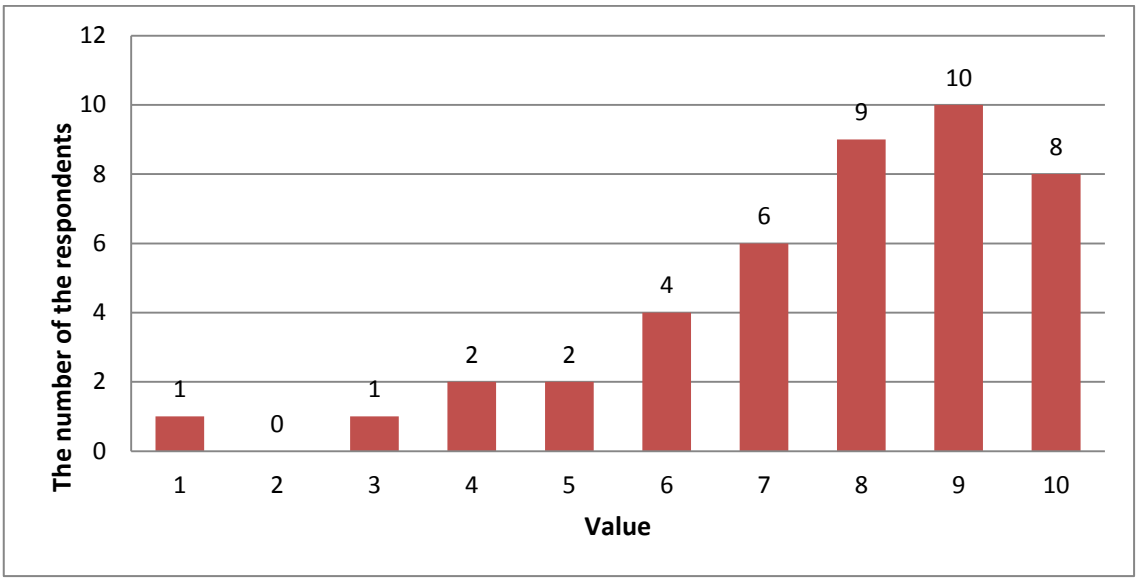


Figure 13: Women take part in exercise in order to avoid risk factors of memory loss problems during their old age.



Social and Psychological wellbeing: Social and psychological wellbeing of those women was considered as one of the motivational factor for physical exercise. Hence under this theme social and psychological wellbeing, women in Kouvola memory association take part in physical exercise in order to have more pleasure. This was seen in the results that 29.5 % of these women agreed as seen below in figure 15.

Figure 14: Women like exercise because of pleasure.

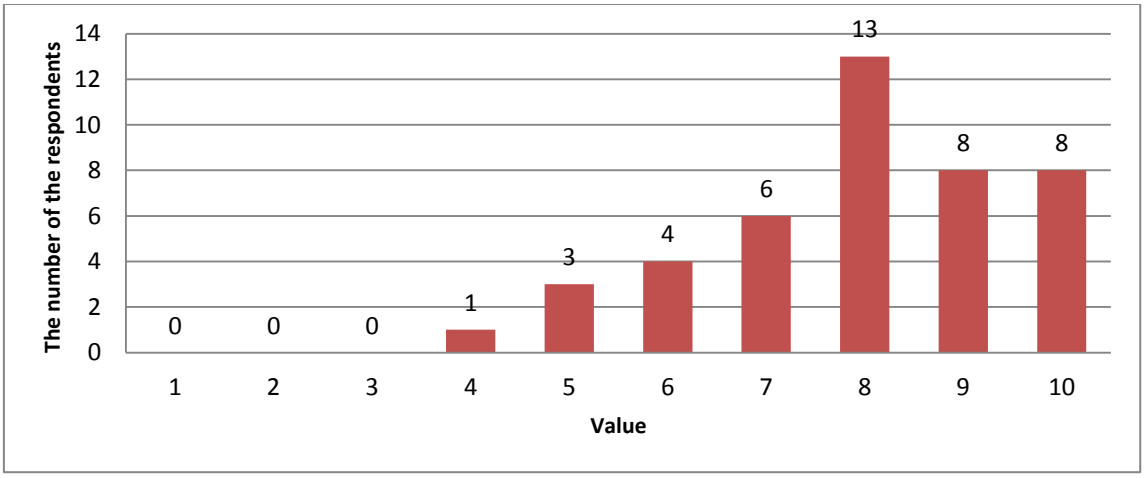


Figure 15: Women took part in physical exercise in order to improve their body image better.

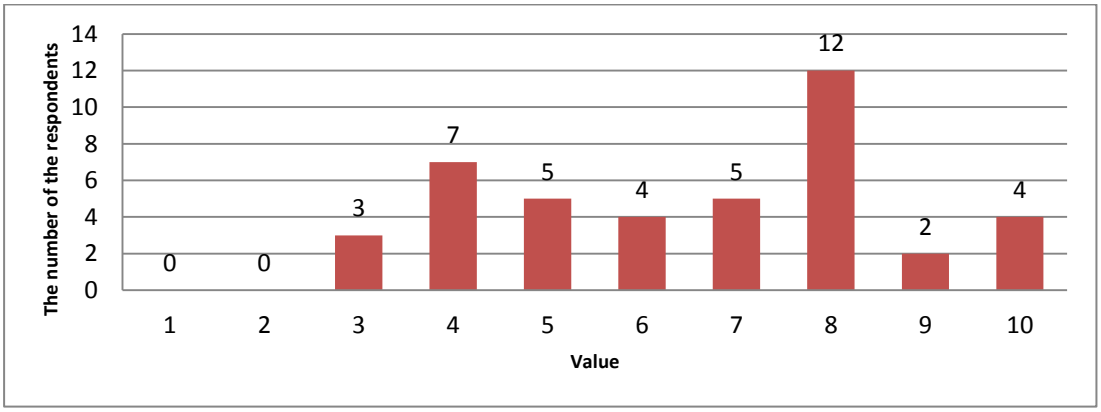


Figure 16: Women like exercise because it's fun to them.

