



**PHYSICAL ACTIVITY ASSESSMENT
AND DETERMINANTS OF ACTIVE LIVING:
THE DEVELOPMENT OF A MODEL FOR
PROMOTING PHYSICAL ACTIVITY
AMONG OLDER THAIS**

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Abstract

Introduction

While physical activity has been recognised worldwide as an important component for promoting health and well being, few physical activity studies and programs have explicitly involved elderly people in Thailand. This thesis aimed to explore physical activity levels and determinants of active living in addition to development of a model designed to maximise physical activity levels for older Thais living in Bangkok.

Methods

The study was conducted in 3 phases. Phase 1 aimed to explore the notion of active living and to modify an instrument for assessing physical activity levels. This phase used a cross-cultural adaptation technique to modify an existing instrument across cultures. This technique comprised focus group discussions and individual face to face interviews conducted with the Thai elderly.

Phase 2 of the study involved a cross-sectional telephone survey using the modified instrument to investigate physical activity levels, and determinants of active living, in a randomly selected sample of people aged 60 years and over.

Phase 3 involved results from phase 1 and 2 being used to develop a prototype model for promoting physical activity. The model aimed to reflect the criteria of being: 1) evidenced based; 2) theoretically sound and 3) acceptable to stakeholders. A

community consultation was used to gain feedback and make recommendations for model utilisation.

Results

Phase 1 comprised 4 focus groups and 23 individual face to face interviews. Focus group discussions revealed that older Thais held favourable attitudes toward active living. Perceived barriers to being active included health problems, lack of support from family, friends and health professionals, lack of information and an unsupportive environment.

The cross-cultural adaptation process resulted in a modified instrument deemed to be equivalent to the original Adelaide Activities Profile with demonstrable face and content validity. The cross-sectional telephone survey (n=143) obtained a 71% response rate. A factor analysis using data from this survey revealed three types of physical activity: domestic chores, social and fitness activity. It was found that while physical activity levels among older Thais were low in all types, they held favourable attitudes to active living. The most preferred physical and leisure activities were walking, gardening and caring for pets.

Results of focus group discussions, telephone interviews and community consultation yielded the physical activity counselling model (PAC) with concrete recommendations for the utilisation and evaluation of such a model.

Conclusion

A model for promoting physical activity among older Thais has been developed. It is intended that the PAC model will be used as an initial program for promoting healthy ageing in Thailand and as a framework for program evaluation. Policy makers and health providers will therefore have a means of promoting physical activity. Further studies need to explore the implementation and evaluation process for this initiative.

Declaration

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my thesis being available for loan and photocopying.

Kaysorn Sumpowthong

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Chapter 1- Introduction

1.1 Background

The number of people reaching old age is increasing globally especially in the developing world such as Africa, Latin America and Asia (Raleigh, 1999). It is accepted that the ageing of the population is inevitable but it does not necessarily cause diseases (McMurdo, 2000). However, rising age is related to rising disability, loss of independence and chronic diseases (Khaw, 1997). This brings about a challenge for society as to how to maintain health, independence and mobility in an ageing population.

The World Health Organisation (WHO) indicated that an important strategy for improving health and quality of life of older people is promoting healthy ageing. A particular focus of this strategy is physical activity (WHO, 2001b). There is evidence that elderly people demonstrated physical and psychosocial benefits from being active such as preventing coronary heart disease (Berlin and Colditz, 1990), preventing osteoporosis and falls among elderly people (Campbell, Robertson, Gardner, Norton, Tilyard and Buchner, 1997; Kannus, 1999) and improving reaction time, strength and memory span (Williams and Lord, 1997). Indeed, promoting physical activity is regarded as “a highly cost-effective public health intervention or a best buy in public health” (WHO, 2001b).

While there is strong evidence from a systematic review and many randomised controlled trials that physical activity provides substantial health benefits (Berlin et al., 1990; Dilorenzo, Bargman, Stucky-Ropp, Brassington, Frensch and LaFontaine, 1999; Williams et al., 1997; Mensink, Ziese and Kok, 1999; Pescatello, Murphy and Costanzo, 2000; McMurdo, Mole and C.R., 1997), the prevalence of inactivity remains high (Blair, Booth, Gyarfás et al., 1996), especially among the elderly (Jette, Lachman, Giorgetti et al., 1999). In North America, only 10% of people exercise at a level that is sufficient to obtain health benefits (Courneya, Estabrooks and Nigg, 1997) and also in Scotland, only one third of the adult population takes enough physical activity (Loughlan and Mutrie, 1997). Similar patterns are applicable in Australia and England (Bauman, Owen and Rushworth, 1990; Weller, White, Davies, Roberts and Fentem, 1997). The WHO (2001a) also pointed out that the overall trend towards physical activity is worse in very densely populated inner cities of large and rapidly growing metropolises. However, there has been little research in eastern countries.

There have been many attempts to improve physical activity in populations. In developed countries, such as the USA, England and Australia, many physical activity studies of the elderly have been carried out (Clark, 1995; Chinn, White, Harland, Drinkwater and Raybould, 1999; Kochevar, Smith and Bernard, 2001; Stewart, Verboncoeur, McLellan et al., 2001) resulting in useful evidence and knowledge concerning physical activity from those countries. Among these studies, approaches to addressing physical activity levels have been widely discussed (King, Jeffery,

Fridinger et al., 1995; Sallis, Buaman and Pratt, 1998; Marcus, Owen, Forsyth, Cavill and Fridinger, 1998; Lumsdon and Mitchell, 1999; Simons-Morton, Calfas, Oldenburg and Burton, 1998). These approaches include individual, media-oriented, and environmental and policy approaches.

The individual approach has mainly focused on general practice based interventions in addressing inactive lifestyle. This approach has been implemented in many western countries such as Australia, New Zealand, England and America (Smith, Bauman, Bull, Booth and Harris, 2000; Kerse, Flicker, Jolley, Arrol and Young, 1999; Swinburn, Walter, Arroll, Tilyard and Russell, 1998; Steptoe, Doherty, Rink, Kerry, Kendrick and Hilton, 1999b; Harland, White, Drinkwater, Chinn, Farr and Howel, 1999; Calfas, Long, Sallis, Wooten, Pratt and Patrick, 1996; Pinto, Lynn, Marcus, DePue and Goldstein, 2001; Kreuter, Chheda and Bull, 2000; Lewis and Lynch, 1993; Burton, Paglia, German et al., 1995). Promising results in terms of increasing physical activity levels have been found from this approach in some (Kreuter et al., 2000; Swinburn et al., 1998; Kerse et al., 1999; Steptoe et al., 1999b; Calfas et al., 1996), but not all, studies, resulting in the need for further studies in particular for long-term trials.

Mass media-oriented and environmental and policy approaches have been used to increase effectiveness and efficiency of individual approaches (Rutten, Abel, Kannas et al., 2001). Large projects promoting physical activity in western countries (NSW Health, 2000a; Hillsdon, Cavill, Nanchahal, Diamond and White, 2001; CDC, 2001)

have combined these approaches. The impact of such projects on increasing physical activity seems to be successful in terms of raising awareness, increasing knowledge and participation in physical activity (Hillsdon et al., 2001). However, the long-term impacts from such projects are yet to be determined.

In comparison to western countries, in the developing world in which about 60% of all older people live (Butler, 1997), there is a dearth of physical activity studies. These are essential to inform the necessary policies and strategies for promoting healthy ageing in such countries. One such developing country that has experienced an increase in the older population is Thailand, the setting for this thesis. In this country, the elderly are defined as people who are aged 60 years and over. The situation concerning older people in Thailand is similar to that in western countries as the number of the elderly, their life expectancy and healthy life expectancy have increased for both men and women during the last 10 years (Jitapunkul and Chayovan, 2000). It was estimated that the total population in Thailand was 60.6 million in 2000, 9.4% of whom were elderly (National Statistical Office, 2001).

Despite promoting healthy ageing as one of the important missions for the Thai National Health policy (Bureau of Health Promotion, 1999), it has been paid less attention than curative care. It was estimated that during the 8th Health Development Plan (1997-2001), 55.5% of the national health budget was paid for curative care and only 17% was for health promotion (Ministry of Public Health, 2002). This evidence reflects that health promotion programs are not adequately provided to elderly people.

This limitation may be in part affected by the fact that the elderly are viewed as non-urgent issues and the second priority in Thailand (Wongsith and Siriboon, 1999).

While interventions for and approaches to promoting physical activity in western countries are progressively developed, Thailand is still far behind best practice. One study from Thailand (Chayovan and Knodel, 1997) revealed that 36.7% of Thai elderly in Bangkok, 35.3% in other urban areas and 27.7% in rural areas do not exercise. However, lifestyle activity studies among the Thai elderly have not been published so far. From this small evidence and the limitations of health promotion programs in Thailand, the problem seems to be worse than in western countries because of the large number of the elderly in the country and the limitation of funding in the national health budget (Bureau of Health Policy and Plan, 1997). Therefore, an attempt to remedy the situation is required.

Using existing knowledge from western countries across cultures may assist countries that lack their own research base. Western models are less likely to be successful in Thailand, however, due to policy and cultural differences. Therefore, an investigation is needed to assess the situation of physical activity among Thai elderly. Determinants of active living as well as instruments for measuring physical activity also need to be discovered so that an appropriate model for promoting physical activity can be developed to suit Thai culture.

1.2 Research questions

The main questions of this study are about physical activity levels, its determinants and an intervention for promoting physical activity among the Thai elderly. These can be divided into 5 questions as follows:

1. What are physical activity levels of the Thai elderly?
2. What are the determinants of active living of the Thai elderly?
3. What is an appropriate instrument for measuring physical activity among the elderly?
4. What is an appropriate model for promoting physical activity of the elderly in Thailand?
5. How can this model be utilised in the context of Thailand?

1.3 Research overview

The study is primarily a descriptive investigation of physical activity levels and determinants of active living in order to develop an appropriate model for promoting physical activity through a sequential triangulation of methods. Specifically, this study was conducted in 3 sequential phases and addressed the research questions in the following order. The first phase was a qualitative study which aimed to explore the notion of active living and to modify an existing instrument for assessing physical activity. The second phase was a quantitative study focusing on exploring physical

activity levels and determinants of active living by using a cross-sectional survey: telephone interviews. An existing instrument modifying across cultures was used to assess physical activity levels. The third phase was an interpretation of the data and consultation. This phase used evidence gained from phases 1 and 2, and theoretical synthesis to develop a prototype model for maximizing physical activity and applied a formal verbal presentation and discussions to obtain preliminary feed back on the model.

1.4 Rationale and significance

It is anticipated that this study will provide benefits for the elderly themselves and also for the broader Thai society. The development of a notion of active living applicable to older Thais will stimulate health professionals and policy makers to develop best practice models. The modified instrument will be of use as a tool for evaluating interventions to promote physical activity for older Thais. Additionally, it is hoped that the model derived from evidence and theoretical synthesis of this study will be implemented in health promotion programs. In addition, the overall results of the study may produce significant evidence for the development of policies for aging populations in Thailand.

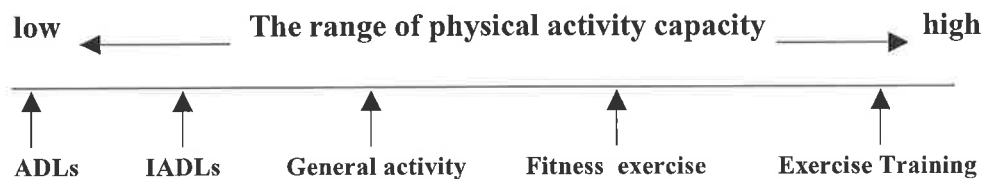
It is also hoped that the study will promote the possibility of disability-free life expectancy or active life expectancy and also independence which is an important factor for human well being. Moreover, it may contribute to a greater understanding of

the determinants of healthy aging that can be employed in the implementation of other health promotion programs. Finally, results from this research may provide benefits for the broader global problem of an ageing society, in particular in Asian countries.

1.5 Terminology of physical activity

Studies examining physical activity have used the term physical activity in different ways such as exercise, leisure time physical activity, lifestyle activity and habitual activity. Because of these varied terms used, it is important to define physical activity within the context of this study. The scope of physical activity of this study draws heavily from a concept of physical behaviour proposed by Fontane (1996). This concept reflects that physical behaviour is a continuum of activity comprising five categories. At one end of this continuum are activities of daily living (ADLs) such as bathing, eating and toileting. These activities required minimal function of muscle and skeletal systems. The next category is instrumental activities of daily living (IADLs) such as washing, cooking and shopping. The third category is general activity and exercise such as gardening and walking. Exercise in this category is not planned but it is part of activity. The fourth category is fitness exercise. The activities in this category are performed regularly and are repetitious. The fifth category within this continuum is exercise training. The characteristics of exercise training are to develop maximum function of muscle and skeletal systems and to compete against standards of time (Fontane, 1996). This continuum reflects the range of physical activity capacity from minimum to maximum as shown below:

Figure 1.1 The range of physical activity capacity



From the continuum above, physical activity defined for this study focused on the activity range from IADLs to fitness exercise. These three categories were selected because the sample of this study was healthy older persons who had no disabilities. Thus ADLs physical activity is not considered. In addition, exercise training, a vigorous activity placed on the other end of the continuum, is less likely to be suitable for the elderly.

The definition of physical activity in this study is also a major component of active living. McClellan (1998) stated that "Active living can be defined in broad terms as healthy lifestyle choices that involve physical activities to enhance many aspects of our lives". From this statement, living actively means that persons are physically active by engaging in activities, which are suitable to their personal interests and tastes (Bercovitz, 1998). The description of physical activity in the context of active living is different from that in the exercise model. While the exercise model focuses on planned, structured and repetitive activities (Pescatello, 2001), the active living model

focuses on moderate intensity activities which are activities in daily life such as household chores, gardening and walking (Bercovitz, 1998).

Using the term 'active living' in Thai language may have some limitations because this term has no exact term in Thai. From the description of active living defined by Bercovitz (1998), it could be stated that 'active living' is similar to 'quality living' in Thai language, which is meaningful and generally used in Thai culture. Therefore the Thai document used in this study applies the term 'quality living' to refer to 'active living'.

In conclusion, physical activity in this research is defined as any activities that the elderly perform in their daily lives ranged from IADLs to physical fitness. This definition of physical activity is similar to the definition of lifestyle physical activity which was defined by Dunn and colleagues (1998, p.399) as "the daily accumulation of at least 30 minutes of self-selected activities, which includes all leisure, occupational, or household activities that are at least moderate to vigorous in their intensity and could be planned or unplanned activities that are part of everyday life". Thus it could be confirmed that physical activity of this study focus on lifestyle physical activity pertaining to the concept of active living.

1.6 Conclusion

This chapter outlines issues regarding physical activity among the elderly in western countries and Thailand. It also provides an overview of attempts to promote physical activity in the elderly. Finally, this chapter proposes the aims, rationale, significance and terminology of physical activity of the study. The next chapter describes in more detail important issues raised in this chapter through a critical review of the literature on studies showing health benefits of physical activity, interventions for increasing physical activity, determinants of active living and policies for promoting physical activity at global and national levels. Chapter 3 describes methods and setting for the research. Then Chapter 4 describes the notion of active living among the Thai elderly using focus group discussions. Chapter 5 explains how to modify an instrument for measuring physical activity across cultures. Physical activity levels and its determinants are investigated in Chapter 6. The last chapter, Chapter 7, contains recommendations for promoting physical activity derived from the community consultation. This chapter also presents the developed model and guidelines for utilising such a model.

Chapter 2 - Literature review

2.1 Introduction

This chapter reviews evidence linking physical activity for older people with its health benefits, determinants, interventions and policies in order to provide an overview of existing knowledge pertinent to physical activity available in either the English or the Thai language, to identify gaps in the research literature and to identify the available evidence where specific physical activity programs for older people have been shown to be effective in increasing physical activity levels. The majority of literature in these two languages was found to be based in the USA, Great Britain, Australia and New Zealand with a small amount in the Asian countries of Singapore, Taiwan and Thailand. In addition to the research literature, a number of government reports from Thailand are also reviewed in this chapter.

2.2 Criteria for considering studies for the review

Relevant English-language journal articles were identified by searching the electronic databases: Medline and CINALH from 1990 through May 2002. In addition, manual searches were carried out for both English and Thai articles within libraries in South Australia and in Thailand. The following key words “older adults, aged, ageing, elderly, gerontology” combined with “physical activity, exercise, lifestyle, fitness, leisure time and active living” were used in all searches. Reports were also collected

from the relevant organizations in Thailand such as the Bangkok Metropolitan Administration, the National Statistical Office, and the Ministry of Public Health.

The reviewed studies were prioritized regarding evidence-based classification recognized by the UK Cochrane Collaboration (Muir Gray, 1997) as follows: Level 1: systematic reviews of relevant randomised controlled trials and meta-analyses, Level 2: randomised controlled trials, Level 3: well-designed controlled trials without randomisation or well-designed cohort studies, and Level 4: observational studies. Muir Gray (1997) also pointed out that Level 1 evidence is accepted to be the highest level of evidence.

2.3 Studies showing health benefits of physical activity

Relating specifically to whether physical activity interventions can influence the health of older persons, there have been numerous physical activity studies showing health benefits for the elderly. Physical activity studies focussing on the prevention of coronary heart disease are analysed in a widely cited meta-analysis by Berlin & Colditz (1990). The results from this meta-analysis of Level 1 reviews found that lack of physical activity was associated with coronary heart disease in which sedentary people had a relative risk of 1.9 (95% CI= 1.6-2.2) of death from coronary heart disease compared with physically active people. This evidence therefore increased the focus on physical activity as an important factor in health.

Apart from this meta-analysis, there is evidence from many (Level 2 evidence) randomised controlled trials (Agurs-Collins, Kumanyika, Ten Have and Adams-Campbell, 1997; Pereira, Kriska, Day, Cauley, LaPorte and Kuller, 1998; Young, Appel, Jee and Miller, 1999; Siebens, Aronow, Edwards and Ghasemi, 2000; Campbell et al., 1997), that physical activity can provide physical and psychological benefits. For older adults in particular, a number of individualised home-based physical activity intervention programs focusing on structured-exercise patterns are reported. Two trials (Campbell et al., 1997; Jette et al., 1999) of home exercise programs found positive results.

Campbell's randomized controlled trial (Campbell et al., 1997) assessed the effects of a home exercise program in reducing falls and injuries. This trial was carried out at 17 general practices in New Zealand. The elderly women (n=233) aged 80 years and over, living in the community were recruited by the research nurse at home. Having completed a baseline questionnaire and assessment to determine health and physical activity, they were randomized into one of two groups. The exercise group was provided with an exercise program at home by the physiotherapist. Exercises included moderate intensity strengthening exercises, which took about 30 minutes at least three times a week. The control group was provided with the usual care and an equal number of social visits. After one year, it was found that the exercise group had a lower rate of falls than the control group. The authors hypothesized that the exercise program would result in improvement of physical functioning and was effective in reducing falls and injuries among the elderly.

Two years later, a study in the USA (Jette et al., 1999) on older persons with disabilities produced similar results. This randomised controlled trial aimed at investigating health benefits from a home-based exercise program conducted with 215 older persons. A resistance exercise training program was provided to the intervention group while the control group was assigned to a waiting list. It was revealed that after participating in exercise sessions over 6 months, the exercise group had achieved significant improvements in muscle strength and reduction in physical and overall disability.

The significant finding from these two trials was that a home-based exercise program provided by health professionals showed promising health benefits in improving physical functioning in both healthy and disabled older persons. The major drawbacks of the individual or face-to-face nature of the home-based intervention for promoting physical activity were identified as the difficulty of producing an impact at population level, and the cost effectiveness of this approach (Dunn et al., 1998).

A recent study attempting to evaluate the cost effectiveness of a home-exercise program in a randomized controlled trial has been carried out in 17 general practices in New Zealand (Robertson, Devlin, Gardner and Campbell, 2001). The participants, 240 women and men aged 75 years and over, were randomized into either the exercise or the control group. The exercise program was run by a trained district nurse. At the end of this trial, 90% of the participants completed the trial. The main results were a 46%

reduction in the number of falls during the trial for the exercise group in comparison with the control group. The economic measures found that the program was cost effective (in terms of medical cost after falls) for older adults aged 80 years and older but not for the younger (75-79 years). From the evidence shown in this trial, a home-based exercise program seems to be appropriate for the very old.

To increase cost effectiveness and the impact on a greater range of the population than a home-based exercise program, group-based intervention programs were designed (Agurs-Collins et al., 1997; Young et al., 1999). Agurs-Collins and colleagues (1997) conducted a randomised controlled trial using a group and individual exercise program to investigate changes in diabetes of 64 overweight African-Americans aged 55-79 years. The participants of this trial were randomly allocated into one of three groups: 1) intervention group: 12 weekly group sessions, 1 individual session and 6 biweekly group sessions; 2) usual care: 1 individual sessions, and 6 biweekly group sessions; 3) usual care: 1 class and 2 informational mailings. The results showed that the participants in the intervention group with the combination of group and individual activities were more likely to improve in glycemic levels and blood pressure than those in the two control groups.

The benefits of interventions are confirmed by another randomised control trial by Young et al. (Young et al., 1999). Sixty-two sedentary older adults in Baltimore were randomised to participate in either a 12-week aerobic exercise program or a light Tai Chi program. The results from this trial demonstrated that both programs had a similar

effect in reducing blood pressure among the participants, suggesting that the potential benefits are not confined to one type of exercise.