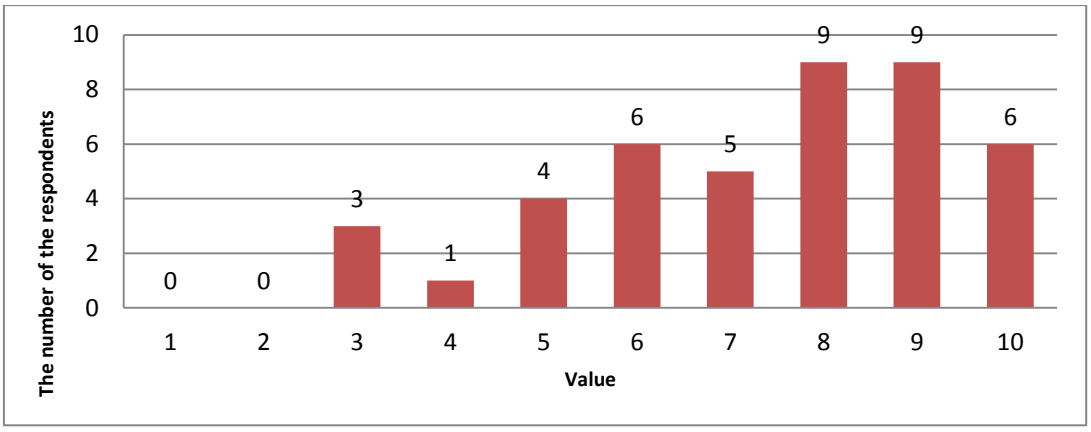
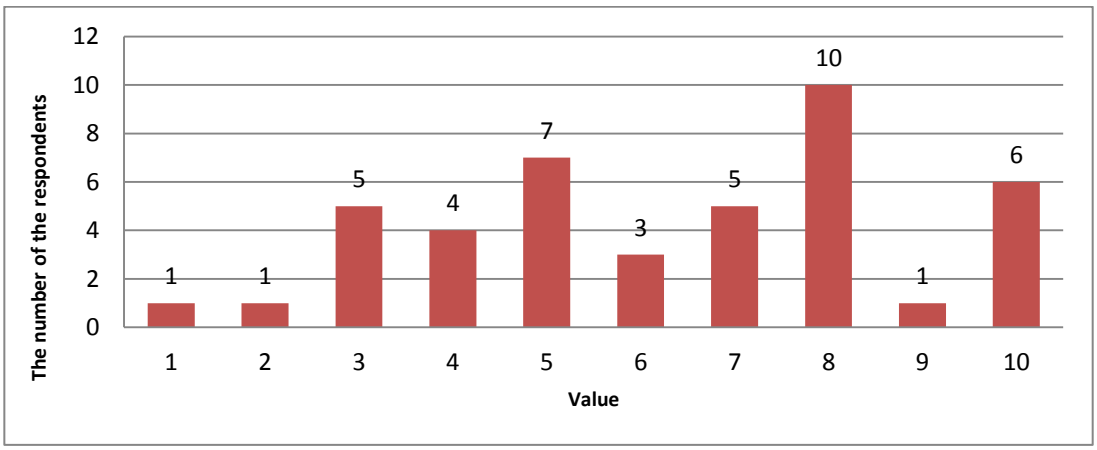


Figure 17: Women exercise because they enjoy spending time with other friends during physical activity time.



Motivational factors: Motivational level was considered separately as one means or factors that enables and motivates women to take part in physical exercise. Therefore as far as motivational level is concerned, women in this study believe that they are capable to perform physical activity or exercise as they have planned. This is seen in the result that 29. 5 % agreed so. This indicates that they have the motivation to perform exercise.

Figure 18: Women believe that they are capable of performing physical activity as they have planned.

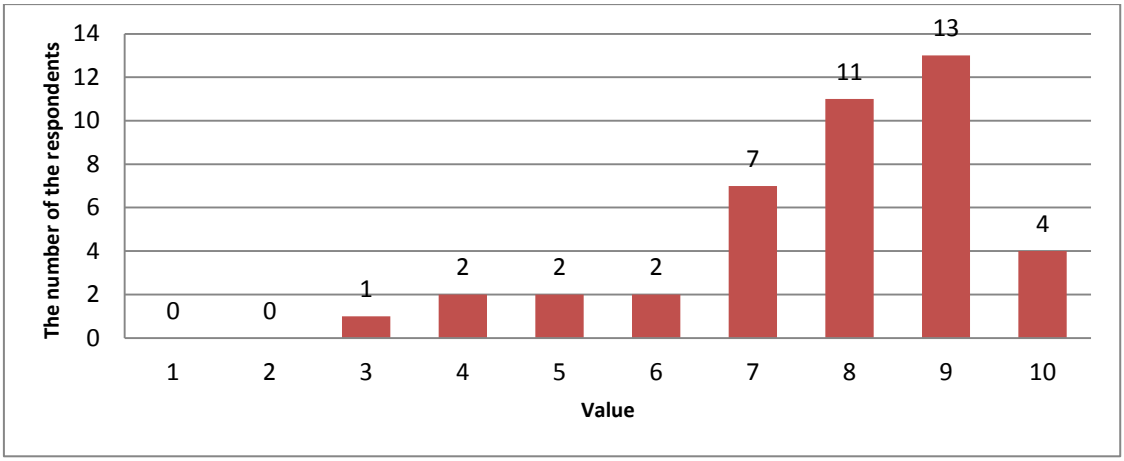


Figure 19: Women take part in exercise because their friends/family/spouse says they should so.

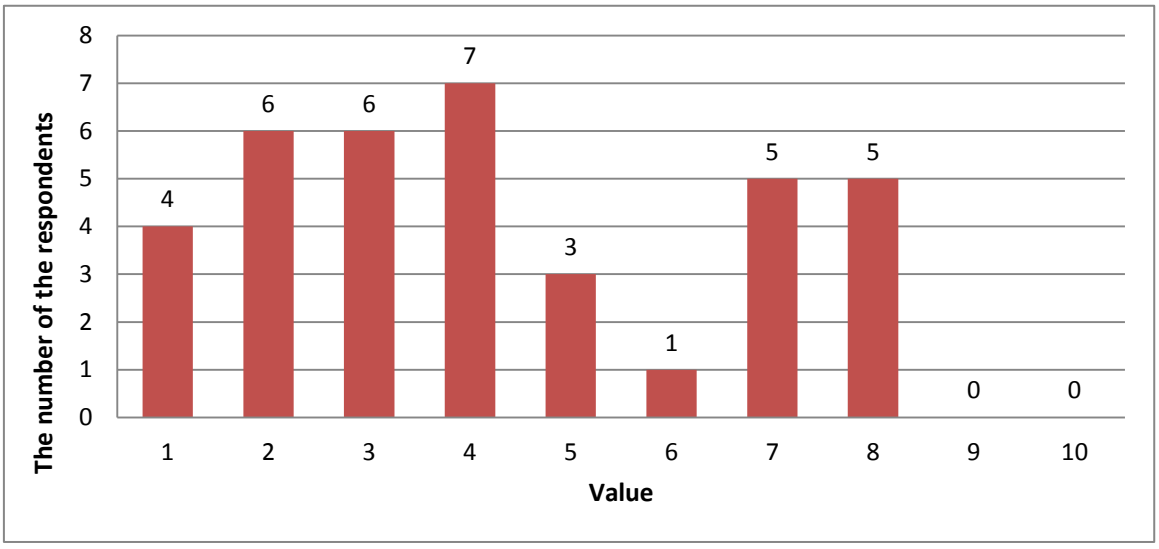


Figure 20: Women exercise because public health nurse or the doctor says they should.

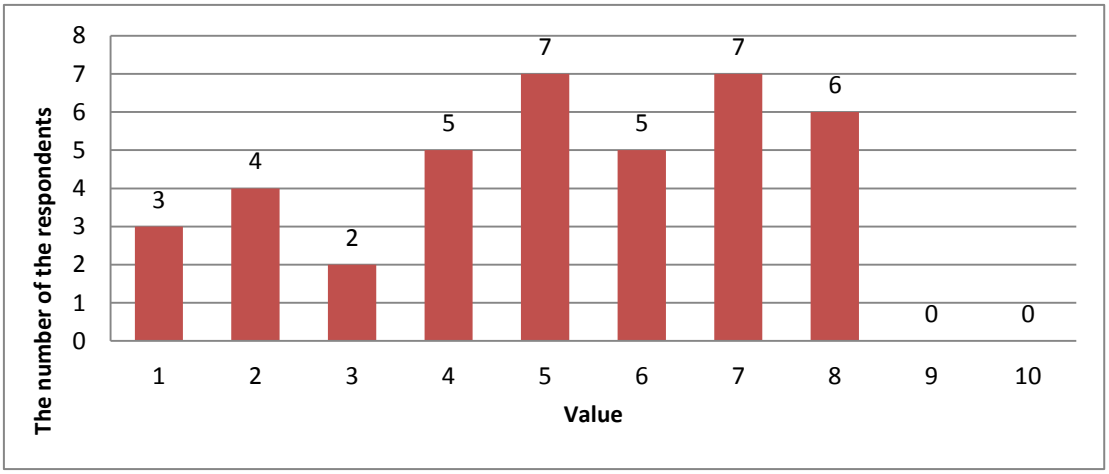
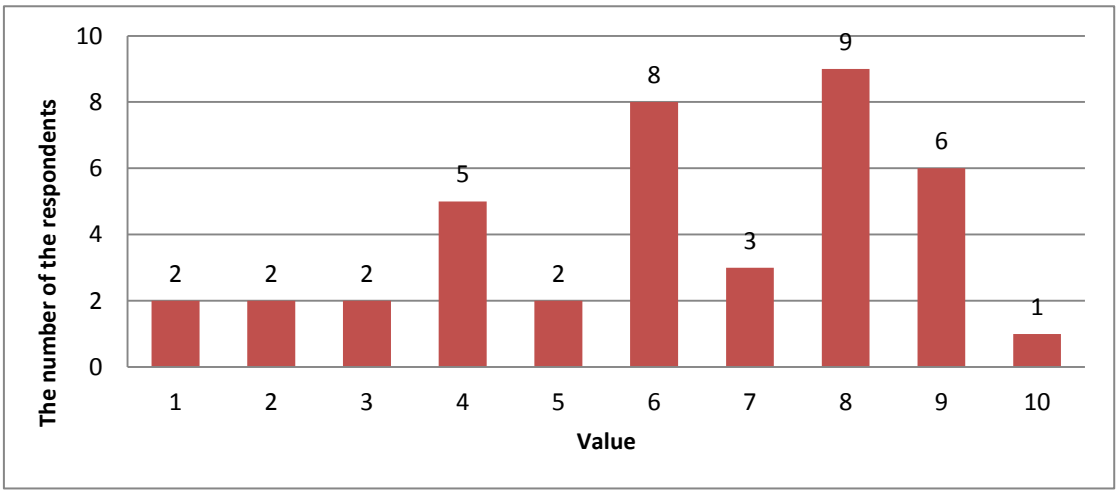