Parallel with results regarding physical health benefits, psychological benefits were also explored by Williams & Lord (1997). A long-term randomised controlled trial aimed at determining effects of a 12-month group exercise program on physiological and cognitive functioning and mood in 187 older community dwelling women in Australia (Williams and Lord, 1997). The participants were randomly allocated into one of two groups after completing baseline physiological and psychological assessments. The exercise group was provided with an existing community-based exercise program while the control group was not provided with any program. It was found that the exercise group participants significantly improved in reaction time, strength, memory span and measures of well-being when compared with those in the control group. This study, therefore, supports the notion that physical activity provides not only physiological but also psychological benefits for older persons.

From the reviewed studies, it may be concluded that both individual and group exercise programs could provide significant health benefits for older adults. However the structures and timetables of these programs are not flexible and so the participants are not empowered to modify them to suit their personal needs. This leads to a consideration of an alternative approach to increasing physical activity.

This approach is focused on increasing levels of activity in daily life. Programs aimed at educating participants in lifestyle physical activity have been identified as more practical than structured exercise programs (Dunn et al., 1998). The Centres for Disease Control and Prevention and the American College of Sports Medicine also support lifestyle physical activity by proposing new recommendations for health professionals in America for promoting lifestyle physical activity (Pate, Pratt, Blair et al., 1995). This approach is supported by scientific evidence (Pescatello, 2001) which shows that accumulated moderate intensity activities could be beneficial for sedentary adults, persons with disabilities and older adults, and that unstructured activities of daily life could be more flexible to meet individual preferences and be more convenient.

A randomised controlled trial involving a 10-year follow-up (Pereira et al., 1998) was carried out to determine whether lifestyle physical activity can influence health. This trial was conducted with 196 postmenopausal women by using telephone interviews to evaluate the participation in walking and health status. The results showed that the older women in walking groups had a lower rate of heart disease, hospitalizations, surgical interventions and falls than those in the control group. Therefore the results appear to support the health benefits of lifestyle physical activity.

A further randomized controlled trial (Dunn, Marcus, Kampert, Garcia, Kohl and Blair, 1999) focused on comparing the effects of a lifestyle physical activity program and a traditional structured exercise program on improving health. Sedentary men

(n=116) and women (n=119) aged 35 to 60 years were randomized into one of two groups, either a lifestyle physical activity program or a structured exercise program. The lifestyle intervention comprised 6 months of intensive work and 18 months of a maintenance program. The participants in the intervention group were advised to accumulate at least 30 minutes of preferred activities on most days of the week. They were also counselled by analysing their levels of motivational readiness for change. For the structured exercise group, the participants received a prescribed exercise program.

On the completion of the 24-month intervention, it was found that the participants of both groups had similarly significant and comparable improvements in physical activity and cardiovascular fitness. From this trial, Sevick and colleagues (2000) evaluated the cost-effectiveness of these two interventions. It was found that while both programs yielded similar health benefits, the lifestyle intervention program was more cost-effective than the structured exercise program.

Similarly, results from a lifestyle physical activity study conducted by Andersen and colleagues (1999) showed that lifestyle physical activity is a suitable alternative to structured-exercise programs. This randomised controlled trial aimed at examining whether lifestyle activity and a structured aerobic exercise program produced changes in weight, body composition, and cardiovascular risk profiles. Forty women aged 21-60 years were randomly assigned to participate in either the diet plus lifestyle activity group or the diet plus structured aerobic exercise group. It was found that both groups

had similar weight loss. However, at the 1-year follow-up, the participants in the lifestyle plus diet group had regained less weight than those in the exercise plus diet group. These results therefore support more lifestyle physical activity as being of great value.

Although a prospective study (Level 3 evidence) provides less strong evidence than a randomised controlled trial, it can produce significant information for expanding research-based knowledge. Two large prospective cohort studies exploring the relationship of physical activity and mortality have been carried in Finland (Kujala, Kaprio, Sarna and Koskenvuo, 1998) and the USA (Glass, Mendes de Leon, Marottoli and Berkman, 1999). In Finland, a cohort study was conducted with 7925 healthy men and 7977 healthy women of Finnish twins aged 25 to 64 years. The physical activity levels were identified at baseline in 1975, as '*conditioning exerciser*', '*occasional exerciser*' and '*sedentary person*'. From 1977 to 1994, all cause mortality and discordant death data were collected. It was found from data analysis that increased physical activity was associated with a reduced risk of death.

Similar results were found from a prospective cohort study in the USA which was conducted with 2761 participants (Glass et al., 1999). The three types of physical activity: '*social*', '*productive*' and '*fitness*' activities were assessed by structured interviews at baseline in 1982. Mortality from all causes during 13 years of follow-up was assessed by using several methods, such as daily review of newspaper death notices, hospital admission records and annual re-contact with all participants. It was

revealed that after some variables such as age, sex, body mass index and smoking were controlled, all three types of activities were independently associated with survival. The author concluded that two of the three types of activity, namely productive and social activity, lowered risk of all cause mortality as much as fitness activities.

Lifestyle physical activity was also confirmed by a number of cross-sectional, observational and prospective studies (Level 4 evidence). A cross-sectional study was conducted by Mensink and colleagues (1999) to determine benefits of leisure-time physical activity on the cardiovascular risk profile of older adults. A large sample size of 4,942 men and 5,885 women was assessed for frequency and duration of leisure-time physical activity as well as cardiovascular risk factors. It was found that leisure-time physical activity was associated with lower risks of heart disease by reducing blood pressure, resting heart rate and body mass index. The authors concluded that activity levels of a total of at least 3.5 hours per week, accumulated over 5 times or more, can lower multiple risk factors for both men and women.

Pescatello, Murphy and Costanzo (2000) also conducted a cross-sectional observational study with 155 older adults living at home, to explore whether low-intensity, habitual physical activity influenced blood lipids and lipoproteins and other cardiovascular risk factors. Positive results were obtained as a greater amount of daily accumulated movements was associated with favourable blood-lipid-lipoprotein profiles. It should be noted, however, that this study used a convenience sample. The results, therefore, must be accepted with caution.

To conclude, most studies reviewed here confirm substantial health benefits from rigorous, moderate and light intensity physical activities. Lifestyle physical activity, in particular, seems to be more appropriate for elderly people than traditional structured exercise programs, as the elderly can modify their lifestyle physical activity. It is therefore beyond doubt that lifestyle physical activity should be promoted among the elderly. This leaves an important question as to how to do so.

2.4 Existing interventions for increasing physical activity and its limitations

Studies aimed at exploring health benefits of physical activity for the elderly need to be carried out in parallel with interventions attempting to increase physical activity (King, Rejeski and Buchner, 1998b). This section reviews a number of studies aimed at promoting physical activity. Approaches used in these studies include individual, media-based, and environmental and policy ones.

2.4.1 Individual approach

Physical activity interventions using individual approaches are usually aim to impact on physical activity levels by giving physical activity advice or physical activity counselling in clinical settings. It has been suggested that general practice is a unique setting for promoting physical activity in developed countries (Hammond, Brodie and

Bundred, 1997; Bull, Schipper, Jamrozik and Blanksby, 1995). There is also evidence that the oldest age group want advice from health professionals to improve their physical activity (Booth, Bauman, Owen and Gore, 1997). Swinburn and colleagues (1998) also pointed out that physical activity advice incorporated into the prescription had 'symbolic meaning' for patients (Swinburn et al., 1998, p. 290). Therefore, for the elderly, the role of physicians in providing physical activity advice is seen to be important.

The nature of physical activity promotion in primary care settings was explored in an English study (Fox, Biddle, Edmunds, Bowler and Killoran, 1997). It reports that among 157 existing and further 35 planned physical activity promotion schemes in primary care settings in England, there were two basic models of these schemes: 1) practice-management interventions, and 2) leisure-centre managed projects. While there have been many studies aimed at promoting physical activity in clinical settings (Burton et al., 1995; Harland et al., 1999; Norris, Grothaus, Buchner and Pratt, 2000; Smith et al., 2000; Pinto et al., 2001), the effectiveness of such interventions is still unclear. Three systematic reviews (Ashenden, Silagy and Weller, 1997; Eaton and Menard, 1998; Petrella and Lattanzio, 2002), focusing on the efficacy of physical activity interventions in primary care offices and clinical settings, found similar results; that these interventions had only short-term effects. The first of these three reviews (Ashenden et al., 1997) found that 6 of 37 lifestyle trials were exercise advice trials. Results from this review indicate that many general practice based lifestyle interventions, including smoking, alcohol consumption, dietary behaviour and

exercise, affected these health behaviours but they affected only small changes and there was no evidence to show substantial changes in a long-term period. In particular for the 6 exercise advice trials in this review, some short-term benefits are reported such as reducing weight and blood pressure and increasing duration and frequency of exercises. The success of physical activity advice provided by practitioners appears to be limited to short-term benefits. It should be noted however that this study reviewed only a small number of trials.

Eaton & Menard (1998) conducted a systematic review of physical activity promotion in primary care office settings. Among 203 practices in eight trials (4 short-term and 4 long-term) the researchers reported that all short-term trials but only one of four long-term trials (longer than one year) had positive results. These results were supported by findings from a randomized controlled trial a year later (Harland et al., 1999). This study found that increases in physical activity were found only at the short-term evaluation, but these results were not maintained for a longer period (Harland et al., 1999).

In attempting to confirm and find out important issues concerning the less successful effects of physical activity advice in clinical settings, a recent systematic review of literature (Petrella et al., 2002) draws attention to the findings of 6 randomized controlled trials and 7 quasi-experimental studies concerning physical activity counselling. Long-term interventions lasted about 2 years and short-term interventions lasted about 6 weeks. In this review, the authors found that most studies showed

positive relationships between counselling and physical activity levels at a short-term follow-up. However, the review pointed out that the studies lacked long-term data and cost effective analyses.

Level 2 evidence, a randomised controlled trial (Swinburn et al., 1998) and a controlled trial (Bull, Jamrozik and Blanksby, 1999) were conducted to assess the effectiveness of the combination of written and verbal physical activity advice provided by physicians. Swinburn and colleagues (1998) assessed the extent to which written advice and verbal advice increased physical activity levels in sedentary patients. This trial was carried out at two New Zealand urban centres over a 13-week period. The participants were recruited through their general practitioners (GPs) who were trained at assessing and prescribing physical activity. Having completed baseline assessments to determine their physical activity levels and receiving verbal advice provided by GPs, the participants were randomised into two groups, one that had written advice and the other that had no written advice. At the end of the trial, 239 participants received both verbal and written advice (group 1) and 252 received verbal advice only (group 2). Results found that participants of group 1 significantly increased participation in recreational physical activity from baseline to follow-up (6 weeks). In addition, a retrospective self-assessment showed that 43% of group 1 and 37% of group 2 reported that they increased their physical activity, demonstrating that written plus verbal advice were more effective than verbal advice alone.

Although this evidence suggests an increase in public health interest in physical activity counselling, results were not consistent with those from a controlled Australian trial (Bull et al., 1999) conducted with 763 sedentary patients who were allocated into either a control group or one of two intervention groups. This intervention consisted of brief advice for one group and either standard or tailored written information on physical activity for another two groups. This controlled trial found that there was no difference in physical activity among the control group and the two intervention groups at the 12-month follow-up.

Another attempt to demonstrate the effectiveness of physical advice provided by physicians has been carried out in America (Kreuter et al., 2000). This randomised clinical trial also used an integrated model (physician advice and printed educational materials) focussing on smoking, eating less fat and increasing physical activity with 915 adult patients. At 12-week follow-up, it was found that the patients who received physician advice and printed materials were more likely to practice what they have been advised than those who did not.

Another short-term follow-up controlled trial (4-6 weeks) has been conducted by Calfas and colleagues (1996) to test efficacy of physical activity counselling in the USA. The Physician-based Assessment and Counselling for Exercise (PACE) was used through 17 physicians' offices with sedentary patients. This study recruited physicians interested in providing physical activity counselling and allocated them into either an intervention or control group to counsel their patient who were sedentary but

intended to be active (contemplator) aged over 18 years. The physicians in both groups comprised 9 family practice, 2 obstetricians, 4 internal medicine and 1 nurse practitioner. The PACE intervention was based on the stages of change model comprising 4 steps; 1) assessment, 2) identifying stages of change and giving written protocol, 3) counselling, and 4) a brief booster phone call.

One strength of this trial was that multiple tools were used to assess physical activity such as the Seven-Day Physical Activity Recall Interview, Paffenbarger walking and two items from the National Health Interview Survey. Findings from all assessments were consistent in that the participants in the intervention group reported on higher physical activity levels than those in the control group.

One year later, Marcus and colleagues (1997) also carried out a sequential comparison group design study to assess effects of the PACE project in adults aged 50 years or older (n=44). Nineteen participants were allocated to an experimental group while 25 participants were in a control group. The intervention which lasted about 4 weeks included 1) physician training, 2) individualised patient counselling with educational/behavioural change materials based on the stages of change model and social cognitive theory, 3) physician office support system and 4) monitoring /follow-up. The control group received usual care. This study found that at 2- and 6-week follow-up, the participants in both groups increased in physical activity levels but the increase was greatest for the patients who received a higher level of specific activity

counselling. The physicians providing counselling were also evaluated. They reported high confidence in their ability to do physical activity counselling.

Although these studies found positive results, they involved short-term follow-ups ranging from 4-12 weeks. This leaves a question over the effectiveness of long-term follow-up trials. Another attempt to evaluate the PACE project with a long-term follow-up trial has been carried out (Norris et al., 2000). This randomised controlled trial was conducted with a large sample (n=812) aged 30 years and older. It was found that, at 6-month follow-up, there was no significant difference in physical activity between the control and intervention group.

Another two long-term follow-up trials of physical activity in clinical settings (Smith et al., 2000; Pinto et al., 2001) found similar less successful results. An Australian controlled trial of written advice and information materials was carried out through 27 general practices in New South Wales (Smith et al., 2000). Participants of the control group (n=386) were recruited first, then participants of the intervention group were recruited later and randomised into either a group receiving physical activity prescription only (n=380) or a group receiving exercise prescription plus a mailed booklet (n=376). Participants of the control group did not receive any program. Assessments were conducted in individual face to face interviews at baseline and in telephone interviews after the 6-10 week and 7-8 month periods.

The results were found to be disappointing. At the 6-10 week follow-up, the effects of increases in physical activity of the participants in the two intervention groups were not significantly different from those in the control group. In addition physical activity had notably declined at 7-8 month follow-up in all subjects. These were similar to results from a randomised controlled trial of physician-based activity counselling (Pinto et al., 2001) that the effects of physical activity counselling were not maintained at 8-month follow-up. Although these findings seem to suggest that physical activity in primary care or clinical settings does not impact on physical activity levels at long-term follow-ups, randomised controlled trials from Australia (Kerse et al., 1999) and England (Steptoe et al., 1999b) found positive results at the one-year follow-up.

An Australian randomised control trial of a general practice education program (Kerse et al., 1999) was conducted with 42 general practitioners (GPs) and 267 of their patients aged 65 years and over. The GPs undertook an educational program comprised 5 steps of practice; 1) clinical practice with feedback, 2) educational detailing, 3) card based prompt system, 4) seminar or home-based learning, and 5) resource directory. It was found positive results at 1-year follow-up that the participants who received the intervention from the trained GPs demonstrated a higher average amount of weekly walking time (44 minutes) than those in the control group.

Similar results were found in an English trial involving one year follow-up (Steptoe et al., 1999b). This trial was carried out with 883 participants both men and women by trained practice nurses. The intervention comprised three counselling sessions for

patients with two risk factors (smoking and low physical activity) and two sessions for those with one risk factor. One to two telephone contacts were also used. Comparing results of physical activity assessments at baseline and at 12-month follow-up found that the favourable differences among the participants of intervention group were maintained.

To summarise the effectiveness of physical activity interventions demonstrated in these studies, a number of significant points can be made. It was found that while most short-term follow-up trials could increase physical activity participation, long-term follow-up trials were less likely to be effective in terms of maintenance of physical activity levels, in particular after 6 months of the trials. Successful long-term follow-up trials were found to have many counselling sessions, have well trained providers (Kerse et al., 1999; Steptoe et al., 1999b) and be conducted with older adults (Kerse et al., 1999).

To increase long-term compliance with physical activity, Nied & Franklin (2002) suggested that the exercise prescription should be straightforward, fun, focused on individual health needs, beliefs and goals. Kligman & Pepin (1992) also pointed out similar opinions that apart from physicians' encouragement for patients to get active, providing physical activity counselling that fitted patients' schedules and lifestyles may help them to adopt and maintain physical activity.

These suggestions are relevant to general principles for PACE counselling in America proposed by Gorin & Arnold (1998) that time efficiency, a team effort, and to get the right message to the right person need to be considered when conducting physical activity counselling. The Heart Foundation of Australia (1997) also identified three steps for GPs to encourage their patients to be active as follows: 1) identifying patients who will benefit from increased physical activity, 2) advise patients about a program of physical activity that is suitable for them, and 3) follow-up patients in later consultations.

Other factors, which influence the effectiveness of physical activity interventions, are related to attitudes, knowledge and personal points of view among health professionals. In the USA, physicians' attitudes and practices were examined by Williford and colleagues (1992) in a survey conducted with 168 physicians (response rate was not provided). They found that almost half of physicians took an exercise history as part of their initial examination and up to 91% encouraged their patients to be active, but most of them did not give exercise prescriptions and were not familiar with the guidelines from the American College of Sports Medicine. Physicians participating in the study also reported that there was a need for physical activity to be incorporated into medical curricula.

In the same country, a study exploring physicians' attitudes and practice (Walsh, 1999) were conducted focussing on the proportion of primary care physicians practicing physical activity counselling and its associated factors. It was found that, with the

response rate of 54%, less than half of participants (43%) counseled more than half of their patients and only 14% prescribed exercise to their patients. Characteristics of physicians, who were more likely to counsel physical activity, were, being family practitioners, having adequate exercise knowledge and feeling successful in changing patients' behaviour. Important perceived barriers among physicians were time and knowledge constraints.

In Australia, Bull et al. (Bull et al., 1995) also explored these issues and found that general practitioners asked about and discussed physical activity only with patients who had symptoms that could benefit from exercise. They reported the barriers for promoting physical activity were: lack of time (47%), insufficient educational materials (29.2%), preference of patients for drug treatment (27.2%), lack of continuing education (22.8%), insufficient education during medical school (21.4%), unwillingness of patients to accept opportunistic health promotion (21.1%), lack of financial incentive (15.0%) and inappropriate educational materials (14.9%). It could be stated that the barriers for promoting physical activity by general practitioners are considerably complicated and involve not only general practitioners themselves but also health systems and policies.

These results are confirmed in a literature review conducted by Sims and colleagues (2000) regarding general practitioners' perspectives on promoting healthy ageing. The review found that there were many barriers for GPs to undertake health promotion for the elderly such as time constraints, lack of skills, government regulation and funding

structures. This review also found that Australian GPs have both positive and negative perspectives on health promotion for older people (Sims et al., 2000).

In New Zealand, Swinburn and colleagues (1997) used a qualitative approach to explore attitudes and perceptions of GPs towards the practice of written advice concerning physical activity. Structured focus groups were conducted with 25 GPs participating in a randomised controlled trial of written and verbal advice. Qualitative data analysis revealed that GPs had favorable attitudes towards written advice but they perceived time constraints as a major barrier to conducted physical activity advice. Three important elements for successful physical activity advice emerged from the discussions including appropriate training, resource materials and patient follow-up mechanisms.

In England, a study focusing on health professionals' attitudes and knowledge concerning physical activity was carried out (Gould, Thorogood, Liffie and Mooris, 1995). This study interviewed general practitioners and practice nurses about their attitude to and knowledge about the health benefits of physical activity. It was found that not all GPs and nurses believed that they were effective in promoting physical activity. GPs and the nurses also had some different perspectives about physical activity, but they agreed that they needed relevant training on promotion of physical activity. These results were similar to those in Steptoe's study (1999a). It is a common situation that nurses also carry out health promotion activities in primary health care

settings. Thus factors influencing nurse practices are an important issue to be considered.

While promoting physical activity is accepted as a key role of nurse practitioners in the USA (Burns, 1994), they are less likely to promote physical activity in a systematic manner (Melillo, Houde, Williamson and Futrell, 2000). Melillo and colleagues (2000) explored perceptions of nurse practitioners regarding their role in promoting physical activity for older adults by using a qualitative approach. It was found that the nurse participants neither used a formalised instrument nor specific guidelines in prescribe physical activity. They also reported that they spent a very small percentage of their time on this task.

McDowell, McKenna and Naylor (1997) also conducted a postal questionnaire survey to explore factors that influence practice nurses to promote physical activity in England. This survey obtaining 80.9% response rate revealed that over 80% of nurses currently promoted physical activity in some degree. The nurse respondents who had regular exercise and worked as health promoting nurses were more likely to promote physical activity.

In attempting to explore the effectiveness of promoting physical activity by nurses, a randomised controlled trial (Carlsson, Lindberg, Westin and Israelsson, 1997) was conducted with 168 myocardial infarction patients discharging from the hospital. They were randomised to follow-up at coronary prevention unit either by a special trained

nurse (intervention group) or by their general practitioners (control group). While the participants in the intervention group were educated about smoking cessation, dietary management, and regular physical activity and provided with a physical training program, the participants of the control group were provided with usual care. It was found that the participants in the intervention group were more likely to stop smoking and manage dietary habits than those in the control group. Surprisingly, physical activity did not differ between two groups. The authors pointed out that the exercise program had no advantage in physical activity compared to usual care. However, it may be concluded on the other hand that promoting physical activity programs by trained nurses is as effective as do by general practitioners.

To evaluate further whether practice nurses can effectively promote physical activity, a randomised controlled trial (Campbell, Ritchie, Thain, Deans, Rawles and Squair, 1998) was conducted with 1,173 patients aged under 80 years in Scotland. Nurses in general practice promoted medical and lifestyle aspects of secondary prevention and offered regular follow-up. Components of secondary prevention included blood pressure and lipid management, physical activity, dietary fat, and smoking status. At 1-year follow-up, there were significant improvements in all components of secondary prevention excluding smoking cessation.

Inconsistently, a controlled trial (Sims, Duffy and Hilton, 1999), exploring the effectiveness of promoting physical activity by practice nurses, was also conducted with 20 elderly patients in England. These patients were recruited both

opportunistically and randomly into either an intervention or a control group. The patients of the intervention group received a motivational interview from a trained practice nurse and developed an individualized, planned activity schedule with the nurses. In addition, they were telephoned at 2 and 6 weeks to discuss barriers to exercise and ways to overcome these problems. The control group received standard advice from the nurses. At the 8-week follow-up, it was found that most patients increased their moderate activity but they did not increase mild and strenuous activity. In addition, there was no difference of physical activity between the two groups. These results were different from those in Campbell's (1998) and Steptoe's studies (1999) in which practice nurses successfully conducted physical activity counselling. It may be concluded that unsuccessful results in Sim's study occurred because of the limitations with the sample selection and a small sample size.

To conclude, limitations of promoting physical activity derive not only from its approaches but also from health professionals' perspectives. These common limitations include lack of time, insufficient educational materials, lack of skills, and lack of financial incentive (Bull et al., 1995). Several studies (Carlsson et al., 1997; Campbell et al., 1998; Sims et al., 1999; Steptoe et al., 1999b) highlighted the significance of nurses in providing physical activity advice expecting to overcome such common problems.

2.4.2 Media-oriented approach

Media-oriented approach stems from an attempt to reach large numbers of individuals and have more public health impact at a population level. It aims to educate the public and raise awareness of physical activity by using a variety of mass-media campaigns including TV, print media and information technology (Marcus et al., 1998). Examples of programs using this approach include a national media campaign in the USA (CDC, 2001) (*Physical Activity: It's Everywhere You Go*), in Australia (NSW Health, 2000a) (*Active Australia*), and in England (Hillsdon et al., 2001) (*Active for life*).

Many studies have looked into whether media-based interventions produce changes in physical activity behaviour. A recent randomised controlled trial (Mutrie, Carney, Blamey, Crawford, Aitchison and Whitelaw, 2002) assessed whether a self help intervention, delivered via written interactive materials increased active commuting behaviour such as walking and cycling. The "Walk in to Work Out" pack containing written interactive materials, local information about distances and routes, and safety information were provided to the intervention group while the control group received the package six months later. This trial was successful to some extent. This media intervention increased walking, but did not increase cycling. At the 12-month follow-up, the participants in the intervention group were still regularly active by walking to work. The authors concluded that cycling did not increase because of the lack of environmental manipulation. However, it could be argued that this trial may have some selection bias (Bowling, 1997) as the participants were identified as thinking about, or doing some regular walking or cycling to work.

A study attempting to evaluate whether a mass media campaign could increase walking was carried out in Scotland. This study which involved 40 television advertisements, a telephone help line and booklets, focused on people aged 30-55 who did not exercise regularly (Wimbush, MacGregor and Fraser, 1998). The study design was a pre and post campaign evaluation in terms of knowledge, beliefs and intentions regarding walking. Although the results show that the mass media campaign had positive impact on knowledge, walking behaviour was not increased. A telephone help line aspect of the campaign did show a substantial impact. A survey of callers to the help line revealed an increase in physical activity up to 40% of callers, and an increase in the intentions to walk from 60% at baseline to 82% one year later.

Another attempt to assess whether media-based interventions could influence physical activity behaviour was carried out in Birmingham (Kerr, Eves and Carroll, 2000). A poster encouraging stair use was located at the point of choice between the escalators and stairs, focusing on less active people. A total of 1,779 people were approached at the top of the stairwell but only 658 provided interviews, resulting in a less than 50% response rate. However, those who refused were not different in gender with those who were interviewed. It was found that the stair use significantly increased among the less active people during the intervention period.

Although the findings from these interventions seem to suggest that a media-based approach can produce a positive impact on physical activity behaviour, there have been many concerns about its effectiveness. Firstly, it appears that media-based

interventions still lack long-term effects. Secondly, it may be difficult to conduct a randomised controlled trial (which is a standard level of evidence (Muir Gray, 1997)) into mass-media interventions, resulting in the limitation of evidence to support the effectiveness. Finally, as demonstrated in Mutrie's study (2002), a media-based intervention is less likely to be successful if it is a standalone intervention when the environment and facilities are not appropriate to allow people to be active (Sallis et al., 1998).

2.4.3 Environmental and policy approaches

Environmental and policy approaches are derived from an attempt to overcome limitations of individual interventions by taking individual needs into account. Such approaches ensure that activity can be accessed at times and places convenient to individuals (Sallis et al., 1998). These approaches are accepted as having a greater impact on physical activity than individual approaches (King et al., 1995). In addition, environmental and policy approaches should be included with physical activity interventions because motivational strategies alone are not sufficient to address physical inactivity (Lumsdon et al., 1999). Likewise, environmental and policy approaches alone are less likely to increase physical activity (Sallis et al., 1998). However, there have been few studies exploring environmental and policy interventions regarding physical activity.

In attempting to evaluate environmental and policy interventions, Sallis and colleagues (1998) reviewed 7 published evaluations of environmental and policy interventions to increase physical activity. In this review, the authors found that studies of placing signs encouraging stair use were effective, but there was limited evidence of quasi-experimental studies.

A recent systematic review involving 10 multi-component physical activity interventions in the USA considered the effectiveness of creating or enhancing access to places for physical activity combined with informational outreach activities (Kahn, Ramsey, Brownson et al., 2002). This review found that this type of intervention was effective in increasing physical activity, providing positive effects, such as physical strength and flexibility, and cost effectiveness. However, there were many barriers to intervention implementation such as time and resource pressures, requiring careful planning and coordination.

From these two reviews, there is evidence that environmental and policy approaches are potential factors for promoting physical activity. However, these approaches need to be explored and implemented further because the effectiveness of these interventions at different settings and facilities is still unclear (Kahn et al., 2002).

2.5 Determinants of active living

This thesis focuses on determinants associated with physical activity specifically of older adults. Determinants have an impact on strategy development to promote physical activity, clearly understanding about these determinants may help to promote physical activity effectively (King et al., 1998b). The determinants of active living can be categorised into socio-demographic (e.g. age, sex, education and marital status), psychological (e.g. knowledge, attitudes and belief) and environmental factors (e.g. public facilities and policies). Although some determinants are not modifiable, such as socio-demographic and health status, they can provide insightful information of target populations.

2.5.1 Socio-cultural and structural determinants

Socio-cultural and structural determinants such as gender, age, income, family, occupation, education and race are recognised as a key role in influencing a wide range of activities (Frankish, Miligan and Reid, 1998). A study comparing determinants of leisure time physical activity among rural (n=1,242) and urban (n=1,096) older and ethnically diverse women in the United States (Wilcox, Castro, King, Housemann and Brownson, 2000) revealed that rural and urban women had different patterns of determinants of leisure time physical activity. The rural women, especially Southern and less educated women, were more sedentary and reported more personal barriers to leisure time physical activity than urban women. While sedentary behaviours among rural women were associated with race, older age, less education, lack of enjoyable scenery, not frequently seeing others exercise, greater barriers and less social support,

the significant correlates of an inactive lifestyle among the urban women were older age, greater barriers, less social support and less education.

Related to the sociocultural determinants of physical activity are the effects of gender, race and education. A substantial longitudinal study aimed at describing gender differences in levels of habitual physical activity was carried out in England (Bennett, 1998). Participation in walking, shopping, indoor, outdoor and leisure activities were assessed from 303 - 344 participants aged 65 years or over on three occasions: 1985, 1989 and 1993. The study revealed that levels of indoor and outdoor activities of the participants had declined for both sexes. The female participants showed a higher level of indoor activities while male participants showed a higher level of outdoor activities. Levels of walking/shopping activities also reduced over time.

Relationships between demographic and psychosocial factors and physical activity were assessed in a cross-sectional study (Sternfeld, Ainsworth and Quesenberry, 1999). A random sample of 2,636 ethnically diverse women aged 20-65 responded to a mail survey asking about their physical activity, social support, self-efficacy and perceived barriers. It was found that physical inactivity was associated with a number of groups such as women, who were older, nonwhite, less well educated, or overweight, or women with young children at home, or who lacked motivation and perceived external barriers. These results were consistent with those from an Australian study (Bauman et al., 1990) that women, older people, the less well

educated and those on lower incomes were less likely to perform regular physical activity

Racial and educational differences were found to be associated with physical activity among older adults in a longitudinal study from the United States (Clark, 1995). Caucasian Americans and those with a higher level of education were found to be more active than African Americans and those with a lower level of education. Similar findings were found from a recent study in the Netherlands (Droomers, Schrijvers and Mackenbach, 2001) which revealed that compared with respondents with higher education, the lower educated respondents had statistically significant higher odds for decreased physical activity during follow-up.

Marital status was also found to affect physical activity levels (King, Kiernan, Ahn and Wilcox, 1998a). King and colleagues (1998) conducted a follow-up study with 302 women and 256 men aged 25 to 75 years exploring the association of physical activity levels and a marital transition. It was found that the transition from a single to a married state had significantly positive effects on physical activity levels but the transition from a married to a single did not affect physical activity levels.

2.5.2 Psychosocial determinants

Psychosocial factors play an important role in predicting health behaviours (Taylor, 1995). Attitude is one domain of psychosocial determinants of physical activity. Some

studies focus on perceived barriers to and benefits of physical activity while some aim to investigate the association of these attitudes with an intention to exercise. A large cross-sectional survey in Europe (Zunft, Friebe, Seppelt et al., 1999) examined the attitudes towards benefits and barriers to physical activity of 15,239 participants in the European Union. The study reported that 42% of the participants participated in physical activity to maintain good health, 30% to release tension, 30% to get fit and 13% to lose weight.

Dawson's study (Dawson, 1994) found that 68% of all 4,028 respondents would like to take more exercise and up to 93% believed regular exercise is good for health. However, perceived many barriers to being active such as being too busy (62%), being too lazy (23%) and being unable to afford to use sport facilities (18%). Similar findings from Booth's study (Booth et al., 1997) (1997) revealed that lack of motivation as the most frequently cited barrier to being active, particularly in the young age groups but among those aged 60 to 78 years injuries or poor health were the most significant barriers.

A cross-sectional study by Chinn and colleagues (1999) was conducted with 4,140 adults aged 16-74 years (response rate = 69%). It was found that barriers to being active were lack of leisure time (47% of men and 51% of women) and lack of motivation (46% of men and 48% of women). The authors concluded however that these principal barriers to participating in physical activity varied by age group, social class, marital status and measures of socioeconomic position.

Findings from studies of the effect of attitude towards physical activity are inconsistent. A study from Australia (Booth, Macaskill, Owen, Oldenburg, Marcus and Bauman, 1993) showed that an increased frequency of exercise and an intention to do more exercise related to the belief of health benefits, in particular the prevention of heart disease, and to a higher level of education. Similarly, a Canadian study (Gravelle, Pare and Laurencelle, 1997) reported that among 118 elderly study participants, an intention to participate in either a fitness, aqua-fitness, or golf program related to the perceived benefits of the program to them.

Different results were found from a study by Deforche and colleagues (2000). The study reported that perceived barriers and benefits of physical activity were not different between two groups of study participants: 1) those involved in a structured exercise class and 2) those who did not participate in any organised physical activity. However, it could be argued that all of the participants were recruited at senior citizens centres, therefore they might have been exposed to the same information about physical activity that would affect their attitudes.

2.5.3 Environmental determinants

Although environmental determinants of physical activity are mentioned less often than physiological and psychological determinants (Clark, 1999a), the environment is an important factor in providing opportunity for people to be active. There have been

both qualitative and quantitative studies showing effects of social and physical environments on physical activity. A qualitative study of supportive environments regarding physical activity was carried out in Australia (Wright, Atkinson, MacDougall and Booth, 1996). This study defined supportive environments as a physical environment that make it possible for people to take part in physical activity as part of each day. Results from this study were derived from focus groups (83 participants), unstructured group discussions (21 respondents) and interviews (7 participants). The study suggested that it might be easier to be active where people feel a part of, and safe in, the community and being active in the local area contributed to a feeling of involvement in the community. In addition, it was found that social relationships helped people to go out and exercise.

Apart from the qualitative study in Australia, a European study (Stahl, Rutten, Nutbeam et al., 2001) explored the relationships between physical activity and perceived support for physical activity in the physical, policy and social environment of 3342 adults (18 years or older) within six European countries (overall response rate = 53.5%). It was found that the strongest independent predictors of being physically active were aspects of social environments (family, friends, school and workplace). Surprisingly, a supportive physical and policy environment was not related to the participation in physical activity. The authors argued that the unexpected finding might be because of the large differences in the physical activity levels within countries and the differences of the country variable such as environmental factors.

In the USA, a cross-sectional study (Brownson, Baker, Housemann, Brennan and Bacak, 2001) focusing on environmental and policy determinants of physical activity found that availability of places and equipment for physical activity was higher for men than for women. In addition, some environmental supports such as indoor gyms (33.7%), treadmills (30.6%), walking and jogging trails (29%) and parks (28%) were associated with increasing physical activity among the respondents.

While there is clear evidence on determinants of active living in western countries, there is no published study from Thailand on determinants of active living. If these determinants are well understood, it will enable policy makers and health professionals to produce an appropriate policy and intervention for promoting physical activity. Thus, factors influencing active living among the Thai elderly need to be explored.

2.6 Policies, recommendations and current practice for promoting physical activity

Policies and interventions regarding physical activity are currently developed and carried out in most developed countries with systematic and well-funded efforts to increase physical activity. This section will briefly examine some of these efforts with a particular focus on those of Australia and Thailand. It is of course impossible to review all interventions in these countries. However, major policies and interventions are identified, as well as some broadly held understandings about promoting physical activity.

In attempting to promote physical activity worldwide, the World Health Organization (WHO) launched many physical activity initiatives and called for actions from all WHO Member States to develop appropriate policies (WHO, 1998a). This attempt led to proposing the Guidelines for National Policies on Active Living which were derived from the meeting of the active living national policy network held in Canada in 1998. Major features of such guidelines are presented below:

- to use WHO's understanding of health promotion and non-communicable disease prevention and control as the framework for developing strategies and actions;
- to work towards a broader understanding of physical activity within a population-based and public health perspective;
- to develop appropriate intersectoral partnerships, with the public and private sectors, governmental and non-governmental;
- to create/strengthen supportive environments and cultures;
- to reduce inequalities (socio-economic, gender...), particularly regarding access to knowledge on active living and to physical activity facilities;
- to use settings to promote health (e.g. family, school, workplace, primary health care);
- to involve communities in planning, implementation, monitoring and evaluation of physical activity programs;
- to foster the training of human resources for health from the health, sport, education and other relevant sectors in physical activity;

- to develop personal resources through development of skills and dissemination of knowledge;
- to identify and evaluate models of good practice areas for action-oriented research;
- to set targets, survey and assess levels of physical activity; and
- to develop processes for building and implementing policies on active living/physical activity for health.

From these proposed guidelines, many WHO Member States developed policies for their own countries. For example, in Australia, the National Heart Foundation of Australia and the New South Wales Health Department developed policies and guidelines for promoting physical activity. The National Heart Foundation of Australia proposed a comprehensive approach based on the five main strategies of the Ottawa Charter (National Physical Activity Program Committee, 2002). This approach comprised 10 recommendations for promoting physical activity as follows:

1. Provide a supportive physical and social environment through settings where Australians live and work.
2. Build 'active' public policy.
3. Provide education and publicity about the benefits of physical activity, and access to information and life skills to enable participation.
4. Focus on the different levels of behaviour change and tailor programs accordingly.
5. Provide program options to suit varying social and cultural circumstances and motivations throughout the life cycle.

6. Provide accurate advice on physical activity to key professionals within government, non-government community and private sectors that influence physical activity participation.
7. Establish partnerships to pursue a cross-community and sectoral approaches.
8. Ensure quality physical education is provided to all children in all schools and ensure physical activity options are available to children and youth in the broader community.
9. Advocate for due priority to be given to physical activity.
10. Ensure equitable access to physical activity opportunities.

NSW Health in Australia (NSW Health, 1999) recommended that every adult in New South Wales should accumulate 30 minutes or more of moderate-intensity physical activity on most, preferably all, days of the week. In addition, promoting physical activity has been indicated as a public health priority area for the year 2000-2005 in New South Wales (NSW Health, 2000b).

Physical activity interventions have been conducted across all levels of Australian society applying individual, community, media, and environmental and policy approaches. Physical activity initiatives in this country have brought together a diverse range of players to create the way for people to become more physically active. For example, at national level, the Strategic Intergovernmental Forum on Physical Activity and Health (SIGPAH) has been formed to act on physical activity issues by all levels of government and non-government organisations. The important project for

promoting physical activity at this level is called Active Australia. This project focused on two key areas; (1) people: encouraging people to be more physically active and (2) environment: working to improve the places in which people can be active. National physical activity guidelines for Australians were also developed and widely distributed in every state through community health centres, recreation and sport organisations, general practitioners, libraries, Institutes of TAFE and schools (Smith, 1999, p. 4). The significant messages of the guidelines are as follows:

- think of movement as an opportunity, not an inconvenience;
- be active every day in as many ways as you can;
- put together at least 30 minutes of moderate-intensity physical activity on most, preferably all, days;
- if you can, also enjoy some regular, vigorous exercise for extra health and fitness.

At the state level, programs for promoting physical activity have also been launched. For example, South Australia developed the Physical Activity Strategic Plan sponsored by the Active Australia State Working Party and established a beneficial link with Transport South Australia as well as provided a program called 'Gently Physical' within the state (Herriot, 1999).

At the local level, the GP (General Practitioner) Program in South Australia (Holmes, 1999) has recruited 30 general practitioners to prescribe patients to take up or increase moderate levels of physical activity such as walking, bicycle riding, dancing and

swimming. A collaborative approach was used to prepare resources including Patient Assessment and Prescription Pads, Patient Resource Packs, posters, GP information kits and to conduct training workshops for GPs to use these resources. This program also provided community and social support by linking with local recreation groups to provide information and to work with people who have been given physical activity prescription by their GPs.

In Thailand, physical activity has been emphasised in both the previous (the 8th Plan: 1997-2001) and current national health plan (the 9th Plan: 2002-2006). In the 8th Plan (Thientavorn, 1997), physical activity was identified as an indicator for assessing the health of the elderly and as one of ten components for health promotion to schools. At the end of this plan, it was expected to increase activity participation of the elderly by 10% and of active adults by 20 %. However, after the 8th Plan, physical activity levels among Thai people have not been explored.

In the 9th National Health Plan (2002-2006), physical activity has been paid more attention than the previous health plan. The current Thai government proposed the policy of the *'Year for Health Promotion 2002'* (Department of Health, 2002d) (see Figure 2.1). This policy aimed to promote physical activity by establishing 'Exercise for Health Clubs' in every sub-district through out the country. The policy focused on local authorities and 'Exercise for Health Clubs' as centres for promoting physical activity in the community. The Department of Health (Department of Health, 2002b)

also proposed policies and guidelines for local councils to promote physical activity within their communities as follows:

1. Establishing local policy, action plan and budget for promoting physical activity.
2. Setting up networks and cooperating physical activity programs with school, private sector and other local organisations.
3. Providing and developing supportive environment and facilities such as playgrounds, public parks, swimming pools, walkways and other sport apparatus for people within the community.
4. Developing and promoting local staff to be a leader of physical activity program.
5. Encouraging people to participate in a group for exercise.
6. Using tax reduction as a policy tool to encourage the private sector to involve and promote physical activity for their employees.
7. Providing a variety of physical activity programs for people in every age group in the community.
8. Using publicity campaigns as a strategy for raising awareness and educating people in the community.
9. Monitoring physical activity and evaluating cost effective of programs for promoting physical activity.

Figure 2.1 Mission statement of the Year of Health Promotion in Thailand

Mission Statement
The Year of Health Promotion in Thailand

The government has adopted a health security policy to promote good health and provide access to health services facilities for all people in Thailand.

The year 2002 is the starting point to initiate an active health promotion program under the "Empowerment for Health" scheme encouraging both public and private sectors to combine their efforts to "invigorate" rather than to "repair" health. The objectives of the Year of Health Promotion are as follows:

- To establish 4500 countrywide Primary Care Units (PCU) at the Health Centres to coordinate the public health volunteer network and the local health clubs. The PCU's will serve as educational health and services centres in conjunction with other hospitals under the health security program.
- To establish, in cooperation with local authorities, at least one "Exercise for Health Club" in each municipality or sub-district to coordinate and promote more exercises.
- To establish "Health Promoting schools" in at least 60 per cent of schools in the country to encourage physical and mental health promoting among students and community members.
- To cooperate with various consumer groups to promote "Consumption of Healthy Foods" and monitor "Unsafe Foods and Drugs". This is to prevent Thai consumers from being treated as the world's second class citizens subjecting themselves to unsafe foods and drugs. The "Minimisation of Smoking and Drinking " campaign is also aimed at reducing health deteriorating behaviour.
- To establish at least 35 per cent of "Hygienic Food Stalls" among all existing food stalls, particularly the ones in and around the schools. At least 20 per cent or 460 "Standard Fresh Produce Markets" will also be established among the existing outlets.
- To promote "Community Health and Herbal Products" for the benefits of consumers and to create jobs. The "Development of Traditional Thai Treatment and Alternative Medicines" based on the natural therapy and self-sustaining practice is also promoted.
- To promote the "Reduction of Accidents and Mishaps" and establish "Emergency Medical Services System (EMS)" in 31 pilot provinces.
- To reduce and control six life threatening diseases such as heart disease, high blood pressure, diabetes, cancer, haemorrhagic fever, and AIDS.
- To improve the facilities of the Public Health Ministry' 92 general hospitals, 712 community hospitals and 80 jubilee health centres to treat drug addicts countrywide using a new technique call "Psycho-social therapy."