Figure 21: Women said they go exercise even if it is heavy to take off with exercise.



Life enhancement: This factor was considered as a theme; hence under life enhancement theme sub themes were considered, therefore women think it is important to make effort to exercise regularly to have more energy. This result is consistency with the theoretical part of this research that women take part in physical exercise to have more energy.

Figure 22: Women think it is important to make effort to exercise regularly to have more energy.

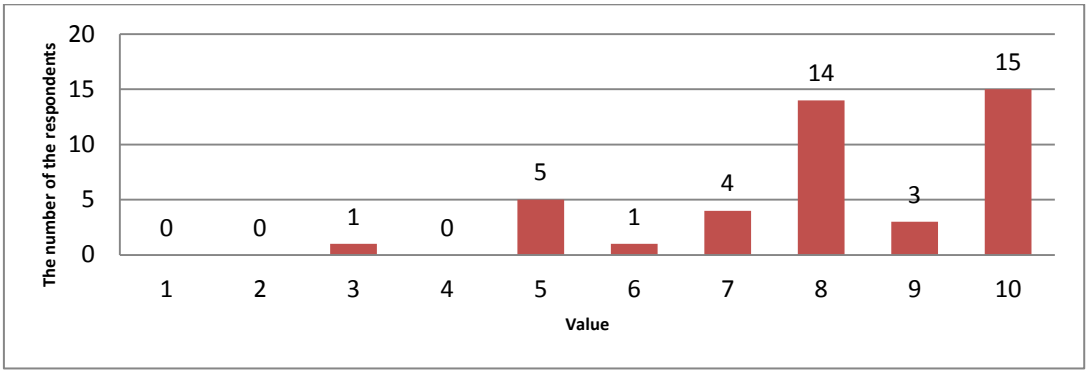


Figure 23: Women exercise in order to improve my mental alertness.

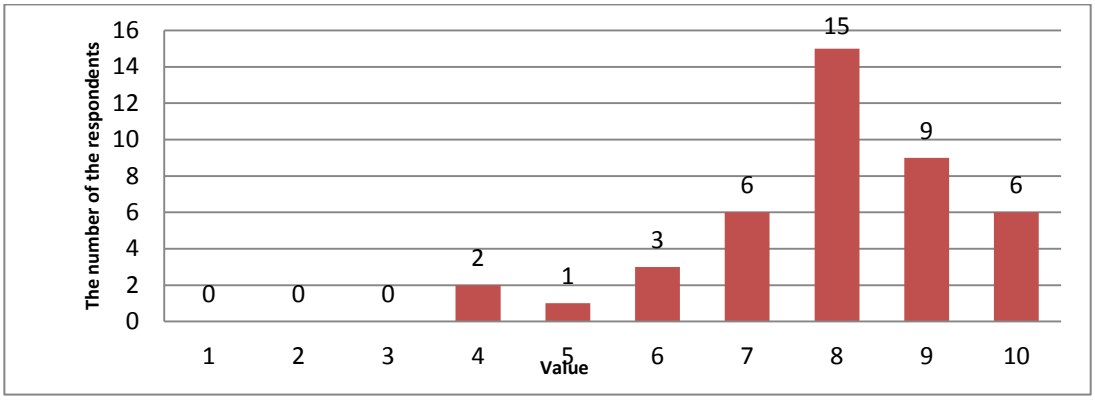


Figure 24: Women exercise because it improves the quality of their good sleep.