As being in good health is better than being rich, the government wishes to present all Thai people with a gift in the form of health promotion.

Given on 17 February 2002
Police Lieutenant Colonel Thaksin Shinnawatr
Prime Minister

Source: Translated from Mission statement: The Year of Health Promotion in Thailand, Ministry of Public Health, 2002.

Although it is still early days for promoting physical activity in Thailand, many initiatives have been proposed such as promoting physical activity in schools, promoting accumulative physical activity and the Exercise for Health festival (Department of Health, 2001). Roles and tasks of governmental health organisations and health professionals on promoting physical activity were also developed (Department of Health, 2002a). Key features of these roles and tasks are presented as follows:

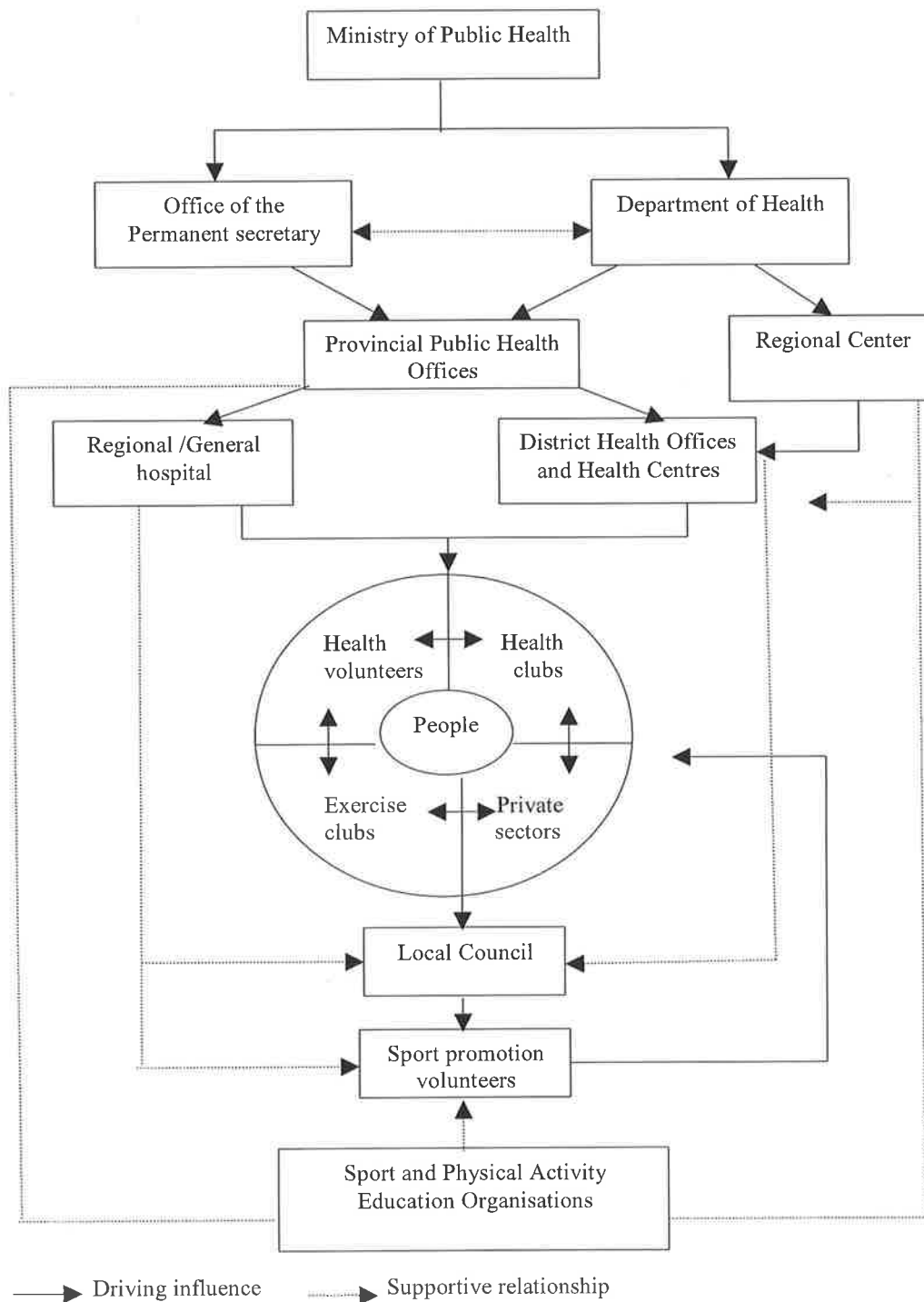
1. Establishing a working group and action plan of organisations.
2. Cooperating and seeking support from local organisations such as local sport and physical education institute.
3. Publicity with a variety of media.
4. Establishing team work for providing consultation and support local staff and leaders working in a community.
5. Providing and developing facilities and resources for promoting physical activity.
6. Creating a database of exercise clubs.
7. Developing evaluation and supporting systems.

Recently, the physical activity campaign in Thailand 'Move for Health' was launched. This campaign derived from an attempt to raise awareness of the importance and benefits of physical activity among the main groups of policy makers, health professionals and a media sector and aimed to encourage people to improve their health through regular exercise (Assavanonda, 2002). In addition, it was aimed to celebrate the World Health Day (7 April) and the Thai National Elders' Day (13

April). The major activity of the campaign was a one-day seminar organised by the Department of Public Health.

The current Government released 88 million Baht for the project “Move for Health” (Department of Health, 2001). This funding was planned to be allocated to the major programs at both national and local levels, such as launching a campaign for promoting physical activity, setting up databases of personnel involved in promoting physical activity, and developing relevant materials. Target settings for this policy include the community, schools and health organisations. A goal for increasing physical activity in Thailand is that by the year 2006, 60% of Thai people aged 6 years and over will be regularly active. A framework of physical activity promotion administration is also proposed (Department of Health, 2001) (see Figure 2.2).

Figure 2.2 Framework of organisations involved in promoting physical activity in Thailand



Sources: Adapted from the Project "Move for Health", Ministry of Public Health, 2002

While Thailand has adopted the global policies from the World Health Organization, many areas of promoting physical activity still need to be implemented. Thailand seems to focus on community approaches rather than multi-approaches including individual, environmental and policy and media approaches as does Australia (National Heart Foundation of Australia, 2001). In particular, individual approaches to promoting physical activity, which are widely accepted in western countries, seems to be paid less attention than community, environmental and policy approaches in Thailand. In addition, specific roles of physicians, nurses and other health professionals as well as research in this area were less mentioned compared with the Australian documents.

2.7 Conclusion

A review of the literature in this study revealed not only a wide variety of interventions aimed at increasing physical activity levels based on individual, media-based and environmental and policy approaches, but also of a 'gap' in these approaches to date. Each approach has advantages and disadvantages within itself. Individual approaches can provide pertinent support and encouragement to the individual but have small impact at the population level (Bennett and Murphy, 1998). Media-based approaches can be reached by large groups and are durable but will not be effective if they are stand-alone interventions (Sallis et al., 1998). Environmental and policy approaches are cost effectiveness but required substantial careful planning and coordination (Kahn et al., 2002). Clearly, ideal interventions for promoting physical activity should be

based on multi-approaches. For Thailand, it might be argued that the individual approaches focusing on roles of health professionals are required because it was found from the policy analysis that these approaches were less implemented than others. However, interventions need to conform to national and local policies as well as the needs of the elderly so that their implementation becomes feasible.

Although existing knowledge from developed countries can be used to formulate a basis of interventions, existing knowledge from older Thais is still required for developing an appropriate model for promoting physical activity. This will be explored further in this study. The next chapter will outline an overview of methods and study settings.

Chapter 3 – Research methods and country setting

3.1 Introduction

The previous chapter provided an overview of the significance of the study and its aims and objectives, as well as a review of the literature. This chapter gives an overview of methods, a brief description of the country setting, the population and the health system in Thailand in order to provide a clear picture of the study as a whole and to help to understand the sequential studies, which follow.

3.2 Overview of methods

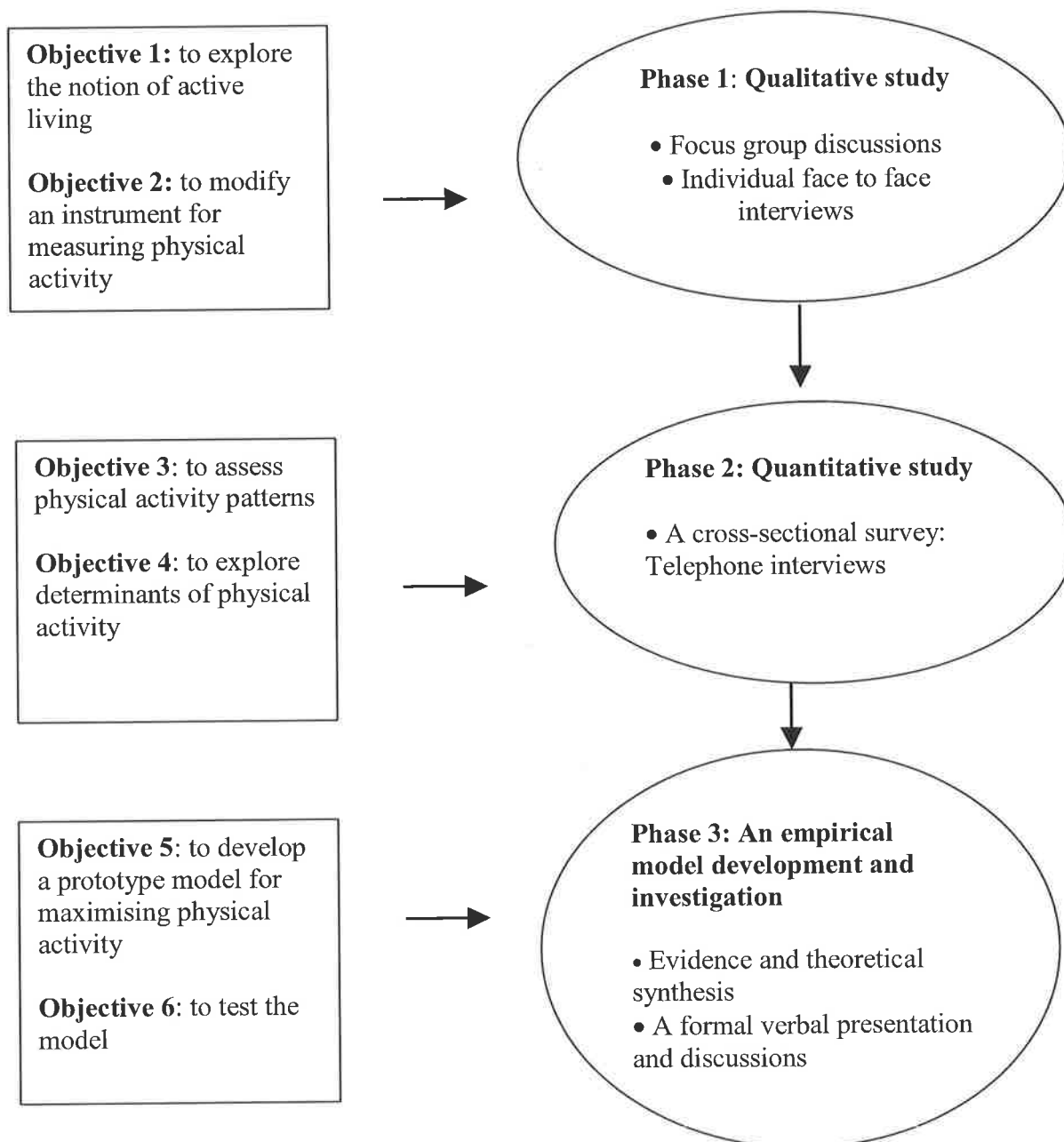
The main aim of the study was to develop a model for maximizing physical activity among older Thais. To fulfil this aim, the study was conducted in 3 phases. Phase 1, a qualitative approach, aimed to explore the notion of active living and to modify an existing instrument for assessing physical activity levels. A cross-cultural adaptation technique, comprising focus group discussions and individual face to face interviews, was used to guide the modification of this instrument across cultures.

Once the instrument for measuring physical activity levels had been modified, phase 2 of the study was conducted. This quantitative approach investigated physical activity levels and determinants of physical activity of a randomly selected sample of the Thai

elderly in Bangkok. The method used for this phase was a cross-sectional telephone survey.

Results from phases 1 and 2 were then used to perform phase 3 of the study. This phase comprised an interpretation of results of phases 1 and 2 and synthesis of evidence and theory in order to develop a model for promoting active living. Consultations were performed with key informants including GPs, community health nurses, social workers, representatives of mass media and representatives of the Thai Senior Citizens Association to provide feedback on the prototype model. This feedback was then used to modify details of the model and to develop guidelines for its implementation. Details of the methods of each phase are described in the relevant chapters. An overview of this research methodology is presented in Figure 3.1.

Figure 3.1 Overview of research methodology



3.3 Rationale for using triangulation of methods

The triangulation of methods is indicated as a valuable research strategy (Babbie, 2001) to reduce the personal biases of researchers (Bowling, 1997), to compensate for the strengths and weaknesses of each research method (Babbie, 2001) and to obtain greater completeness of understanding of research questions (Quine and Taylor, 1998). From the overview of research method of this study, it is clear that this study used sequential triangulation of methods (Bowling, 1997) to address the research questions. The sequential triangulation of this study is confirmed by the fact that the findings of phase 1 were used to modify the instrument of phase 2 and the results from phase 1 and 2 were then used to perform phase 3. The study therefore gained the value of triangulation and the combination of quantitative and qualitative approaches.

3.4 Country setting, population and the Thai health service system

3.4.1 Overview of the country

Thailand is situated in the central part of the Southeast Asian mainland. It is approximately the same size as France and covers an area of 513,115 sq km. Its dimensions are about 2,500 km. north to south and 1,250 km. east to west. It is divided into four natural regions: the North, the Central Plain, the Northeast and the South (The National Identity Board, 2000).

The total population of Thailand is 60.6 million, with an annual growth rate of about 1.3%, 29.8 million are males and 30.8 million are females (National Statistical Office, 2001). There are 15.7 million households in Thailand with an average of 3.9 persons per household. The population structure of Thailand is changing towards an ageing population, due to a rapid fertility decline and an increase in life expectancy (Jitapunkul and Bunnag, 1999) (see Table 3.1).

Table 3.1 Demographic transition in Thailand 1990-2000

Items	Year 1990	Year 2000
Total population (millions)	54.5	60.6
Population divided by age group (%)		
0-14 years	29.2	24.1
15-59 years	63.4	66.5
60 years and over	7.4	9.4
Median age (years)	24.6	29.7

Source: Adapted from Statistics Newsletter, National Statistical Office, Thailand, 2001

3.4.2 Health service system in Thailand

Thailand's health service system began to change in the latter years of the 19th century from using local wisdom for curative and health care to a more Western medical and health service system (The National Identity Board, 2000). Since then the medical and health service system has steadily developed, supported by the King and the Royal

Family of Thailand (The National Identity Board, 2000). The Department of Public Health in Thailand was first established in 1918 and was changed to be the Ministry of Public Health in 1942. In addition, a number of health institutions including hospitals and medical schools funded by the government have been increased. By 1961, there was at least one hospital in each province and this increased to at least one hospital per district in the late 1980s.

The Thai health service system has been developed by way of legal framework and institution building (Panich, 1997). It also gains benefits from the current constitution promulgated in 1997. The constitution included the following statements:

“A person shall enjoy an equal right to receive standard public health services and the indigent shall have the right to receive free medical treatment from public health facilities of the state, as provided by laws” and “The state shall thoroughly provide and promote standard and efficient public health services” (The National Identity Board, 2000, p. 325).

According to these statements, the Thai government has given high priority to the development of public health and quality of life. At present, the Ministry of Public Health is the principal agency responsible for promoting, supporting, controlling and coordinating all activities concerning the health and well being of Thai people. In addition, other agencies such as the Ministry of University Affairs, the Ministry of the

Interior, the Ministry of Defence and the Bangkok Metropolitan Administration also play important roles in providing health care for Thai people.

Health personnel

The Bureau of Health Policy and Plan (1997) indicates that the quantity of health personnel in Thailand is sufficient in some urban areas, in particular in Bangkok, but it is insufficient in rural areas. Thailand produces almost a thousand doctors annually from 10 medical schools (9 public and 1 private). The trends of proportion of doctors to population positively changed from 1: 4,180 in 1995 to 1:3,500 in 1997. Nevertheless, the shortage of doctors is still critical. In 1996, there were 21,916 medical doctors registered with the Medical Council but only 17,500 were actually practising. The remaining had retired or emigrated.

Nurses are also important health personnel providing health care in Thailand. While Thailand produces a total of 3,393 professional nurses annually, by 62 nursing colleges in 7 major agencies, the number of the nurses remains inadequate due to the increasing Thai population. For example, in 1995, there were 54,262 professional nurses in the country and there was a shortage of 29,372. In 1997, in a similar pattern to that of the doctors, the number of nurses in Bangkok is adequate while it is insufficient in the country. It was estimated that the ratio of a nurse to the population was 1: 1,092 and it was 1: 347 in Bangkok (Bureau of Health Policy and Plan, 1997).

Health facilities

In the public sector, there are 6 levels of health facilities: Level 1: Bangkok and peripheries; Level 2: Regional; Level 3: Provincial; Level 4: District; Level 5: Sub-district; and Level 6: Village level. The number of health facilities in the public sector has shown in Table 3.2. The private sector also provides health services including pharmacies or drug stores, clinics without in-patient beds and private hospitals.

Table 3.2 Health facilities at different levels

Administrative Level	Health Facilities	Number
Bangkok and peripheries	Medical school hospitals	5
	General hospitals	29
	Specialised hospitals/institutions	24
	Public health centres	61
	30-bed hospitals	3
Regional	Medical school hospitals	5
	Regional hospitals	25
	Specialised hospitals	22
Provincial	General hospitals	67
	Military hospitals	51
District	Community hospitals	703
	Extended hospital	3
	Municipal health centres	132
Tambon	Health centre	9,132
Village	Community health posts	521
	Community PHC centres	63,443

Source: Adapted from Health in Thailand: 1995-1996, Bureau of Health Policy and Plan, Ministry of Public Health, 1997.

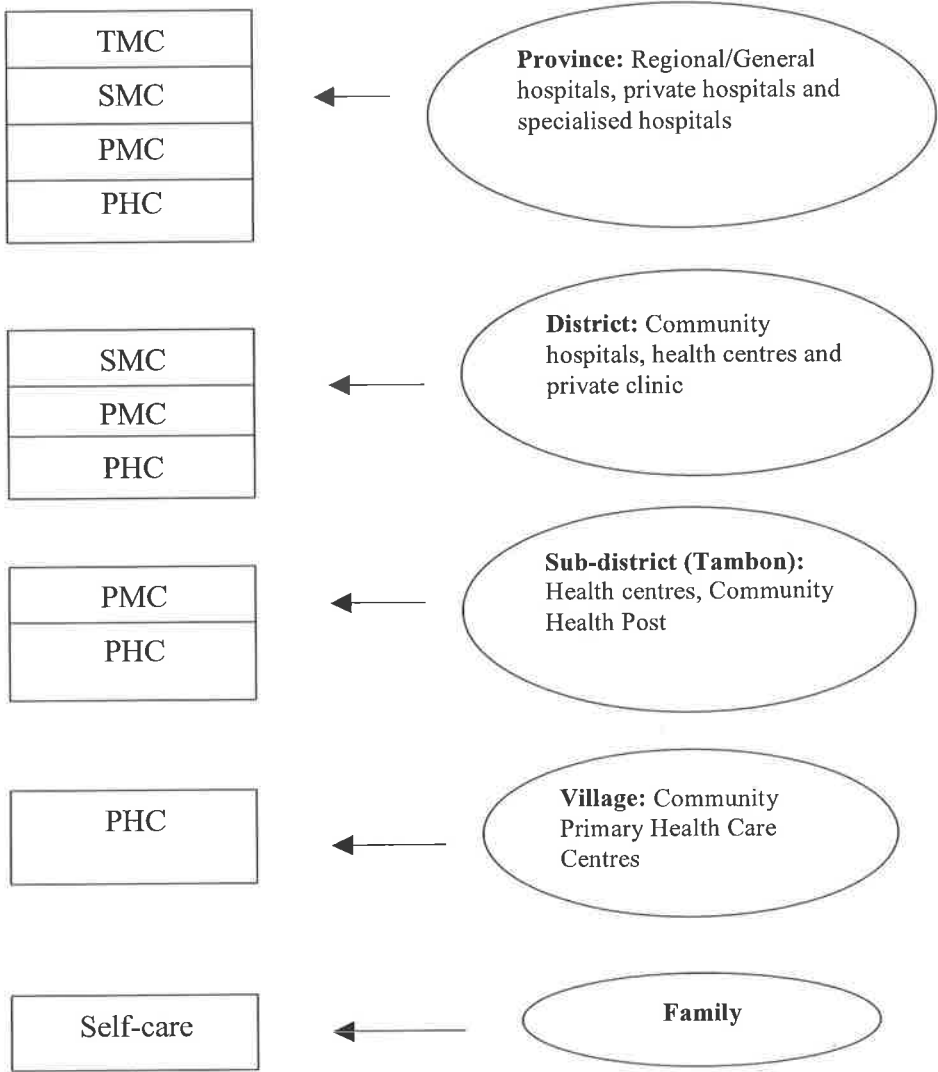
Health Services

The Thai health system has been developed in accordance with the Health Development Plan, which is part of the National Economic and Social Development Plan (NESDP). The first NESDP started in 1961. During the period of the 8th plan (1997-2001), the Thai health system focused on health behaviour changes for health promotion including disease prevention, quality development, 100 percent health

insurance coverage and management efficiency improvement. At present, the 9th plan (2002-2006) is being implemented (Ministry of Public Health, 2002). This health plan is paid more focus on health promotion than the previous plan.