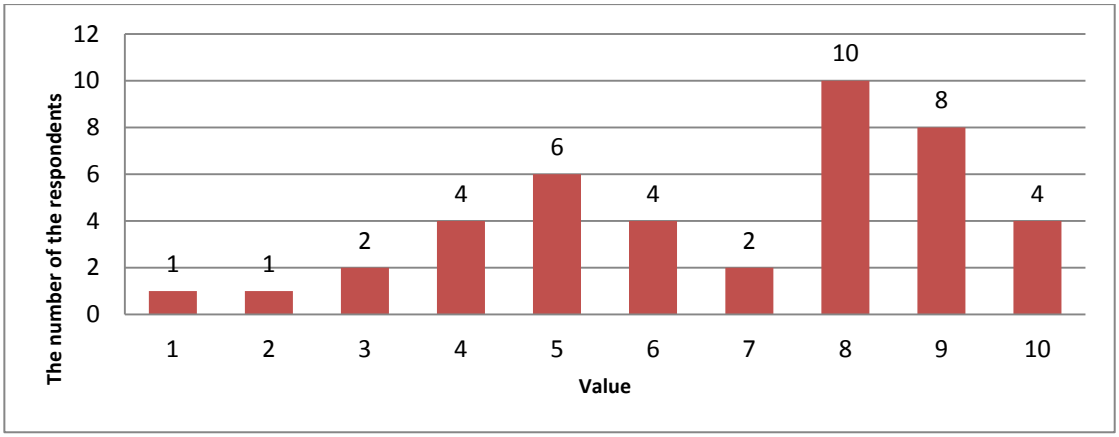


Figure 25: Women take part in physical exercise because it makes them more relaxed.

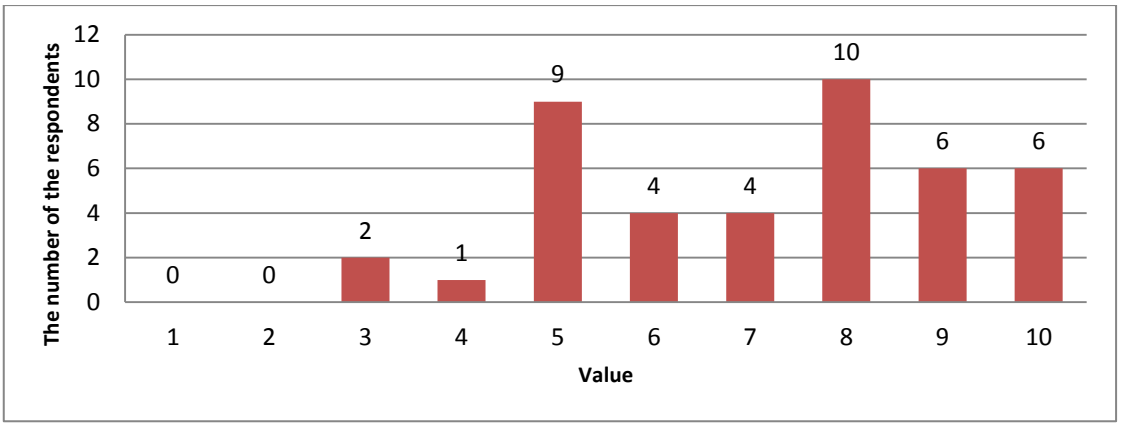


Figure 26: Women exercise to reliefs from the fatigue after the daily activities.

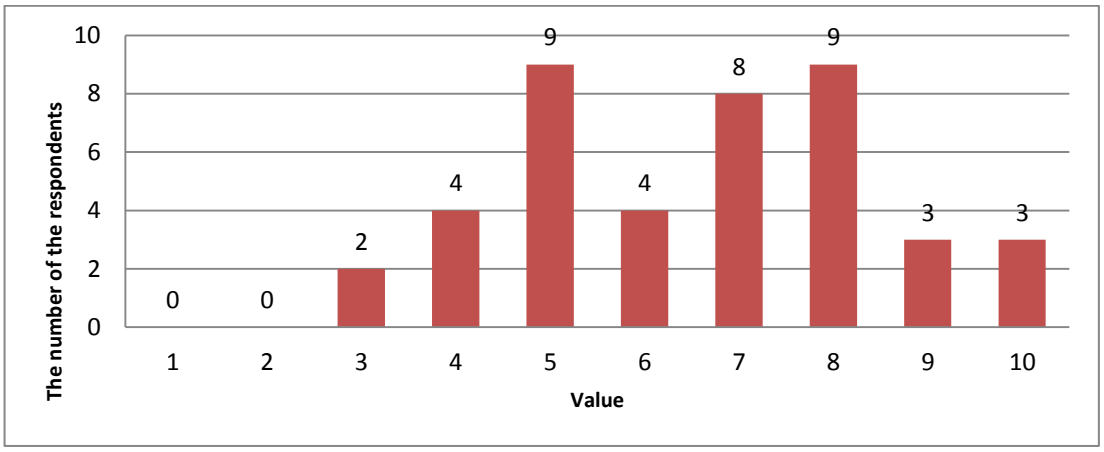
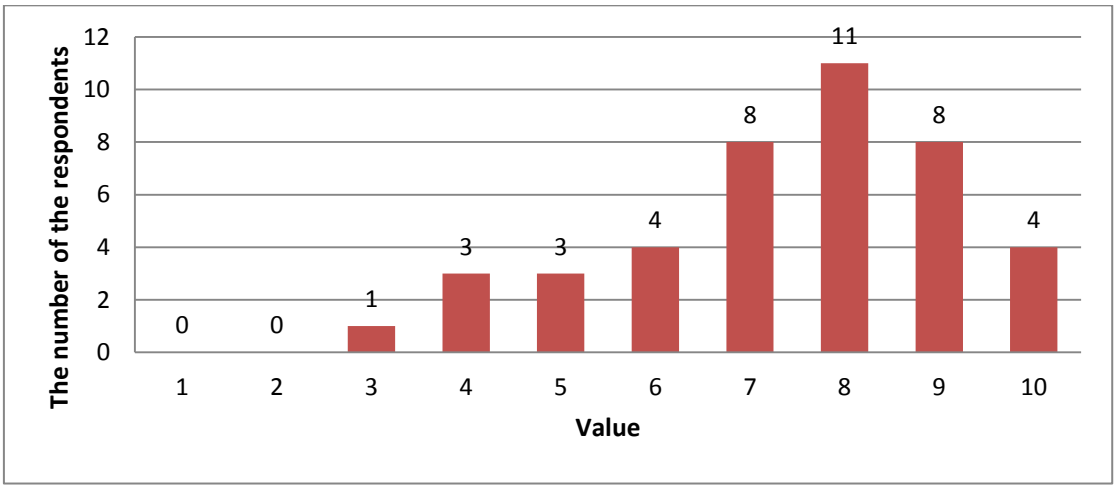