Health services in Thailand are categorised into five levels, according to the levels of care; 1) self-care level, 2) primary health care level, 3) primary care level, 4) secondary care level, and 5) tertiary care level (Bureau of Health Policy and Plan, 1997). Each level has a different focus and role in providing health services. For example, health services at the self-care level (SC) aim at enhancing people's capacity to take care of themselves and make the right decisions about health care. The services at this level are health promotion, disease prevention, curative and rehabilitative care. At the primary health care level (PHC), health services are provided by health volunteers which are supported by government service programs. The primary medical care level (PMC) focus on providing medical and health services by health personnel at various health units such as community health posts, health centres and outpatient departments of public and private hospitals. At the secondary medical care (SMC) and the tertiary medical care (TMC) levels, health services are provided by medical and health personnel with various degrees of specialisation at community hospitals, general or regional hospitals, private hospitals and university hospitals. The summary of levels of health services and setting in Thailand is shown in Figure 3.2.

Figure 3.2 Levels of health services in Thailand

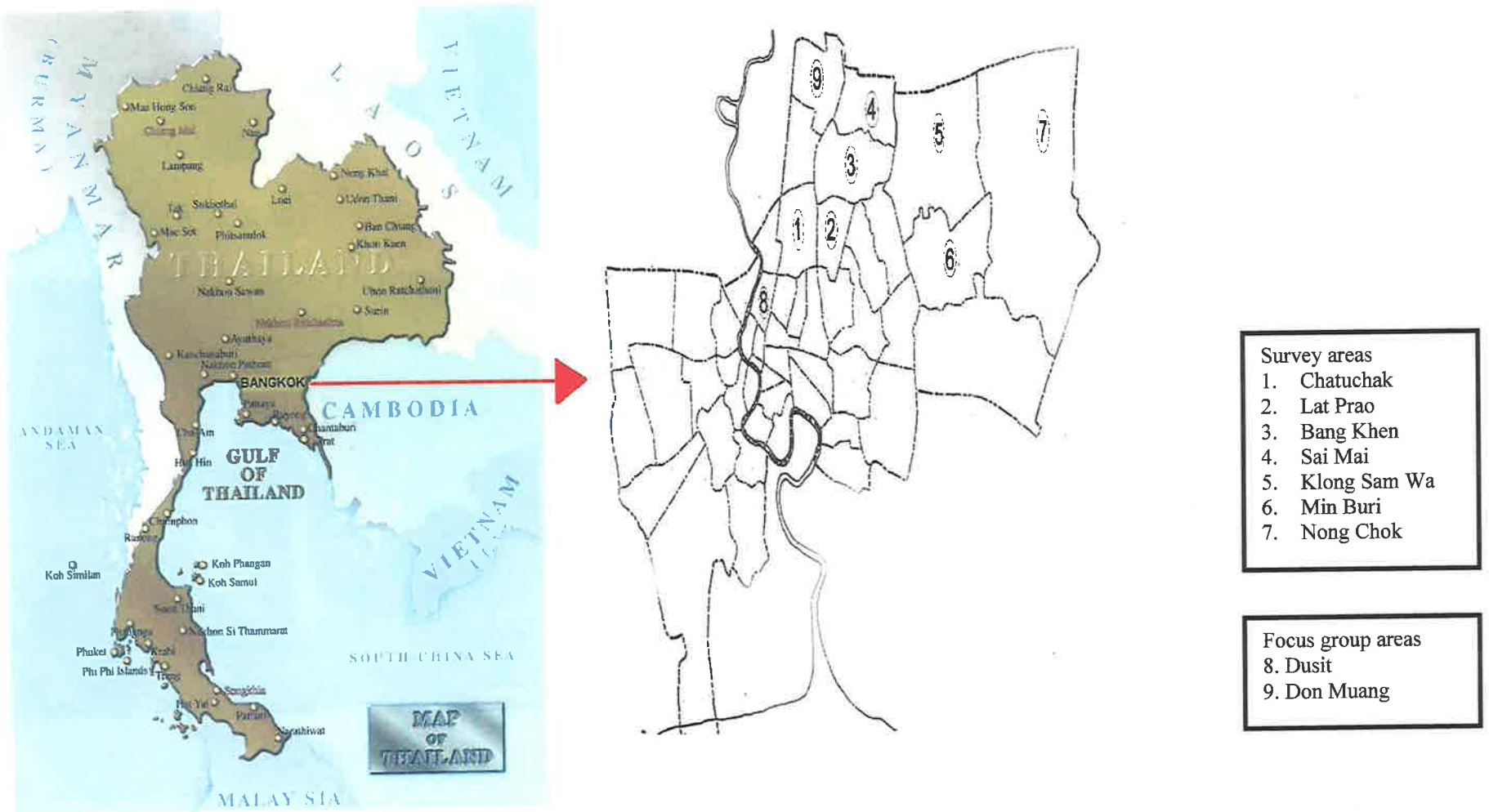


Source: Adapted from Health in Thailand: 1995-1996, Bureau of Health Policy and Plan, Ministry of Public Health, 1997.

3.5 Study setting

The setting of the study is Bangkok, the capital city of Thailand (see Figure 3.3). Bangkok is administratively divided into 38 districts with the total population of 7 million and 9% of the total population are older adults (age 60 years or over) (National Statistical Office, 2000). Health facilities and health personnel in Bangkok are deemed to be adequate for the population. The Department of Medical Services and the Department of Health under the administration of the Bangkok Metropolitan Administration (BMA), together with the private sector, mainly provide health services for people living in Bangkok. There are 8 general hospitals with 2,298 beds, providing secondary and tertiary care services for Bangkokian. There are 61 community health centres providing basic essential care for all age groups including health promotion, health education, disease prevention, rehabilitation and curative care. A general hospital and a community health centre in Bangkok and its periphery were the settings of this study. The descriptions of these settings are explained in the relevant chapters.

Figure 3.3 Map depicting Thailand, Bangkok, and study areas



Source: Adapted from 'Health in Thailand: 1995-1996', Bureau of Health Policy and Plan, Ministry of Public Health, 1997.

3.6 Ethics

The research was conducted in line with the requirements of the Human Research Ethics Committee of the University of Adelaide. The approval of the Ethics Committee was not required as the project was deemed to meet section 13.1 of the requirements as follows:

“Straightforward exercises in eliciting information, where the intention is simply to gather true reports of facts (including subjects’ perception of things) and are unexceptionable do not require clearance from the Committee” (The University of Adelaide, 2002).

3.7 Conclusions

This chapter describes preamble of methods and a brief descriptive of the country setting and the population profile. The Thai health service system was also outlined. The next chapter will examine the notion of active living among older Thais and initially modify an existing instrument for its measurement.

Chapter 4 - The notion of active living: focus groups

4.1 Introduction

'Active living' is a new term for physical activity for health derived from an attempt to shift public attention away from rigorous exercise to a moderate physical activity approach involving daily activities (Bercovitz, 1998). The concept of active living incorporates not only physical but also psychological dimensions. Habits, personal interests, needs and abilities are a psychological dimension of active living (O'Brien-Cousins and Horne, 1999). From this dimension, active living is seen as a 'new' and 'unique' approach representing a new way of thinking and practising physical activity (Bercovitz, 1998). In addition, active living is more accessible than the exercise approach and it provides significant benefits for the population at large with low risk and good adherence (Bercovitz, 1998). Therefore active living has been recognised as a feasible cost-effective approach to improve health and to maintain the functional capacity of all age groups (WHO, 1998b), and as "a softer and attractive alternative to the prescriptive exercise model" (Bercovitz 1998, p.323).

During the past decade, the active living approach has been demonstrated in many health promotion campaigns in western countries. For example, the Centres for Disease Control and Prevention in the USA (CDC, 2001) launched a campaign to increase physical activity called the *Physical Activity: It's Everywhere You Go*. This campaign is based on new knowledge of physical activity that many common

activities, such as brisk walking, bicycle riding, gardening and household chores can improve health (CDC, 2001). The strategy of the campaign was to conduct a needs analysis and to gain a detailed picture of target groups before launching the program. Two significant components of this campaign were: positive health messages and a marketing kit which were distributed through television, radio, print and the CDC Internet homepage. However, the evaluation of the campaign has not been published so far.

In England, the *Active for Life* campaign (Hillsdon et al., 2001) was launched in 1995. The campaign was part of a broader program of physical activity including research, policy development and advocacy. The concept of active living in this campaign is that physical activity of moderate intensity can prevent coronary heart and other chronic diseases. This was disseminated through the use of social marketing tools aimed at communicating the messages of the campaign directly to the target groups and to health professionals in their work at the community and interpersonal levels. A three-year longitudinal survey (Hillsdon et al., 2001) was conducted along with the campaign. Overall results show that the campaign significantly increased the target groups' knowledge concerning physical activity, but there was no evidence that the levels of physical activity increased either overall or in any subgroup. The researchers argued that this conclusion must be accepted with caution, because of the absence of a control group. They also proposed an interesting public health issue that policy and environmental factors should be addressed when promoting physical activity at a national level.

In Australia, active living is promoted in the *Active Australia* campaign (NSW Health, 2000a). The campaign was promoted at all levels of the nation aiming at increasing public awareness of the benefits of a regular amount of moderate physical activity and to maintain motivation amongst active people. The campaign projected positive messages such as "*Exercise. You only have to take it regularly, not seriously*" and "*It allows for individuality – you don't have to be a super hero, you can just be you*". These were assessed in consumer research prior to the production of the campaign. The strength of this campaign is that it recognises the socio-cultural and environmental factors affecting physical activity participation.

These three active living campaigns have several features in common. Firstly, consumer studies were conducted prior to the campaign's launching in order to investigate needs and significant messages in a specific target group. Secondly, the focus of all three campaigns was on activities of moderate intensity, by integrating them into their daily life. Thirdly, the positive messages related to the defined target group were distributed through easily accessible media such as TV, radio and the Internet.

While the active living approach is more practical and suitable for the population at large than the exercise approach, there is little information available on a broader perspective of active living (O'Brien-Cousins et al., 1999). CD-ROM searches using MEDLINE, CINAHL, Cochrane Library and e-medical journals and manual searching found that most studies in this field have been conducted in western countries (Loughlan et al., 1997; Booth et al., 1997; Conn, 1998; Nies, Vollman

and Cook, 1998; Chinn et al., 1999; Zunft et al., 1999). Little is known of what people in eastern countries define as active living, what they currently do and need, and what barriers and enabling factors exist regarding physical activity. Bercovitz (1998) states that individuals should be encouraged to define what active living means to them and they should be encouraged to choose suitable activities for their personal interests and tastes. In addition, lifestyle activities depend very much on cultural and environmental issues. Thus the notion of active living may differ between cultures. It is important, therefore, that Easterners' views on active living be examined. This was a preliminary step in designing the instrument and gaining information to be used in the subsequent study.

This chapter describes the notion of active living among older Thais derived from focus group discussions. This technique has been extensively used to explore people's perceptions, attitudes and beliefs in general social and behavioural studies (Khan, Anker, Patel, Barge, Sadhwani and Kohle, 1991) and in many physical activity studies (Stead, Wimbush, Eadie and Teer, 1997; Nies et al., 1998; Conn, 1998). This technique is therefore deemed to be appropriate for this study's purpose.

4.2 Aims

The aims of the focus group discussions were: 1) to explore the notion of active living among the Thai elderly, including barriers to and benefits of active living, and 2) to evaluate the Thai version of the Adelaide Activities Profile (AAP), which

was selected as a tool for assessing physical activity of the Thai elderly in this study, by examining current activities of the elderly. This is one step of the modification of an instrument which will be described in more detail in the following chapter.

4.3 Methods

4.3.1 Translation of the Adelaide Activity Profile (AAP)

As one aim of the focus groups was to evaluate the Thai version of the AAP, the original version AAP was translated into Thai. This was the first step of a cross-cultural adaptation technique, which is further described in Chapter 4.

4.3.2 Setting

Pradipat Health Centre and Bhumibol Adulyadej Hospital were selected, as both institutions had a high proportion of elderly patients as well as cooperative staff interested in the research issues. The study required two settings because the elderly who visit a community health centre are likely to have a lower education background than those who visit a general hospital. After the researcher contacted the staff at both settings, it became clear that it would not be possible to get sufficient participants with a broad range of characteristics, in particular education, within one setting.

Setting 1: Pradipat Health Centre

Pradipat Health Centre located in Pradipat Sub-district, Dusit District, is one of the health centres administered by Bangkok Metropolitan Administration (BMA). Two doctors and 7 nurses provide basic essential care for every age group. The services included promotive, preventive, curative and rehabilitative care with a heavy focus on promotive and preventive care. Health promotion services are provided in the Family Clinic, the Well-baby Clinic, the Elderly Clinic, the Child Care Clinic and the Dental Clinic (Department of Health, 2002c).

Setting 2: Bhumiphol Adulyadej Hospital

Bhumiphol Adulyadej Hospital is a general hospital located in Don Muang District serving the population in the northern metropolitan area of Bangkok. The hospital is managed by the Thai Airforce under the management of the Ministry of Defence. Primary, secondary and tertiary care are provided for various population age groups. One of the primary care services is that for older people. These include blood testing, physical examination, general illness consultations, health education sessions and chronic disease consultations. There are two nurses and one physician who are in charge of the services for an average of 50 clients per week. The elderly clinic, the setting for this study, is open on Wednesdays from 1.00-3.00 p.m.

4.3.3 Discussion guideline

This study used semi-structured discussions in order to allow new issues to emerge from the discussion and to compare results between groups. An outline for the focus group discussions was developed following a review of the literature, activities outlined on the AAP and consultations with the supervisor (see Appendix 1). The discussions explored the older adults' perception of active living, benefits of, and barriers to, being active and their suggestions for increasing physical activity. In addition, the discussions also examined the participants' current physical activities.

4.3.4 Sample selection

A purposive sampling method was applied whereby a range of people who were in the best position to understand the issues were approached (Murray, 1999). While such an approach does not allow generalisation to a population (Neuman, 1997), it means that opinions were sought from the type of people who would be using the intervention identified in the subsequent research.

In devising the groupings for the discussions, an homogenous sampling approach was used as it has been suggested that groups with similar characteristics allow a better flow of discussion (Khan et al., 1991). Accordingly, four groups were formed in relation to age and gender characteristics: less educated males and females (those completing secondary education or lower); and highly educated

males and females (those completing tertiary education or higher). In order to be eligible for the study, participants, had to be aged 60 years and over, not suffering from a chronic illness and be able to communicate in a group.

Participants were selected from the attendance lists of both venues. Potential subjects were approached directly while they were waiting for medical services. When the criteria were met, the participants had the purposes, objectives, methods and time needed for an interview explained to them. If they agreed to participate, consent forms (Appendix 2) were signed. An information sheet (Appendix 3) was also provided. The researcher approached the potential participants consecutively until sufficient participants were available for the group discussions with the same characteristics of education levels and gender in each group.

4.3.5 Conducting focus group discussions

Pradipat Health Centre

The focus group discussions were conducted during January 2000. Focus groups were organised after participants finished their appointments with the health centre. The discussions were carried out at a meeting room at the centre. Participants were asked to complete a brief demographic questionnaire about their characteristics prior to the discussions (see Appendix 4). All members of the groups were also asked to introduce themselves to the group. After they got to know each other, the aims and processes of the focus group discussions were explained. Refreshments were provided during the discussions.

The researcher acted as moderator and started the discussion by reading aloud stories which were devised by the researcher (Appendix 5) showing an example of healthy ageing, particularly in relation to physical activity. The stories were devised specifically for each group. It was expected that the stories would stimulate the participants to reflect on the notion of active living. The moderator led them into a discussion using questions from the discussion guideline as shown in Appendix 1. All discussions were audiotaped with the consent of the participants. In addition, salient issues were noted during the discussions, which were continued until no more new issues emerged. Each group session lasted approximately an hour. Two focus groups were conducted at this health centre.

Bhumiphol Adulayadej Hospital

The procedures of focus group discussions used at the Pradipat Health Centre were applied but slightly modified to suit the circumstances of the hospital. The researcher observed activities at the hospital for a week and then organised a meeting with staff in order to gain cooperation. The focus group discussions were conducted at the meeting room of the Medical Clinic for the elderly. The researcher also acted as a moderator for all groups. Stories showing an example of healthy ageing were also presented. The two focus group discussions also lasted about one hour and were audiotaped.

4.3.6 Analysis

Framework

For this study, data were analysed using the framework analytical approach (Ritchie and Spencer, 1994). This approach has been developed specifically for applied qualitative research, which starts deductively from the aims and objectives already set for the study (Pope, Ziebland and Mays, 1999) as with this research. With such an approach the aims of the investigation are set in advance and shaped by the information requirements of the subsequent quantitative study (Pope et al., 1999). The advantage of the framework approach is that it is a well-defined procedure, which can be validated and reconsidered by either the researcher or other investigators (Pope et al., 1999). In addition, it is more specific than conventional qualitative analysis as it comprised an explicit five-stage procedure (Ritchie et al., 1994) as summarised in Table 4.1.

Procedure

The researcher transcribed all interviews into English. As some aspects of the language do not translate into English in a straightforward way, a summary account only was produced. One of 4 transcripts was randomly selected and checked by a certified language translator who was competent in both Thai and English in order to validate the translation. The framework approach for analysis as described earlier was then used to conduct the data analysis.

Table 4.1 Five stages of the framework approach to qualitative data analysis

Stage	Task	Outcome
1) Familiarization	Immersion in the raw data by reading all transcripts and notes from the focus group discussions Listing key ideas and recurrent themes	An overview of the richness, depth and diversity of data
2) Identifying a thematic framework	Identifying all key issues, concepts and themes by drawing upon, 1) a priori issues (those informed by original research aims and applied to the focus group discussion via the discussion guide), 2) emergent issues raised by respondents, and views or experiences that recur in the data Devising and refining a thematic framework to ensure that original research questions are being fully addressed	An index
3) Indexing	Systematically applying an index to the data (Transcripts)	An indexed transcript
4) Charting	Considering the range of attitudes and experience for each issue or theme Rearranging the data according to the appropriate part of the thematic framework to which they relate Forming charts (Abstraction and synthesis)	A chart (distilled summaries of views and experiences)
5) Mapping and interpretation	Reviewing the charts and research notes Defining concepts Mapping the range and nature of phenomena Creating typologies Finding associations between themes Providing explanations for the findings Developing strategies	Findings and explanations

Source: Adapted from Ritchie J. and Spencer L. Qualitative data analysis for applied policy research in Bryman A. and Burgess R. eds. Analysing qualitative data. 1994, and Pope C., Ziebland, S. and Mays N. Analysing qualitative data in Pope C. and Mays N. eds. Qualitative Research in Health Care. 1999.

4.4 Results

Forty elderly people were invited for interviews and 22 consented to participate. The focus groups with less-educated participants were conducted at Pradipat Health Centre, whereas the focus groups with more educated participants were conducted at Bhumipol Adulayadesh Hospital. The details of focus groups are as follows:

Group 1: less-educated females (n=5)

Group 2: less-educated males (n=6)

Group 3: higher-educated males (n=5)

Group 4: higher-educated females (n=6)

4.4.1 Sample characteristics

The demographic data of 22 participants, 11 males and 11 females are summarised in Table 4.2. The age of the participants ranged from 60 to 79 years and education levels varied from no education to tertiary education. Most of the participants were married and perceived themselves as either fairly healthy or healthy. Only one participant perceived her health as weak. All participants lived in Bangkok.

Table 4.2 Demographic characteristics of participants participating in focus group discussions.

Variables	Community Health Centre No. of the elderly (n=11)	General Hospital No. of the elderly (n=11)
Age	60-75 years	63-79 years
Sex		
Male	6	5
Female	5	6
Education		
Secondary school or lower	11	
College or upper		11
Marital status		
Married	7	6
Divorced	1	1
Widow or widower	2	2
Single	1	2
Current health status		
Healthy	6	7
Fairly healthy	4	4
Weak	1	-

4.4.2 Results of framework approach analysis

Thematic areas

The five stages of a framework approach to qualitative data analysis were conducted. All transcripts were read and re-read in order to gain an overview of the raw data (Stage 1). Then a thematic framework was generated (Stage 2) as shown in Table 4.3. The formation of the thematic framework which included both

research aims and issues raised by the respondents in the focus group discussions, was devised. A thematic area derived from the research aims was called a *predetermined theme* and one derived from discussed issues was called an *emergent theme*.

Table 4.3 Thematic framework for content analysis

Thematic categories	Thematic areas
Predetermined themes	Views about active living Current daily activities of the elderly Barriers to active living Benefits of active living Suggestions for increasing physical activity
Emergent themes	Gender and active living Family and active living Religion and active living Views about ageing

After an index or thematic framework was obtained from Stage 2, a systematic application of the index to the transcripts was begun (Stage 3). An example of an indexed transcript is shown in Appendix 6. Then the indexed transcripts were charted according to the thematic framework for each theme across all respondents (Stage 4). An example of a chart derived from the theme “*views about active living*” is shown in Appendix 7. When all data were charted, the last stage of the framework approach to data was conducted. Results from mapping and interpretation for all charts are described according to the thematic framework.

Qualitative findings

Predetermined themes

Views about active living

Definition of active living

Active living was defined by the participants as having something to do everyday and enjoying it. One participant said,

Working or exercising doesn't matter, as long as you are happy with it. It should be a good thing to be doing. (highly educated male)

The participants also viewed the active elderly as older adults who enjoy their lives and do things that they should be able to do by themselves. Activities thought to be active included working, exercising and leisure-time activities.

The main theme that emerged from the discussion was the notion of active living in relation to the equilibrium especially in respect to Buddhism. Some participants expressed that the elderly should be active in the middle path:

Not too much and not too little, that is all. It is a simple thing, don't make it too serious or treat it as a big job. (highly educated male)

This view relates to the doctrine of Buddhism known as the 'Middle Path' to avoid two extremes (Rahula, 1974), as one less educated female participant said,

When you are getting older, you need to be calm, relaxed and peaceful. I don't think it is good for us to be too active. I prefer to be a bit quiet and do things gradually, not so fast.

Buddhists also believe in karma, that is the law of cause and effect (Choowattanapakorn, 1999). One female participant linked her view on active living to the karma of Buddhism and believed that good acts (active living) would bring a good return.

I think if we do a good job for ourselves, we will get good things from it. It is the same as when we make merit, we deserve good things. (less educated female)

Some participants thought that the elderly should not be pushed or forced to be active because it might cause negative effects, as one said,

We don't want to think that we are being pushed or forced to do things. When we think like that we don't want to do them any more. It is sad and disheartening. (less educated female).

They also thought that they should be encouraged to appreciate and gain benefits from being active so that they can change their attitude to physical activity and enjoy being active.

Whoever loves to have activities, they will do them. For those who do not like it, don't push them. Activities can be a good thing in your life if you get something good from it. If you get bad things, then you cannot appreciate them. (less educated female).

The participants also expressed the view that attitudes, habits, enjoyment and family affected their active living.

It depends on what you can do. If you are good at cooking, doing housework and enjoy doing it, you are lucky. I know it can help your body working everyday. But if you get bored with those things because you do them all of your life, you cannot change your attitude towards them. Benefits are just the thing you know about but it might not be the thing you want. It is good for active living but how can we do it or change our behaviour when we are not ready to change our habits or family circumstances. (highly educated female)

Attitude towards active living

The vast majority of the elderly agreed they should be active, in particular socially active. One said

.....wake up early, do gardening, water plants are the best for the elderly, Social activity is also very important. (highly educated male)

They viewed an active older person as being good and diligent and a role model. The personality of an active person was viewed as a lively, healthy, enthusiastic, forward thinking and sociable. The evidence to support these is shown in quotes below.

I think he (the elderly in the story) is right, keeping busy is better than being lonely. (highly educated male)

I think she (the elderly in the story) is a good person who is still active, not only in her wife role but in her health. (highly educated female)

She (the elderly in the story) is so active and that is very good for her health. It is good to hear about this kind of elderly. (less educated female)

I think he (the elderly in the story) is very good and so diligent, I agree with him that we should be active at our age. Being active is very important for good health. (less educated male)

A few female participants held an unfavorable attitude towards active living. They expressed that a comfortable lifestyle was their favourite lifestyle. A comfortable lifestyle was described as having little or no housework and/or caring for family.

...I retired from work 10 years ago. I think it is time to be free from work and have a comfortable life. I have a servant at home. She does everything. I know doing housework is good exercise but it is too much for me to do and I don't like it. (highly educated female)

Fortunately I am free from housework as I am too old to do it now. I think it is time for resting at my age as I did a lot when I was young. (less educated female)

Current daily activities of the elderly

One of the purposes of the focus groups was to identify current daily activities of the elderly. These activities were categorised as domestic chores, social or leisure-time activity and fitness activity.

Domestic chores

Most of the elderly in the group viewed domestic chores as part of their daily activities. Some participants were required to do them but most were willing to do them. Many participants accepted that doing housework could provide health benefits. They also appreciated the merit of doing housework. Gardening and looking after family members were also mentioned as favorite activities. Particularly, looking after grandchildren was expressed as a good and enjoyable activity, although one participant disagreed with this notion as she viewed this activity as a burden and caused a limitation on engaging in social activities.

Females with a different education level viewed domestic chores in a slightly different way. Highly educated females had less enthusiasm toward domestic chores than less educated females, but they were more appreciative of social activities.

For me I didn't do any housework because I have a servant at home. I know doing housework is good exercise but it is too much to do and I don't like it. What I do is dancing and walking. I like to go out and have social activities.
(highly educated female)

Social activities

Most participants stated that the favourite social activities were, socializing with neighbors (chatting, walking in company with people of similar age, discussing community and family matters as well as ailments), having a picnic with family, sightseeing, visiting an ancient building or old temple, attending performances and religious activities. Some participants viewed religious activities as one of their social activities because they could see friends and neighbours when they visit a temple. Socialising with friends was also mentioned as a favourite activity but they preferred to meet friends outside such as at a public place, the market or restaurant rather than inviting friends to their houses because of inconvenience and privacy concerns.

We can up our feelings by enjoying time with either children or neighbours. I like to walk outdoors and have a chat with my neighbours when I am lonely. They can make my world a bit more exciting. (less educated female)

Fitness activities

Walking was mentioned as the most favourite activity among the participants, in particular walking with friends or family members. Exercising in a group was also mentioned but it was less favourable than walking. The reasons for preferring exercising in a group were enjoyment and fulfilment, the sense of belonging.

I think I am quite active but I give up exercising sometimes, I couldn't do it regularly but I do other things such as gardening or walking instead. (less educated male)

Exercise in a group is quite good because you can see people, you can make friends and have a group to belong to. (less-educated female)

The elderly reported that they did arm and leg exercise at home including bending and stretching by themselves. One participant said that he learnt how to do that from health professionals when he was in the hospital. It was in one of the rehabilitation programs. Playing sport was a questionable activity for females.

Sport for the elderly is a thing that I never thought of before. How can we play sport? I think, just take a walk that is enough for the elderly. (less educated female)

Barriers to active living

The elderly interviewed for this study highlighted a range of barriers to active living. These can be categorised into two main groups: individual, and social and environmental factors. Individual barriers to active living were physical problems, low self-efficacy and unfavourable attitudes. Social and environmental barriers

included issues to do with the physical environment, financial problems, lack of friends, lack of family support, lack of time, lack of information and unfavourable attitude of family towards physical activity.

Individual factors

Health problems were the first and most mentioned barriers to being active. The participants expressed that their illness, injuries and disabilities caused inactivity.

I stayed at home, actually stayed in bed, didn't go outside for two weeks because I was sick, after that it felt a bit difficult when I started walking again. My legs and my knees had hardly been used. (highly educated female).

I played golf for 10 years, then I got an injury in my arm so I have stopped it since then. I jogged after that but I got pain in my knee so I completely stopped. (highly educated male)

I cannot go anywhere by myself, it is a bit difficult to get in or get off a bus, like today I had to ask my neighbour to take me to see the doctor. I still can walk to my children's house. It is only a short walk that I can do, as it will hurt me if I walk a long way, my legs doesn't allow me. (less educated female)

The participants across groups expressed their perception of low self-efficacy. This perception related to the views of ageing as being 'too old' and powerless.

I love it but I cannot do it. (highly educated female)

We are not ready to be active. (highly educated male)

I think everyone would like to be active but we can't do much. (less educated male)

The elderly face many health problems. They are not ready to be active. (highly educated male)

Social and environmental factors

Unsupportive environments

The participants expressed that their environments were not supportive and that made it difficult for them to go out and about. Most participants were concerned about security and safety in their community, for example, unsafe walkways and busy streets. Some said that there were no public parks close to their houses, they could not leave their house empty as thieves may come in, and travelling by a public bus in Bangkok was not convenient.

Our area only has busy streets and it is so dangerous for the elderly to walk outside or ride a bicycle, that is why our children warn us to be careful. My community has no public park, some communities have and that is very good for the people who live there. You see, if it is not convenient, we don't want to go out. It is very difficult to find a public area or free place for the elderly to do things together. (less educated male)

I think it is their accommodation or location which does not enable them to be active, for example, the people living on level five in a condominium, I think it is difficult for them to get down and take a walk if they are seventy years old. (highly educated male)

If I had someone to talk and walk with me it might make my life easier. But actually I cannot go out by myself. I think this kind of thing suits the young, not the old people. Everything doesn't suit us actually, transportation, friends or groups. The worse thing is that facilities are so far away to access. (highly educated female)

Financial problems

Another issue raised during discussion related to economic factors. Some participants, in particular from the less educated group, had some difficulties to

participate in social activities because these activities were more likely to be too expensive for them to afford.

I asked my neighbour to come along with me to see a performance, she said she'd love to come but she did not have enough money. So it is too difficult to do. (less educated female)

Lack of friends

The vast majority mentioned the lack of friends to join in activities. This prevented them from being active in terms of going out. Most participants mentioned that if they had friends they might be able to take part in some activities. They also thought that it was not convenient for the elderly to go anywhere without friends or family members.

I think if they have friends or their family, who can encourage them, it may be easy to be active such as walking, exercising or working together. It is not convenient for the elderly to go anywhere without friends or family members. (less-educated female)

Lack of family support

Most participants in the group discussions said they lacked family support in relation to their physical activity. They reported that their children were too busy to be interested in their lifestyle;

We should understand them as they are very busy, like my daughter, she leaves home at 6 am. And come back at 6 pm. or 9pm. if she has to work over time. So how can she help me? (less educated female)

Some participants expressed that their spouses were not active and did not like any activities so that they did not have company to be active. However, one disagreed and said that the elderly could be active at home such as walking, gardening and exercising and that they could do it by themselves.

My neighbour drives to public park with family and they jog together, it is so nice when they exercise together, I think I would love to do that too but I couldn't encourage my wife to go with me, I don't know. She isn't interested in walking or exercising at all. (highly educated male)

Family's attitude towards healthy ageing

From the discussions, it was found that the family's attitude affected the elderly lifestyle. One participant said that she was discouraged from being active by her children since they asked her to stop doing things and have a rest. This could be explained by the notion that the 'tradition of repayment of the parents' goodness' is accepted by Thais (Choowattanapakorn, 1999). Therefore Thai children believe that they should repay the debt of gratitude by caring for their parents. This may in part form children's attitude believing that they should do the household duties and not their parents in order to repay their parents' goodness.

For me, I feel happy that I can do things by myself but my children don't want me to do them, they usually say 'please have a rest' I don't know, sometimes I feel sick as they treat me as I am sick. (less educated female)

...I think everyone would like to be active but we cannot do much. When I do gardening, my children usually tell me to stop "don't do that, you will be sick" as they think I am frail. (less educated male)

Lack of information

It was mentioned that the elderly lacked information about health services, resources and promoting health. The male participant from the highly educated group remarked:

Another thing is the lack of information, absolutely. Do you believe? I learnt that this hospital provides services for older people when I talked with my friend when we had dinner together in the last two months.

They indicated that if they had enough information about how to promote health and how to get started and where to go, they would do more for their health.

Benefits of active living

All of the participants agreed that active living could provide benefits for health. The most commonly mentioned benefits of being active related to psychological and social health. The vast majority of the participants across the groups described that being active made them fresh, lively, happy and proud. It also improved sleep and fitness, reduced stress and anxiety and boosted confidence. Some participants mentioned that engaging in activities improved social life by having a chance to be with other people and be a group member.

Exercise or being active provides good things for our life. We work, we get money, we know people, we stay fit and we are happy. (less educated male)

Exercise in a group is quite good because you can see people, you can make friends and have a group to belong to. (less educated female)

I work everyday, not just for money but for my mind also. (highly educated male)

Suggestions for increasing participation in activities

An appropriate activity

The participants mentioned that active living was a personal issue and an individual preference, therefore, it was necessary to have a variety of activities for older people. Almost all participants in the focus groups agreed that the way to encourage older people to be more active should be by motivating them to take part in appropriate activities. They said that an appropriate activity should be low cost, easy access and culturally suitable.

One thing that you have to think about is the activities that you encourage people to do should fit them. If you promote them to do Tai-Chi only a few Thai people will do it, it is only for Chinese people. I don't think Thai people would do. I bought the VDO about aerobic exercise, I thought that I would do it for my own sake, not for fun. I tried it and then I gave up, it was so difficult to do. (highly educated male)

Governmental support

Only male participants pointed out that the government should take responsibility by providing some funding on programs and services for promoting physical activity among the elderly. Promoting active living through mass media such as TV, radio, newspapers and newsletters was also mentioned. A program on TV was more mentioned than others. One less educated male participant expressed;

It is boring if you just stay home and watch TV. The TV programs show a lot about teenagers, nothing for us.

It was recommended that a TV program on promoting physical activity should have older people as presenters because they could see how the elderly were active and it would promote feelings of self-efficacy.

We should promote them broadly, for example on TV. I haven't seen older people's shows which encourage older people to get together. I see only teenagers show on aerobic dance in the morning, I think it is not a role model to tell the elderly that, OK, you can exercise at home, because presenters are just the younger persons. (highly educated male)

Professional support

Many participants in the highly educated group tended to believe that doctors could help the elderly to be active by providing them with advice and information. One male participant from the highly educated group said;

I mean that if your doctor said exercise three times a week and after one month came back and told me how it was, I think you will try to do some and after that it will be other things that can help you.

Participants thought that the elderly patients trusted and listened to their doctors and that they are significant persons for the elderly patient. However, there were some arguments that professional support was neither enough nor effective.

When they come to see their doctors, sometimes they get only a short talk and a prescription and that is all. If the doctors give more information or pay more attention to us, encourage and motivate, I think we will be very happy. (highly educated male)

Emergent themes

Gender and active living

Male and female participants viewed active living in a slightly different way. While males expressed more on working and socialising females mentioned more on domestic chores and looking after family members. Some women expressed a positive attitude towards housework as it can provide physical and emotional benefits, but some participants, particularly in highly educated group, felt that doing housework was just a responsibility, rather boring and that it should not be required if they do not feel like doing it.

I think because we are women that is why we have to do housework, take care of our family and cook everyday. (less educated female)

Male participants with a different education level expressed their views on active living in a different way. While highly educated male participants viewed leisure-time activities as a main part of being active, less educated males paid more attention to working as they could get income from being active even though they were older persons.

...when I think about active living, I think of my leisure. I cannot think about exercising or working because it is not enjoyable. (highly educated male)

..active living is about what we do, working, taking care of our family, do this and that during the day. Working is the best. Although I am old, I have to work for money. I cannot be active without money. Anyway my free time is just for resting. (less educated male)

Family and active living

The analysis of focus group discussions supported the notion that Thai families play an important role in taking care of the elderly. The role of family as a facilitator or barrier to active living was clearly depicted. The participants thought that their lifestyle was influenced by their spouse and children. They will be facilitators if they encourage the elderly to be active and help them by providing them an opportunity or company to take part in physical activity. On the other hand, if their family lack interest in the health of the elderly and do not support them, it will discourage them from being active.

I think our family can help, but the first thing we have to think about it that is you have to help yourself first, don't just wait for someone to help you. The thing we want from the family is support, you see, when your children give you a small dessert or fruit, you feel happy the whole day, don't you and after that you probably give them some money if they ask you. (highly educated female)

.....your family get involve with your lifestyle very much, like when I cook something and they don't like I think I will not cook it again. If our family understand and encourage us, we would be very happy but I think they are too busy to be interested in our activities, they just talk and that's all. (less educated female)

Another thing is their family doesn't pay them any attention so they just stay there and do nothing. They don't know where to go or what they should do. (highly educated male)

Living with children seems to provide opportunities for the elderly to be active in their homes, as they have to take care of their children and do housework. One participant said,

I help my wife do things around my house and take care of my children even though they are teenagers and adults but they are too busy to do it by

themselves. We do help them and I think it is good exercise, but we can stop if we want to. (highly educated male)

Religion and active living

As already discussed, religion was important in relation to the predetermined theme of the views about active living. In addition, it emerged as a theme in its own right. The participants expressed that they integrated the belief of Buddhism into their perception of active living. They thought that active living was in part based on Buddha's teaching which aims at producing a state of perfect mental health, equilibrium and tranquillity (Rahula 1974; p:67). They also practiced some forms of religious activity, which were accepted to be beneficial for both mental and physical health. These activities were meditation, praying, merit-making and donating. In addition, religious activity was viewed as the combination of religious practice and social activities. Religious activity is therefore a multi-purpose activity in the view of older Thais.

I have heard from a monk that our body and mind need opposite things. Our body should be active while our mind should be calm and peaceful. (highly educated female)

Yes I agree, the first things that the elderly should do are praying, giving food to monks and donating. These will help older people to be happy and calm. (less educated female)

.....when we go to the temple sometimes we take part in social activities. We meet friends there and we do things together. (less educated female)

Views about ageing

Older Thais' views of ageing were derived from the focus groups although these were not the aims of the discussions. Most participants expressed their feeling of growing older in a negative way. Little was positive in nature. They felt that getting older dramatically affected their life regarding functional decline, psychological and body image effect, social position and economic situation changes.

We will be sick and in a bad situation if we ignore information about doing good thing for health. When you were young you can do bad thing such as you can eat every thing you like to eat or you can smoke and nothing happen but when you get older and very old, you have to be very careful about doing good things otherwise you will be in that situation. (highly educated female)

Our body is declining everyday, nobody can stop the physical decline of us, we cannot do much and cannot go out. (less educated female)

The elderly themselves are bored with many things in their lives, they view their lives as being so short, some feel they had no hope and are lonely. (highly educated male)

Reactions to body images of older people were strongly reflected by highly educated females. Differently, less educated females did not express their views on body images. They seemed to accept those changes more readily.

What do people think about me when I wear this dress? We cannot be beautiful at 70 but I am still thinking about what people think when they see me. I am afraid that they probably think 'You are too old to dress like that'. When I was a young lady, before I left home in the morning I had to ask my husband 'Am I beautiful' but right now, I ask my daughter 'Am I ugly'? (highly educated female)

When I was young lady, I wanted to do this and that but I could not do them as I had so many things to take care of; my children, my parents and family. Now I have free time but I cannot go out and enjoy my life because my body is not strong and it will never be strong again. Anyway, we cannot complain, it is nature. (less educated female)

4.5 Strategies for promoting active living derived from focus groups

The focus group discussions provide information for developing strategies on promoting active living in two parts. First, some barriers derived from the focus group discussions can in turn create suggestions on promoting active living directly. For example, the participants mentioned that their health problems caused inactivity. Suggestion for addressing this barrier is therefore promoting appropriate activities for the elderly with a different health status. Second, some suggestions were made explicitly by the participants. These were promoting participation in an appropriate activity, and promoting governmental and professional support on active living among the elderly. The barriers and suggestions for physical activity interventions derived from the focus group discussions are presented in Table 4.4. However, these strategies needed to be confirmed with results from Chapter 6 prior to the development of a model. The confirmation and interpretation of results will be discussed in Chapter 7.

Table 4.4 Summary of barriers and suggestions for promoting physical activity

Barriers	Details of barriers	Suggestions for physical activity interventions
Health problems	Illness, injuries, disabilities, difficulty to return to activity after sickness	Promoting appropriate activities for the elderly with a different health status Activities for the elderly with a different preference and culture*
Low self-efficacy	Thought that they cannot be active, they are not ready to be active and they are too 'old' to be active	Promoting self-efficacy for active living among the elderly Governmental support through TV program for the elderly*
Unfavourable attitude	Thought that comfortable life is having nothing to do such as free from house works.	Promoting favourable attitude towards active living Governmental support through TV program for the elderly*
Unsupportive environments	Unsafe walkways, unsecured in the community, lack of public park, inconvenient transportation, traffic problems.	Developing supportive environments Governmental support through the Local Council*
Financial problems	Social and fitness programs for the elderly are expensive	Promoting economical physical activity programs for the elderly Governmental support through the community *
Lack of friends	Need friends to go out together	Developing a peer support group for the elderly
Lack of family support	Families are very busy, not interested in this issue	Promoting family support in a positive way
Unfavorable family's attitude	They did not want their parents do much work or go out	Promoting favourable attitude to active living targeting at family with the elderly
Lack of information	Information about services, resources and knowledge for promoting health	Providing more information on active living and promoting health for the elderly Health professionals support*

* Suggestions made by the participants

4.6 Discussion

This study aimed to explore the notion of active living and to determine current physical activities among the older Thais living in Bangkok. The information about current physical activities of the participants was used to modify an existing instrument (the AAP) for measuring physical activity. This modification will be described in Chapter 5.

The notion of active living among older Thais seems to be different from those in western countries. Thai elderly related the notion of active living with the doctrine of Buddhism. This reflects in their way of thinking that good acts bring a good return and the elderly should be active in the Middle Path. It is obvious that these notions are advantageous for promoting active living among the older Thais. The belief of the Middle Path would facilitate the elderly to take part in moderate intensity of activity which is accepted as being just beneficial as rigorous activity (Pescatello, 2001; Dunn et al., 1999; Andersen et al., 1999).

The elderly accepted that active ageing was important and beneficial. An active elderly was viewed as a role model and a happy and sociable person. They also held favourable attitudes and sound knowledge that active living was not confined to an exercise pattern only, but it included all activities in their daily life. This seems to be an advantage for promoting active living among the Thai elderly because they perceived health benefits not only from exercise but also from their

daily activities, thus promoting active living through increasing lifestyle physical activity would be accepted.