Figure 27: Women take part in physical exercise because it relieves them from the stress of the day.



9.0 DISCUSSION

The aim of this research is to find essential motivational factors for women participating in Kouvola memory association project in order to promote memory health through physical exercise activities. According to the result of the research, the sample of women representing clients of Kouvola memory association revealed that they have set the goals for themselves as far as memory health promotion project is concerned. This is because the sample of the participants represents about 50% of the total number of participants of the women in the Kouvola memory association or in Kymenlaakso area which is all about 100 of them in total. This was reflected in the response rate of goal setting question, which shows that all the research participants responded unanimously "yes" that they have set the goals for themselves in memory health promotion project.

This explanation is consistency with the theoretical part of the research that motivation is a dynamic inner process that produces an internal force that energizes and orients individuals to select preferred behaviors and tries to fulfill preset goals. For better understanding, it is nice to consider the broad understanding of motivation that motivation is the process that initiates, guides and maintains goal oriented behaviours. This indicates also that motivation is what causes individuals to act, and the nice and simple example is that whether it is getting a glass of water to reduce thirst or reading a book to gain knowledge.

Motivation therefore involves the biological, emotional, social and cognitive forces that activate behaviour. In everyday usage, the term motivation is frequently used to describe why a person does something. Most of the clients say that they are motivated for physical exercise in order to have more energy according to the results. Therefore this result is consistency with the previous researches which indicates that women who exercise regularly show a more positive attitude towards their own body improvement, especially concerning the level of their energy and health wellbeing. Another finding of the study was that women perceived their physical activity as satisfying and beneficial (Snyder & Kivlin 1975).

Considering life enhancement theme as one of motive for physical activities variable, women in this research think that it is important to make effort to exercise regularly to have more energy. The mean respond for this question takes high tall in this study as 7.9. Women also exercise because they want to maintain their physical fitness. This comes under the theme that women are engaged in physical activities to improve their physical health with the mean response rate of 7.8.

The result of this research cannot be in any case generalized for such age group of women in Finland. This result is restricted only to those women in Kouvola and in Kotka who have set their goals of physical activities as far as their participation in Kouvola memory health association is concerned. While this study did provide some insight into the link between motivation and what motivates women to adapt to physical exercise behaviour, the results must be interpreted with some degree of caution as all of the exercise behaviour measures were taken by self-report. Specifically, it is difficult to accurately assess exercise intensity using self-report measures. Future research would do well to examine the link between motivation and objectively measured exercise behaviour (Duncan et al 2010)

According to Whaley and Schrider (2005), how people view themselves, from past experiences to current reality, will soundly influence their choice for physical activity. A person's sense of self-perception plays a major role in whether she/he will start an exercise program. So, even if for medical reasons a person has been encouraged to exercise, his/her own self-perception may impede this from happening. Some people may view themselves as incompetent without ever trying to exercise. Whaley and Schrider assert that positive feedback from exercise professionals, reinforcement that exercise is worthy and beneficial and a means of getting social support from significant others will improve a person's self-perception to initiate an exercise program. Perceived safe equipment and facilities, which is user friendly to operate, is also highly associated with exercise adherence. More important is, watching others exercise also helps to motivate people to continue with their own exercise plan (Seguin et al. 2010).

10.0 CONCLUSION

The result of this research shows these women take part in exercise in order to improve their physical wellbeing and more importantly they take part in physical activities to have more energy and this is consistent with the theoretical part of this research. Women who exercise regularly show a more positive attitude towards their own body, especially concerning the level of their energy and health.

Taking part in health behaviour activities refer to any activities that individuals wants to maintain, restore, and improve overall health or preventing diseases. For instance, exercise, diet, self-examination, washing hands, and brushing teeth are all health related behaviors (Conner & Norman 1996). Health behaviour is critical to the survival and reproduction of human beings. Several researches indicates that unhealthy behaviours such as smoking, drinking, unprotected sexual behavior lack of physical exercise increased mortality dramatically (Belloc, 1973; Breslow & Enstrom, 1980; Conner & Norman, 1996; Hamburg, Elliott, & Parron, 1982; Koop, 1983). The benefits of exercise extend far beyond weight management to health prevention measures. Research shows that regular physical activity can help reduce risk for several diseases and health conditions and therefore improve overall quality of life.

Furthermore, this research result indicated that there is need for further investigation in this topic about memory health. It is worth mentioning that there is need to continue to educate general public and the women in particular about Alzheimer disease and memory health as they are more susceptible to this disease at old age. It is necessary for health care professionals to provide useful information for women to acquire effective skills due to lack of awareness of memory problem that can be reduced through exercise. An important issue to be considered is to teach women about memory loss risks factors. It is equally essential to teach the basic knowledge of memory risk factors and improve awareness of prevention. Women should be inspired to take care of their own memory health by encouragement and motivation for physical exercise. A nationwide health promotion campaign on prevention of memory health should be prioritized. This is a cost effective public health approach that has a long term effect on the general health of the population as a whole.

Educating of the population especially women about Alzheimer disease and memory loss will have a great impact on the health of the family, society and nation. Finally, Knowledge that risk lifestyle behaviours such as excess alcohol, sedentary lifestyle, smoking, unhealthy nutrition, lack of social contacts, not going to spend some times learning new skills, are the main cause of memory problems or the causes of Alzheimer's disease , however there are other hereditary factors too including some organic factors such as anti-steroid medications. Therefore lifestyle modification education must thus be one of the main focuses of health education in public health facilities and institutions to provide general public awareness on memory diseases.

From this research it is important and helpful for the exercise professional to openly discuss matters about client's barriers to exercise, and then proactively create some strategies to overcome them. According to (Seguin et al. 2010 & Trost et al. 2002) Personal trainers should ask each client to identify barrier(s) to exercise and then jointly discuss possible resolutions to overcome these barriers. Therefore strategies for overcoming barriers to exercise include some of this below:

Barrier	**Strategy**
Lack of time	Help client plan, organize and prioritize exercise time factor flexibility.
Lack of motivation	Ask clients to try a new and different exercise options. Find ways to make the workout more enjoyable, such as playing the client's favorite music when training.
Poor body image	Have client focus on his/her personal accomplishments and not compare her/him to others. Focus client education on the many health and lifestyle benefits of exercise.
Need for support	Arrange to have client exercise with a partner or in a small group of colleagues.
Guilt	Discuss ways the client can seek the support of family and friends so client does not feel guilty about the time they are spending for exercise. For instance, as the client gets healthier he/she will have more energy and vitality to spend with family and friends.

(Adapted from Huberty et al., 2008)

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12.0 ATTACHMENT **1/4**

RESEARCH QUESTIONNAIRS

Filling in your age in the appropriate space provided for below, than 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. National school only
2. Primary school or secondary
3. Vocational school
4. College level education
5. Institute graduate
6. Polytechnic education
7. University graduate
8. Non

1.3 EMPLOYMENT

1. Employed
2. Employed (Lower worker)
3. Employed (Upper worker)
4. Businesswoman
5. Student
6. Retired or semi-retired
7. Unemployed

Others,what?_____

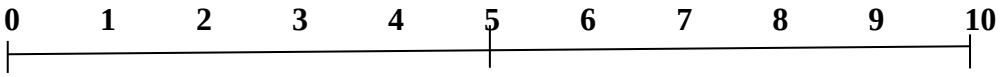
1.4 The level of my current physical exercise is described below. Please circle your choice:
1. I have physical exercise to keep my current physical condition
2. I have physical exercise in order to make better my current physical condition
3. I don't have physical exercise

1.5 I have set myself physical activity goals in this project: **Yes**---------- **No** ----------

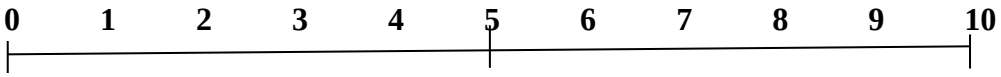
Read carefully each statement concerning your motivation for physical exercise, than make circle round the answer from these given figures indicated by the line segment scale (0--1--2--3--4--5--6--7--8--9--10) that matches with you.

2. PHYSICAL HEALTH

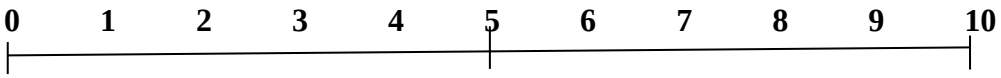
1) I exercise because I want to be physically more capable in my daily life activities



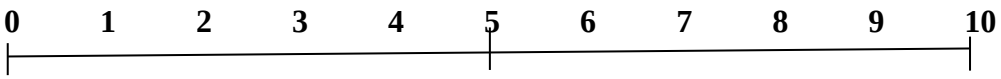
2) I take part in exercises to maintain physically health life styles



3) I exercise because I want to avoid getting overweight

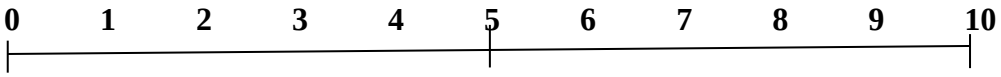


4) I exercise because I want to maintain my physical fitness.