In accordance with many physical activity studies (Ruuskanen and Parkatti, 1994; Collette, Godin, Bradet and Gionet, 1994; Yusuf, Croft, Giles et al., 1996; Booth et al., 1997; Clark, 1999b) the most mentioned favourite activity was walking. Domestic chores also seem to be a useful activity because older Thais conveniently and regularly engaged in domestic chores. In addition, in particular for females, they appreciated the merit of doing housework in terms of happiness at having tidy houses and a positive feeling at being productive. Likewise, looking after family members was also appreciated by a number of female participants. Therefore domestic chores and looking after family members were deemed to be an appropriate activity for the female elderly.

The issues raised in the discussions indicated that attitudes within the Thai family are a significant factor regarding physical activity among the elderly. The Thai family plays the role of caregiver for the elderly. Reciprocally, the elderly are resource persons for children in terms of suggestions, financial support and house managing. This could be explained by the fact that in Thai society, family is recognised as one of the strong and significant institutions. Thai children are taught to pay respect toward their parents and ancestors and are expected to take care of their parents when they are old. Chayovan and Knodel (1997) reported that 81.9% of the elderly people in Bangkok lived with their children. Only few older Thai people live in nursing homes or institutional aged care (Choowattanapakorn, 1999).

This seems to be an advantage for the Thai elderly in terms of support from family if this factor is appropriately promoted.

The Thai elderly perceived many barriers to engagement in active living. These were health problems, low self-efficacy, unfavourable attitudes, unsupportive environments, financial problems, lack of social support, and lack of information. Clearly, these results confirmed the findings of other qualitative and quantitative studies from western countries (Booth et al., 1997; Nies et al., 1998; Clark, 1999a; De Bourdeaudhuij and Sallis, 2002). Some of these barriers in turn reflected suggestions for increasing physical activity including: promoting appropriate activities for the elderly, providing support from government, health professionals, friends and family and developing supportive environments for physical activity.

4.7 Conclusion

This chapter utilised a qualitative approach to exploring the notion of active living among older Thais. The results from this chapter form the basis of instruments used in a cross-sectional survey (Chapter 6) to identify the determinants of active living. In addition, the notion of active living, barriers to and suggestions for increasing physical activity will be used in conjunction with results from Chapter 6 for developing a model of promoting physical activity which will be described in Chapter 7. The next chapter will describe the modification of an existing instrument for measuring physical activity.

Chapter 5 - Modification of an existing instrument for measuring physical activity

5.1 Introduction

Since physical activity has been recognised as providing health benefits, physical activity levels of the population become important data for public health action (Macera, Ham, Jones, Kimsey, Ainsworth and Neff, 2001). The previous chapter described the notion of active living and physical activities of the Thai elderly. This chapter addresses the modification of an existing instrument for measuring physical activity by using a cross-cultural adaptation technique. Results from the focus group discussions (Chapter 4) in relation to current physical activities (see section current daily activities in Chapter 4) were initially used to modify the instrument. Individual interviews were then used including a probe technique to pilot test the modified instrument. Face and content validity of the modified instrument were ascertained through a process of cross-cultural modification. The background and significance of the study are described in this chapter, together with techniques and procedures.

5.1.1 Background and significance of modifying an existing instrument

While promoting active ageing is one of the important missions for the Thai National Health policy (Bureau of Health Promotion, 1999), Thailand still faces a

lack of specific tools for measuring physical activity. Two measures have been used for measuring functional ability among the elderly in Thailand, Barthel ADL index and Chula ADL index (Jitapankul, Kamolratanakul and Ebrahim, 1994; Jitapankul et al., 1999). These two measures, while having acceptable psychometric properties in relation to the Thai elderly, only focus on assessing ability to carry out daily activities which is less likely to be the aim for promoting active ageing. Without a measure for use in this area, it is very difficult for policy makers and health professionals to plan and evaluate services and policies. To develop a new tool is a time and resource-consuming process. In view of the urgency of promoting active ageing in Thailand, it was therefore decided to utilise an existing instrument developed in Western countries. However, before applying such an existing instrument in the context of Thailand, the differences in culture and language needed to be addressed. It is accepted that a modified instrument needs to meet the cultural sensitivity and true meaning in the translated language (Bowling, 1997). This thesis addresses the following questions:

- 1) what is an appropriate instrument for measuring physical activity of older adults? and
- 2) how should this instrument be modified across cultures?

5.1.2 Choosing an appropriate instrument for measuring physical activity of older adults

5.1.2.1 Issues regarding measurement of physical activity

There are several methods for measuring physical activity, ranging from “*self-reported measures to more objective assessments of movement, fitness or energy balance*” (Armstrong et al. 2000; p: 10). The various methods have been grouped by Bourchard & Shepard (1994) into 6 general categories; 1) Calorimetry, 2) Physiologic markers, 3) Mechanical and electronic motion detectors, 4) Behavioural observations, 5) Dietary energy intake, and 6) Occupational and leisure-time survey instruments. The last category is more likely to be used than others in public health research because there is strong evidence that regular, moderate intensity of physical activity produces similar health benefits to those achieved by vigorous activity (Dunn et al., 1998; Dunn et al., 1999; Andersen et al., 1999; Hu, Stampfer, Colditz et al., 2000; Pescatello, 2001). In addition, activity of moderate intensity carries a low risk of injury and ensures better adherence to the activity (Bercovitz, 1998). This has led to a shift in the physical activity paradigm (Bercovitz, 1998) as shown in studies (Simonsick, Laffery, Phillips et al., 1993; Ruuskanen and Ruoppila, 1995; Yusuf et al., 1996; Haapanen-Niemi, Vuori and Pasanen, 1999; Lian, Gan, Pin, Wee and Ye, 1999) which have focused on lifestyle physical activity rather than exercise or fitness activity.

Determining an appropriate instrument for measuring physical activity is complicated because physical activity for health benefits can be viewed in multi-dimensional aspects. Expanding on this idea, Armstrong et al. (2000) state that physical activity comprises several components, dimensions and contexts or settings. Components include intensity, frequency, duration and type, while dimensions include energy expenditure, fitness, strength and flexibility, settings or

contexts of physical activity include occupational, leisure-time, incidental and transport (Armstrong et al. 2000, p:10). From this notion, selecting a specific dimension, component and context of physical activity is of prime importance. The next important step is identifying an instrument for measuring such a specific view of physical activity.

A questionnaire method is a common and practical approach suitable for a large sample size such as in population studies (Bauman et al., 1990; Bouchard et al., 1994). This method can incorporate either self-reported responses or interviewer-completed assessments (Ainsworth, Montoye and Leon, 1994). As O'Brien-Cousins (1996) has pointed out, a self-report measure can provide much information about the respondents' physical activity patterns 'with near clinical accuracy'. It is a low cost, low time consuming and easily administered technique, which is also unobtrusive, and non-reactive (Ainsworth et al., 1994). This type of measure has been widely used in many studies (Weller et al., 1997; Chogahara, 1999; Friedenreich, Courneya and Bryant, 1998; Canon, Levol and Duforez, 1995). One example of recall questionnaires is the elderly physical activity questionnaire (Elderly PAQ) (Voorrips, Ravelli, Dongelmans, Deurenberg and Van Staveren, 1991). It is a self-administered questionnaire comprised 34 items. The strengths of this tool are the high reliability and validity, and its ability to classify elderly subjects into groups of high, medium and low physical activity. However, the intention of this tool is to recall physical activity of the past year. This may lead to the limitation of data quality due to the cognitive difficulties of the elderly when recalling and reporting physical activity that happened a long time ago.

Using a self-reported measure requires that the researchers determine a recall period, which may be a week, a month or even a year (Bouchard et al., 1994). The validity and reliability of self-report measures of physical activity are in part affected by the way in which respondents answer questions, the ability to recall historical physical activity accurately and the recall period included in such measures (Durante and Ainsworth, 1996). This raises two main questions to be addressed. The first question is how to gain accurate data when using a recall measure of physical activity. The second question is what criteria should be used to identify an appropriate recall period.

Durante & Ainsworth (1996) presented ways to gain accurate data when using a recall of physical activity instrument by the use of cognitive strategies to guide question-answering process through three types of crucial information of physical activity: 1) types of physical activities recalled, 2) the frequencies of activities, and 3) temporal sequencing of the activities. These strategies include the methods to identify potential cognitive difficulties with a question and the methods to identify possible ways for improving data quality.

In relation to the second question regarding validity and reliability of a recall measure, Blair, Dowda and Rate (1991) studied the reliability of long-term recall of participation in physical activity in middle-aged men and women in the USA. Leisure time physical activity was assessed at baseline and then was repeated within 1-10 years after the baseline examination. It was found that the relationship

of actual baseline and recalled activity was positive; percent agreement between baseline and recalled activity ranged from 60 to 75% and recalled activity was a significant predictor of baseline activity. However, recall interval and age did not affect recalled activity. The study therefore suggested that questionnaire assessment of long-term physical activity recall was reliable and the recall interval could be up to 10 years.

A study by Booth and colleagues (1996) of Australian adults in Adelaide, South Australia also confirms the reliability of recall measures of leisure-time physical activity. The two 14-day recall measures were used to measure physical activity participation in two studies of randomly selected samples (n=115, n=116). The repeatability was assessed on the recall of activity over two different time periods and over the same time period. The results show that any variation in repeatability coefficients was due to the actual variation in physical activity participation over the two different time periods. The study concluded that the recall measures of physical activity have acceptable repeatability.

The characteristics of the activity and of the respondent also influence the validity and reliability of physical activity self-reports (Durante et al., 1996). It has been found, for example that people engaging in vigorous, hard and very hard activities had more accurate recall than those in moderate or less strenuous activities (Blair et al., 1991; Sallis, Haskell, Wood et al., 1985) and older people had a poorer recall than younger people (Cumming and Klineberg, 1994). These issues therefore need

to be taken into account when designing a self-reported measure on a leisure-time physical activity among the elderly.

5.1.2.2 The selected instrument for measuring physical activity of the Thai elderly of the study

Important issues regarding physical activity measure are that questions of the measure need to be age and gender sensitive, comprehensive, relevant to the lifestyles of the target groups (O'Brien-Cousins, 1996) and able to capture all information about the target dimension of physical activity (Ainsworth et al., 1994). Using these criteria, the Adelaide Activities Profile (AAP) (Clark and Bond, 1995) was judged to be an appropriate instrument for this research as follows: 1) it was specifically developed for the elderly living in the community, 2) it reflects all crucial information about physical activity in terms of types, frequencies and temporal sequencing of events, 3) it covers a range of activities in daily life of the elderly, 4) it has acceptable psychometric properties, and 5) it can be used in a practical way (Clark et al., 1995).

Although the AAP was not originally developed for assessing physical activity, the questions of the AAP are relevant to lifestyle activity ranging from activities in daily life to social activities. As discussed in Chapter 1 (section 1.5) physical activity in this study is defined as lifestyle activity pertaining to the concept of active living (Bercovitz, 1998), the characteristic of the AAP therefore leads to an appropriateness for use with older Thais of this study. The AAP is also unique in that social activities were included. It is important that social activities among the

elderly are explored as there is evidence from a population based study (Glass et al., 1999) that not only fitness activities provide health benefits, but also productive and social activities can lower the risk of all cause mortality. The AAP were not developed aiming at measuring physical activity levels but rather it aimed to describe lifestyle activities in the elderly and to reflect on physical activity domains. This seems to be useful for identifying areas of improvement.

The AAP, originally called the Frenchay Activities Index, was initially developed by Holbrook and Skilbeck (1983). It was then further tested by Bond, Harris, Smith and Clark (1992) and modified by Clark and Bond in 1995 when it was re-named the Adelaide Activities Profile. The revised version of the AAP consisting of 21 items included four factors: 1) domestic chores, 2) household maintenance, 3) service to others, and 4) social activities. It should be noted that three items: 1) heavy housework, 2) making a telephone call, and 3) caring for other family members, were found to have dual loading. The factor structure of the AAP is presented in Table 5.1.

Table 5.1 The factor structure of the Adelaide Activities Profile

Name of factors	Activities represented
Domestic chores	<ol style="list-style-type: none"> 1) Preparing meals 2) Washing clothes 3) Light housework 4) Household shopping 5) Washing dishes 6) Heavy housework* 7) Personal shopping 8) Making telephone calls*
Household maintenance	<ol style="list-style-type: none"> 1) Heavy gardening 2) House/car maintenance 3) Light gardening 4) Driving car/organizing transport 5) Heavy housework* 6) Hobbies 7) Walking outdoors
Service to others	<ol style="list-style-type: none"> 1) Attending religious services 2) Voluntary or paid employment 3) Caring for other family members* 4) Making telephone calls* 5) Entertaining at home
Social activities	<ol style="list-style-type: none"> 1) Outdoor recreation/sport 2) Outdoor social activities 3) Social activities at a community centre 4) Caring for other family members*

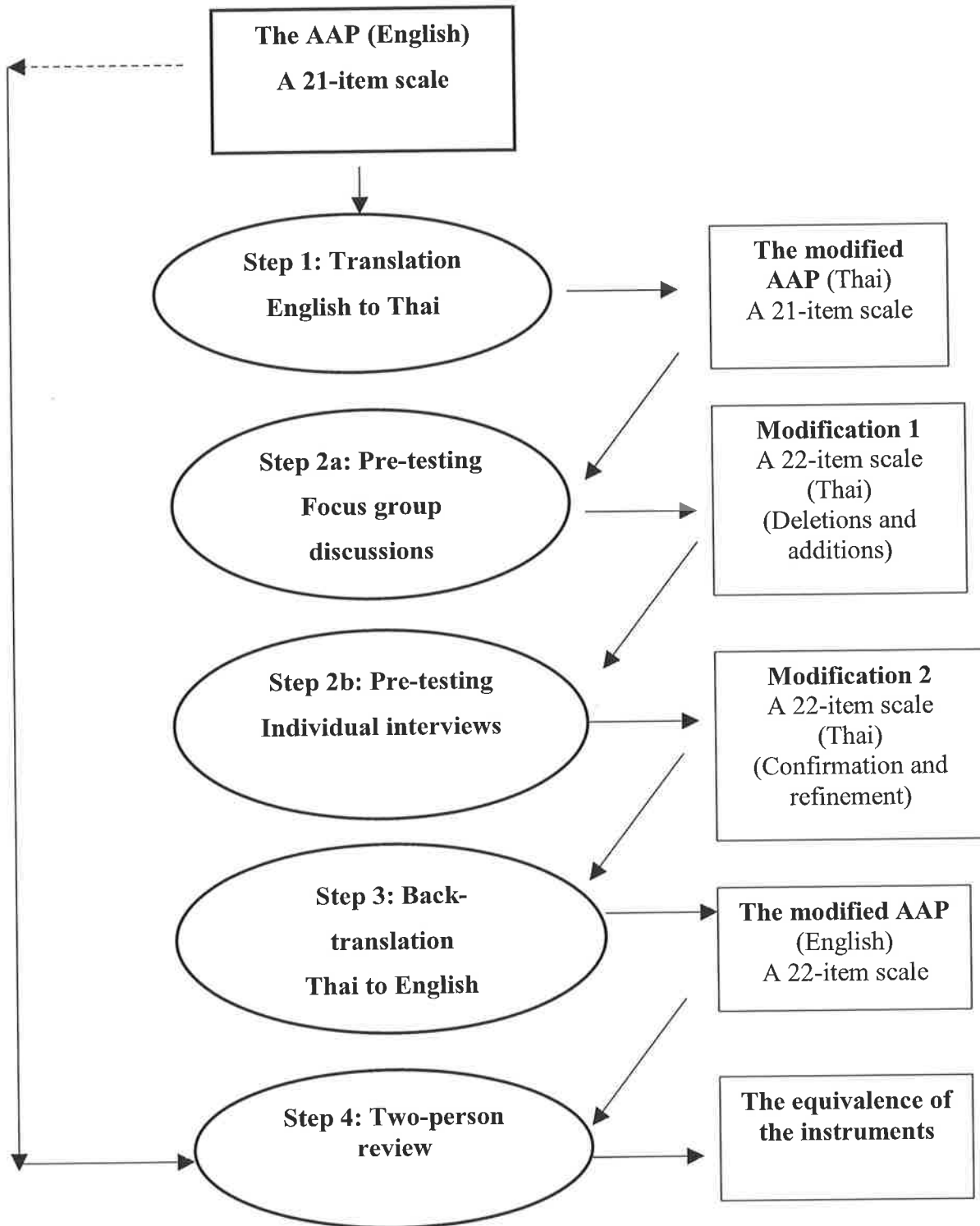
* Items were fitted in two factors

5.1.3 Modification of an existing instrument: A cross-cultural adaptation technique

A simple translation of an existing instrument may fail to address some vital cultural differences. Cross-cultural adaptation has been recognized as a necessary technique producing culturally sensitive instruments in many studies (Hilton and Skrutkowski, 2002; Vinsnes, Haltbakk and Hunskaar, 2000; Knudsen, Vazquez-Barquero, Welcher et al., 2000; Carlson, 2000; Perneger, Leplege and Etter, 1999; Chang, Chau and Holroyd, 1999). For this study, the guidelines developed by

Guillemin and colleagues (1993) were used to modify an existing instrument. They were developed on the basis of both empirical and theoretical findings extracted from the literature obtained from a systematic review of 17 published works on cross-cultural adaptation. The theoretical foundation was obtained from guidelines on the methodology of assessing the validity of Health Related Quality of Life measures (Guillemin et al., 1993). The general guidelines comprise 5 steps: (a) translation, (b) back-translation, (c) committee review, (d) pre-testing and (e) weighting of scores (Guillemin et al., 1993). To use these guidelines in a practical way for this research they have been adapted and were administered in 4 steps as follows: (1) translation, (2) pre-testing, (3) back-translation and (4) two-person review. The flow chart of the cross-cultural adaptation technique is demonstrated in Figure 5.1.

Figure 5.1 The flow chart of cross-cultural adaptation technique



5.2 Methods and results

5.2.1 Step 1: Translation

The cross-cultural translation technique required a translation team comprising three bilingual members and one English-speaking investigator. At step 1, the first bilingual member of the team independently translated the 21 items and response choices on the AAP from English to Thai. The second translator followed the same procedure but was unaware of the objectives and concepts of the instrument in order to draw out any additional interpretation of the items. This technique was used throughout the process. After the translations were completed, the two translators met and reviewed their two versions to resolve discrepancies and then produced a single, jointly agreed Thai-version of the AAP.

5.2.2 Step 2: Pre-testing

5.2.2.1 Modification 1: Using results from focus group discussions (Chapter 4)

The first modification of the AAP occurred by reviewing the original version in light of the results from the focus group discussions examining current physical activities. This process indicated that 2 items of the AAP were inappropriate due to a low frequency of occurrence during the discussions (inviting people home and participating in a recreational or outdoor sport) so these were dropped from the scale. In addition, three new items emerged from the discussions and were therefore included in the scale. These new items were (1) physical exercise at

home, (2) exercise in a group, and (3) having a chat with neighbors. The results from the focus group discussions also reflected that the participants of different genders and education groups provided slight differences in details of activities. For example, male participants provided more details on outdoor and social activities, while female participants reflected more on indoor activities. Highly educated participants showed more interest in leisure activities than less educated participants. However, almost all activities from the AAP scale were found to make sense to the Thai elderly. At this stage, the modified AAP comprised 22 items (2 excluded and 3 added).

5.2.2.2 Modification 2: Individual face to face interviews

The aim of the interviews was to confirm the modified AAP scale derived from the first modification by using a probe technique (Bowling, 1997) to ensure that it was sensible and suitable for the Thai elderly in terms of idioms, colloquialisms and culture. The entire procedure of individual interviews, as described in Appendix 8, was conducted with the elderly people at the Pradipat Community Health Centre and at the Bhumibol Adulyadej Hospital in Bangkok in February 2000 (Details of settings as described in Chapter 3).

Identification and consent gaining

The attendance lists of both venues were used as a sampling frame. The purposive sampling method as explained by Neuman (1997) was used in order to ensure the widest variety of respondents including less and highly educated males and females. The eligible participants had to be aged 60 years and over, not suffering

from a serious illness and residing in Bangkok. Potential subjects were approached directly while they were waiting for medical services. If they met the criteria the researcher explained to them the purposes, objectives, methods and time needed for an interview. If they agreed to participate in interviews, consent forms (Appendix 9) were signed. Each participant was also given an information sheet (Appendix 10). The researcher approached the potential participants consecutively until sufficient participants were available with a balanced variety of the characteristics of education level and gender. Time spent for recruiting the participants was 10 days.

Participants

Thirty-three elderly people were invited and 23 consented to participate in the interviews. The respondents comprised 13 males and 10 females; age ranged from 60 to 79 years and education ranged from no education to tertiary education. All respondents lived in Bangkok. Although, the participants of individual interviews were recruited from the same settings as did the focus groups (Chapter 4), they were a different group of participants. The relevant demographic information of the participants is demonstrated in Table 5.2.