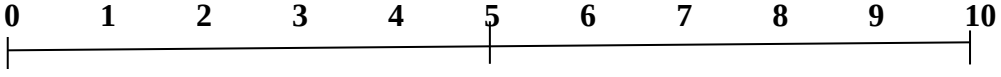
3. PREVENTIVE HEALTH

1) I exercise because I want to improve my memory health

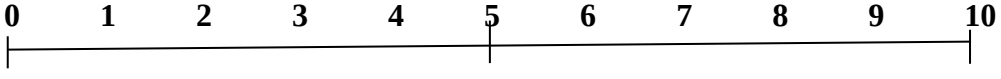


2) I exercise because I want to avoid risk factors of memory loss problems

3) I exercise because I want to reduce my blood pressure

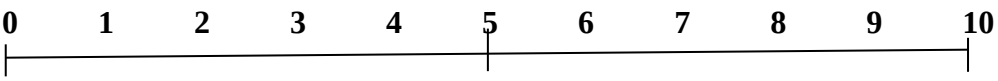


4) I exercise in order to reduce my blood cholesterol level

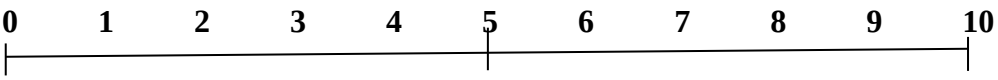


SOCIAL AND PSYCHOLOGICAL WELBEING

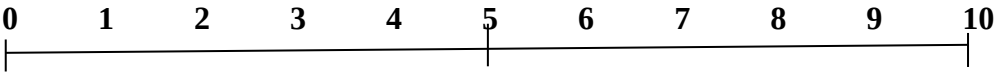
1) I exercise in order to improve my body image better than before.



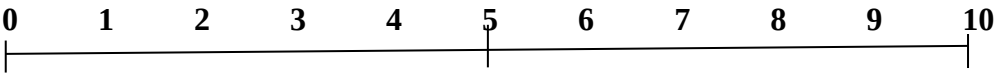
2) I like exercise because it's fun to me.



3) I like exercise because I get pleasure

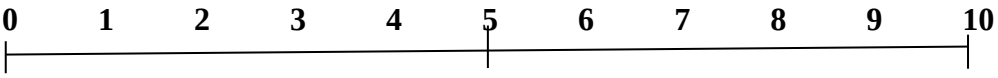


4) I exercise because I enjoy spending time with other friends.

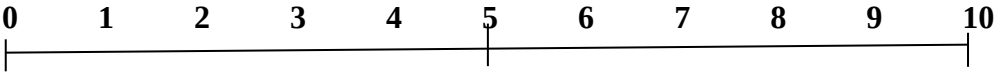


5. MOTIVATIONAL LEVEL

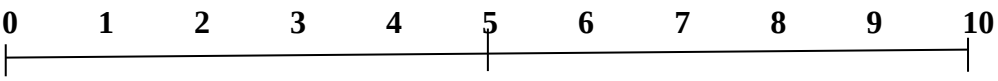
1) I take part in exercise because my friends/family/spouse says I should.



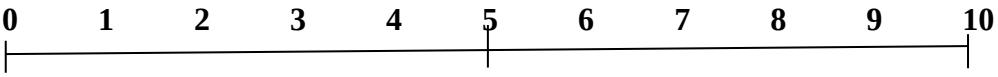
2) I take part in exercise because my public health nurse or the doctor says I should.



3) I start to exercise even if it is heavy to take off.

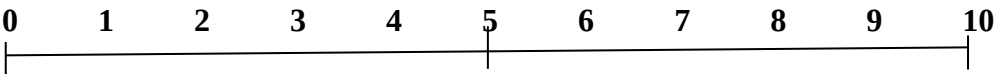


4) I believe that I am capable to perform physical activity or exercise as I have planned

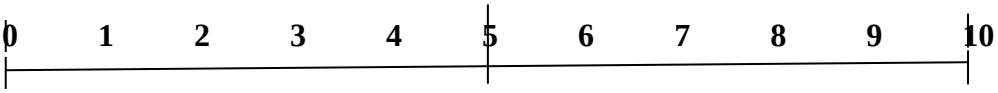


6. LIFE ENHANCEMENT

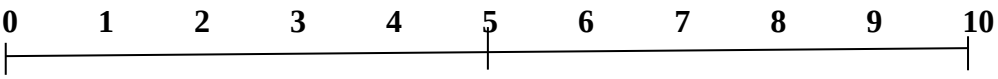
1) I exercise in order to improve my mental alertness.



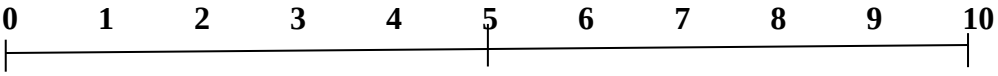
2) I exercises because it improves the quality of my sleep



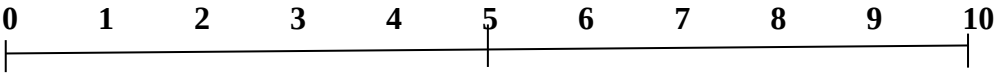
3) I take part in Exercise because it makes me relaxed.



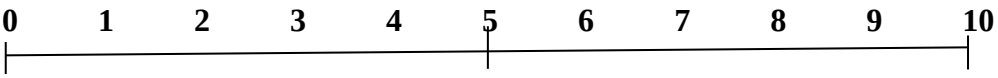
4) Exercise reliefs me from the fatigue after the daily activities,



5) I do exercise because it relieves me from the stress,



6) I think it is important to make effort to exercise regularly to have more energy.



THANK YOU FOR ANSWERING THE QUESTIONNAIRES