Table 5.2 Participants demographic details

Variables	Community Health Centre No. of the elderly (n= 10)	General Hospital No. of the elderly (n= 13)
Age	60-75 years	61-71 years
Sex		
Male	6	7
Female	4	6
Education		
Secondary school or lower	7	5
College or upper	3	8
Marital status		
Married	6	6
Divorced	1	3
Widow or widower	3	2
Single	-	2
Current health status		
Healthy	4	7
Fairly healthy	3	5
Weak	3	1

Procedures

Meetings with staff at two settings were organised prior to the interviews in order to organise facilities. The interviews took place in a small quiet room provided by staff at both settings. Time for interviewing was made by the participants so that it was suitable for them. At the beginning of interviews, the researcher introduced herself to the participants in order to gain their acceptance and trust. The participants were provided a comfortable seat and privacy in order to help them to be as relaxed as possible. When the participants were ready, they were asked to answer the questionnaire (the AAP) item by item while the researcher wrote in the exact response given by the participants, noted any difficulties in interpretation and

recorded suggestions from the interviewees into the questionnaire. All responses and comment were noted in the space under relevant items. In case that the participants gave an inappropriate or incomplete answer, the researcher would use a probe technique in a neutral way to request for an elaboration. Examples of verbal probes used in the interviews were "Anything else?", "How is that?" and "In what ways?". The participants were also asked to give feedback and examples for each item. The time spent for an interview was 30-40 minutes per person.

Outcomes of Modification 2

Each item was reviewed by considering the responses from each of the 23 participants. It was found that the three new items derived from the focus groups' discussions were confirmed as appropriate for the Thai elderly. Two issues emerging from the interviews were the time frame for physical activity recall and the details of each activity. It was found that the 3-month time frame as applied in previous studies (Holbrook et al., 1983; Bond et al., 1992; Clark et al., 1995) was too long for the elderly to recall. Thus the 2-month time frame was adopted. The second issue is that the question "*How often have you walked outdoors for 15 minutes or more?*" seemed unclear. Thus it was modified by incorporating a distance rather than a time frame. For the details of each activity, there were some changes in religious, social and leisure activities as the details of these activities are different from western cultures.

At the end of the pre-testing step, there were 22 items of the measure of physical activity. The comparison of the two version of the AAP is presented in Table 5.3.

Table 5.3 Comparison and justification of the original and modified version of the AAP

Original questions	Outcome of cross-cultural translation	Modified questions	Reason
1) How often have you prepared a main meal?	✓		
2) How often have you washed the dishes?	✓		
3) How often have you washed clothes?	✓		
4) How often have you done light housework?	✓		
5) How often have you done heavy housework?	✓		
6) How many hours of voluntary or paid employment have you done?	✓		
7) How often have you cared for your family members?	✓		
8) How often have you done household shopping?	✓		
9) How often have you done personal shopping?	✓		
10) How often have you done light gardening?	✓		
11) How often have you done heavy gardening?	✓		
12) How often have you done household and/or car maintenance?	✓		
13) How often have you needed to drive a car or organised your own transport?	✓		
14) How often do you spent some time on a hobby?	✓		
15) How many telephone calls have you made to friends or family?	✓		

Table 5.3 Comparison and justification of the original and modified version of the AAP (Con't)

Original questions	Outcome of cross-cultural translation	Modified questions	Reason
16) How often have you invited people to your home?	Dropped from the scale		Low occurrences among older Thais (Focus group indicated)
	Included in the scale	16) How often do you have a chat with your neighbours or others in the village?	Frequently reported by the participants of the focus groups
17) How often have you participated in social activities at a centre such as a club, a church, or a community centre?	*	17) How often do you join social activities such as groups, clubs, community centres or training sessions?	
18) How often have you attended religious services or meetings?	*	18) How often do you practice religious rituals such as going to the temple, making merit, listening to the sermons and worshipping the image of Lord Buddha?	Most of the Thai elderly are Buddhists, therefore religious activities of the Thai elderly are different from those of the elderly in western countries.
19) How often have you participated in an outdoor social activity? *BBQ, picnics, spectator sports	*	19) How often do you have activities outside the house such as having a meal, visiting a show or a trade fair, and having an excursion or an educational trip?	The details of this activity are different but the meaning and type of activity are equivalent
20) How often have you spent some time outdoors participating in recreational or sporting activity?	Dropped from the scale		Low occurrences among Thai elderly
21) How often have you walked out doors for 15 minutes or more? *Sustained walking for about 1 mile	**	20) How often do you walk continuously about 1.5 km?	A time frame is not suitable for the Thai elderly therefore a distance time frame in metre unit is used.
	Included in the scale	21) How often do you exercise at home?	Frequently reported by the participants of the focus groups
	Included in the scale	22) How often do you join a group exercise?	Frequently reported by the participants of the focus groups

√ = Judged to be exactly equivalent

* = Minor modification

** = Major modification

5.2.3 Step 3: Back translation

The draft of the 22-item scale of the AAP derived from Modification 2, including response choices was independently translated back from Thai into English by a certified language translator (the third bilingual member as mentioned in section 5.2.1) who was competent in both Thai and English. The outcome at this step was the 22-item modified English version of the AAP.

5.2.4 Step 4: Two person review

The modified English version of the AAP was then compared to the original version by a native English-speaking investigator and the researcher. After comparing the two versions, both investigators agreed that the overall activities reflected in both scales were equivalent.

5.3 Summary and conclusion

In order to measure physical activity levels of the Thai elderly, an instrument was selected from existing instruments, which had been developed and used in western countries. The criteria for selecting this instrument were based on; 1) the new physical activity paradigm that has been shifting from fitness to lifestyle or leisure-time physical activity, 2) the appropriateness of a self-reported questionnaire method as a measure, 3) the psychometric properties of validity and reliability of the measure, and 4) the practical application in the field of ageing. The selected

instrument was then modified for use with Thai people through the process of a cross-cultural adaptation technique, which is widely used in cross-cultural studies. The outcome of the modifications was that the modified questionnaire was deemed to be an equivalent instrument. Face and content validity of the modified instrument were established through a process of focus group discussions and individual interviews. This process verified the appropriateness of the modified instrument in terms of cultural sensitivity for investigating physical activity levels among the Thai elderly. Utilising the modified instrument on a cross-sectional survey will be described in the next chapter.

Chapter 6 – Physical activity level and determinants of active living and: cross-sectional survey

6.1 Introduction

This chapter describes a cross-sectional survey of the elderly in Bangkok using the AAP instrument, which was developed through the process of cross-cultural translation described in Chapter 4 and 5. In order to provide an overall picture of physical activity levels among older adults both in western and Asian countries, the physical activity studies in these countries will be reviewed.

6.1.1 Research examining physical activity in western countries

Physical activity levels of the elderly have been studied in a number of western countries (Baumen et al. 1990; Simonsick et al., 1993; Ruuskanen et al., 1995; Yusuf et al., 1996; Haapanen-Niemi et al., 1999). Several studies have found that physical activity participation among western people has been increasing in recent years but their physical activity levels are still low (Blair et al., 1996; Kafatos, Manios, Markatji, Giachetti, Vaz de Almeida and Engstrom, 1999; Haapanen-Niemi et al., 1999). The baseline data from a United States study (Simonsick et al., 1993) on physical activity at three sites (East Boston, New Haven and Iowa) showed that in a group of unimpaired elderly participants aged 65 years or over (n=5512), between 16% and 26% were identified as highly active and between 26% and 32% as inactive. In this study, the inactive group was distinguished from

the highly and moderately active group by a lack of any significant activities such as walking, gardening, playing sport, physical exercising or doing housework.

A later American study (Yusuf et al., 1996) of 2,783 older males and 5,018 older females aged 65 years or over defined regular physical activity as participation in leisure-time physical activities three times or more per week for 30 minutes or more during the previous two weeks. This study found that the prevalence of regular physical activity was 37% among older males and 24 % among older females. The survey also revealed that perceived excellent to good health, having correct exercise knowledge, no activity limitation and not perceiving 'a lot' of stress during the previous 2 weeks were correlated with regular physical activity. In addition, the participants who had been told at least twice that they had high blood pressure and received physician's advice were more likely to take part in a regular physical activity than those who did not. Walking and gardening were the most popular activities among the participants.

In Finland, a cross-sectional study by Ruuskanen & Ruoppila (1995) showed that of a total of 1,244 adults aged 65 to 84 years, about 50% of respondents carried out regular walking, 40% practised some forms of home gymnastics and 20% were no more physically active than was essential for performing their daily activities. More recently, a follow-up study by Haapanen-Niemi and colleagues (1999) found that among middle-aged and elderly Finnish men aged 37-89 years (n=1,340-7,928 from six studies), the prevalence of a low level of leisure-time physical activity was 22 to 39%. Low level of leisure-time physical activity was defined as an engagement in a low to moderate physical activity, such as walking or bicycling for

at least 30 minutes less than 4 times a week. The study also reported that only one-third of the middle aged Finnish population had sufficient physical activity when using a criterion recommended by the Centres for Disease Control and Prevention and by American College of Sports Medicine.

In Australia, the Commonwealth Department of the Arts, Sport, the Environment, Tourism and Territories (DASETT) conducted a survey on the trends in physical activity among Australians during 1984 and 1987 (Bauman et al., 1990). The pooled estimate of physical activity of 17,053 participants aged 14 years and over, showed that the first group of 14.9% of Australians was active sufficiently for cardiovascular protection. The second group of 19.5% was moderately active and the third group of 35.8% was less active. The last group of 29.7% was classified as totally sedentary. The authors further noted that, during 1984 and 1987, the prevalence of very active Australians was slightly increased and the total of sedentary Australians was substantially decreased. The survey also revealed that women, older people, less well educated and lower income people were less likely to take part in regular physical activity than other groups.

Later in 1992, the Pilot Survey of the Fitness of Australians (DASET, 1992) was carried out by using some existing questions from the DASETT survey and of the National Heart Foundation 1989 Risk Factor Prevalence Survey. With a response rate of 62%, a randomly selected sample of 2,298 adults (aged 18-78) was asked to report their leisure-time, home and occupational physical activities. It was found that 15% of the respondents engaged in vigorous exercise, 29% were moderately

active, 33% were less active and 23% were sedentary. The sample of these two Australian studies was a wide age group, it is therefore difficult to determine physical activity levels of the elderly. However the trend of physical activity among Australians can be described.

The two Australian studies (Bauman et al., 1990; DASET, 1992) are comparable because the same questions were used. The studies show a positive trend in the number engaged in physical activity between 1984 to 1992. The number of moderately active people increased almost 10% (from 19.5% to 29%) and the number of less active and sedentary people slightly decreased.

More recently, a national physical activity survey of Australian adults was conducted (Armstrong et al., 2000). It was found that around 50% of men and 40% of women (aged 60-75) achieved a 'sufficient time and sessions' in physical activities (Armstrong et al., 2000, p.31).

6.1.2 Research examining physical activity in Asian countries

In Asian countries, data on physical activity and its determinants among the elderly are limited. By using CD-ROM searches such as Medline and CINAHL, only a small number of studies investigating physical activity levels of the elderly in these countries was found.

One population based survey in Singapore measured physical activity levels of people aged 18 to 69 years in different ethnic groups (Hughes, Yeo, Lun, Thai, Wang and Cheah, 1990). The physical activity levels were classified as high, medium and low based on activity in leisure and at work. The study revealed that up to 80% of Chinese, 75% of Indian and 70% of Malays were identified as a low activity group and only a small proportion (24.8% of Malays; 18.1% of Indians; and 16.0% of Chinese) were labelled as high activity.

A later cross-sectional household survey of physical activity was carried out with 2,494 subjects aged 60 years and older in Singapore (Lian et al., 1999). The survey revealed that 47.0% of males and 38.5% of females practised a regular leisure-time physical activity and such activities were significantly correlated with family support, proportion of family members exercising, awareness of benefits of exercise and healthy dietary habits. In addition, smoking, lack of time and poor health were negatively correlated with physical activity.

In Taiwan, a physical activity study (Wang and Chiou, 1996) has been carried out with a total of 500 participants aged 65 years or over. It was found that 43.8% of them exercised regularly and 19.2% never exercised. The study also reported regular exercise to be positive related to: self care, no history of exercise injury during youth, being a male, a higher perceived self-efficacy score, a lower perceived barrier score and having a higher cue to action score. In addition, walking was found to be the most popular exercise among the participants.

In Thailand, physical activity of the elderly has been investigated by Siriboon and colleagues (1996). One hundred thirty two older adults living in the community in Bangkok were asked about their free time activities. It was found that more than half of the participants (56.8%) slept or sat without doing anything in their free time. Only 15.2% had hobbies and 10.6% talked with neighbours.

More recently, a comparison study in Thailand (Henry, Webster-Gandy and Varakamin, 2001) investigated the physical activity of two groups aged 60 years or older. The first group of participants was 90 elderly people living in a residential home in Chun Buri, 87 km. south of Bangkok. The second was 78 elderly people living with their families in a rural community in Suphun Buri, 107 km. north of Bangkok. Self-reported activity diaries were used to collect data with the assistance of the investigator. The daily Physical Activity Level (PAL) of the participants was calculated from activities recorded in a diary. The study found that there was no significant difference in PAL values between men and women at both groups. The range of PAL values was very similar for men and women at the residential home but there was a much wider range of activity levels in the rural community. In addition, the participants in residential homes had lower PAL values than the participants in the rural community. However, the authors did not point out whether or not the participants in the residential home were inactive. Rather, they compared PAL values of the older Thais with results from North America and Europe and argued that the differences in ethnic status and social structures such as opportunities to take part in physical activity affect physical activity levels of the population.

Several methodological features are worthy of comment in comparing the reviews of physical activity levels. Firstly, most studies had well-defined sampling frames and obtained large sample sizes, in particular for a cross-sectional survey. Secondly, only two studies (Ruuskanen et al., 1995; DASET, 1992) reported response rates. Thirdly, all studies used a self-reported measure, as it is more practical than physiological measures in a population survey (Bauman et al., 1990). Leisure-time physical activities were paid more attention than fitness activities and definitions of and criteria for assessing physical activity were slightly different in each study. It is therefore difficult to compare physical activity levels between countries. Nevertheless, figures range from 20% to 32% being physically inactive. The overall levels of physical activity of the elderly seem to be similar in western countries and they are more likely to be active than the elderly in Asian countries. The reviews are summarised in Table 6.1.

Table 6.1 Physical activity studies in western and Asian countries

Study	Country	Sample	Definition of physical activity	Prevalence of physical activity								
Simonsick et al. (1993)	America	5512 older adults aged 65 years or over	Engaging in walking, gardening, playing sport, physical exercising and doing housework	16% - 26%: highly active 26% - 32%: inactive								
Yusuf et al. (1996)	America	2783 older males and 5018 older females aged 65 years or over	A regular physical activity is participation in leisure-time physical activities 3 times or more per week for 30 minutes or more during the previous 2 weeks	24% among females and 37% among males: had a regular physical activity								
Ruuskanen & Ruoppila (1995)	Finland	1244 older adults aged 65 -84 years	Physical exercise such as walking, home gymnastics daily activities	50%: took a regular walking 40%: practiced home gymnastics 20%: just performed daily activities								
Haapanen-Niemi et al. (1999)	Finland	1340 - 7928 men aged 37 - 89 years	A low level of leisure-time physical activity is engaging in low to moderate physical activity such as walking or bicycling for at least 30 minutes less than 4 times a week	22% - 39%: low level of leisure-time physical activity								
Bauman et al. (1990)	Australia	17053 people with a wide range of age (14 - > 50)	Physical activity recall in the previous 2 weeks: the measure derived from the Fitness Canada surveys	14.9%: sufficiently active 19.5%: moderately active 35.8%: low active 29.7%: totally sedentary								
DASET (1992)	Australia	2298 adults aged 18 - 78	Leisure-time, home and occupational physical activity	15%: engaged in vigorous exercise 29%: moderately active 33%: low active 23%: sedentary								
Hughes et al. (1990)	Singapore	People aged 18 to 69 with different ethnic groups	Physical activity in leisure and at work	<table border="0"> <tr> <td>Low activity</td> <td>High activity</td> </tr> <tr> <td>80.0%: Chinese</td> <td>16.0%: Chinese</td> </tr> <tr> <td>75.0%: Indians</td> <td>18.1%: Indian</td> </tr> <tr> <td>70.0%: Malays</td> <td>24.8% Malays</td> </tr> </table>	Low activity	High activity	80.0%: Chinese	16.0%: Chinese	75.0%: Indians	18.1%: Indian	70.0%: Malays	24.8% Malays
Low activity	High activity											
80.0%: Chinese	16.0%: Chinese											
75.0%: Indians	18.1%: Indian											
70.0%: Malays	24.8% Malays											
Lian et al. (1999)	Singapore	2494 older adults aged 60 years and older	Leisure-time physical activity	47.0% of males and 38.5% of females practiced a regular leisure-time physical activity								
Wang & Chiou (1996)	Taiwan	500 participants aged 65 years and over	Exercise	43.8%: exercise regularly 19.2%: never exercise								
Henry et al. (2001)	Thailand	168 older adults aged 60 years and older in two contrasting communities	The daily Physical Activity Level (PAL) was calculated from Physical Activity Ratios (PAR) which were translated from recalled activities at 10-min intervals over a period of 2 days	1.21 - 1.73 (PAL) in the residential home 1.21 - 3.08 (PAL) in the rural communities								

6.2 Methods

6.2.1 Study design and sample

A cross-sectional study was conducted in Bangkok between July and September 2000. Telephone interviews were the chosen method as it could yield an acceptable quality in the epidemiological and health data (Donovan, Holman, Corti and Jalleh, 1997). Although the telephone cover rate in Bangkok was 75% of total households (National Statistical Office, 2000), a telephone interview was considered as an appropriate and practical method compared to other methods such as mail surveys, face to face or household interviews. A mail survey is not practical due to the low literacy rate among older Thais. Most of them completed only primary school (National Statistical Office, 1998b). A mail survey, which requires literacy skill to complete questionnaires, is therefore less likely to be an appropriate method for older Thais than face to face or household interviews. However, face to face or household interviews usually have higher response rates than telephone interviews (Bowling, 1997) but it will be time consuming and expensive because of the traffic problem in Bangkok. For this reason, telephone interviews were considered an appropriate technique to collect data from the participants in this study.

The selection of sampling areas was based on one of 12 telephone area codes; Area 2-Telephone Code which fell within the north east of Bangkok geographical area. The choice of this area was based on its high density of the elderly compared with

other parts of Bangkok (National Statistical Office, 1998a). There was no prior sample size calculation because the study was exploratory in nature. In addition, the study aimed to survey around 200 older adults because it was feasible within the time frame. After taking into account the potential response rate, 500 telephone numbers from residential telephone listings from the study area were systematically selected. Firstly, the total number of telephone numbers within the residential telephone listings was calculated. This total (220,500) was then divided by 500 to give a sampling interval of 441. That is every 441 person in the listing was chosen. A starting page was randomly selected which was found to be page 9. Therefore, telephone number 1 of page 9 was the starting point and the next telephone number was 442. This systematic sample approximates a random sample because there is no conceivable relationship between the alphabetic order of telephone subscribers and the physical activity outcomes. An eligible person for this study was aged 60 years or over, either male or female, able to talk on the phone and Thai speaking.

6.2.2 Development of the questionnaire

The questionnaire comprised four parts: 1) physical activity scale, 2) attitude towards active living scale, 3) social and environmental determinants questions, and 4) demographic and perceived health questions (see Appendix 11 and 12)

Part 1: Physical activity scale

The first part of the questionnaire, which explored physical activities, was derived from a validated questionnaire designed to measure lifestyle activity of elderly

people living in the community known as the Adelaide Activity Profile (AAP). A cross-cultural adaptation technique was used to modify the questionnaire as explained in Chapter 5. This part of the questionnaire contained 22 questions exploring a range of activities and 2 questions exploring favorite activities among older Thais. A four-point response scale, ranging from 0 (never) to 3 (very often), was used to reflect frequency of individual activities during the typical 2-month time frame preceding the survey and to record how often respondents actually took part in those activities rather than what potentially they could do. This time frame was selected rather than the 3-month time frame applied in previous studies (Holbrook et al., 1983; Bond et al., 1992; Clark et al., 1995) because the evidence derived from individual interviews conducted with the Thai elderly (Chapter 5) indicated that a 3-month period was too long to recall.

Part 2: Attitude towards active living scale

The second part of the questionnaire aimed at measuring the elderly's attitude towards active living. The statements were developed in 3 components: perceived benefits (8 items), perceived barriers (10 items) and perceived enabling factors (3 items) and were based on a content analysis of data obtained from focus groups with the elderly in Bangkok in January 2000 (Chapter 4). Other components included a review of research-based articles that had measured attitudes towards active living (Chapter 1). Responses to the statements were organised using a 5-point Likert scale (strongly agree, agree, not sure, disagree and strongly disagree).

The statements were constructed using the term “active living” rather than exercising or physical activities as it avoided suggesting that the survey was only about attitudes towards exercising among the elderly. The Thai meaning of the term ‘active living’ was defined by the elderly during the focus group discussions (Chapter 4).

Part 3: Social and environmental determinants of active living

Questions for exploring social and environmental determinants of active living were developed based on a review of existing published research. The questions intended to find out whether the elderly were exposed to physical activity information from mass media and physical activity advice from doctors or health professionals. In addition preferences for help on increasing physical activity and the availability of supportive environments were explored. These questions had both pre-coded and open-ended response choices to allow for easy collection and also to cover all possible answers.

Part 4: Perceived health and demographic questions

A self-rated health status question was derived from the SF-36 (Ware, Snow, Kosinski and Gandek, 1993). The elderly were asked to rate health as excellent, very good, good, fair or poor. The demographic questions covered age, gender, partner status, education level and ethnicity. These questions were developed by the researcher in consultation with the supervisor.

6.2.3 Reliability and validity of the questionnaire

Content and face validity of the physical activity and attitudinal scales were obtained through the focus group discussions and individual face-to-face interviews. Reliability of these scales was tested in terms of internal consistency by using Cronbach's alpha. Factor structure of the physical activity scale was constructed by using factor analysis. Factor structure and reliability will be described in the following result section of this chapter.

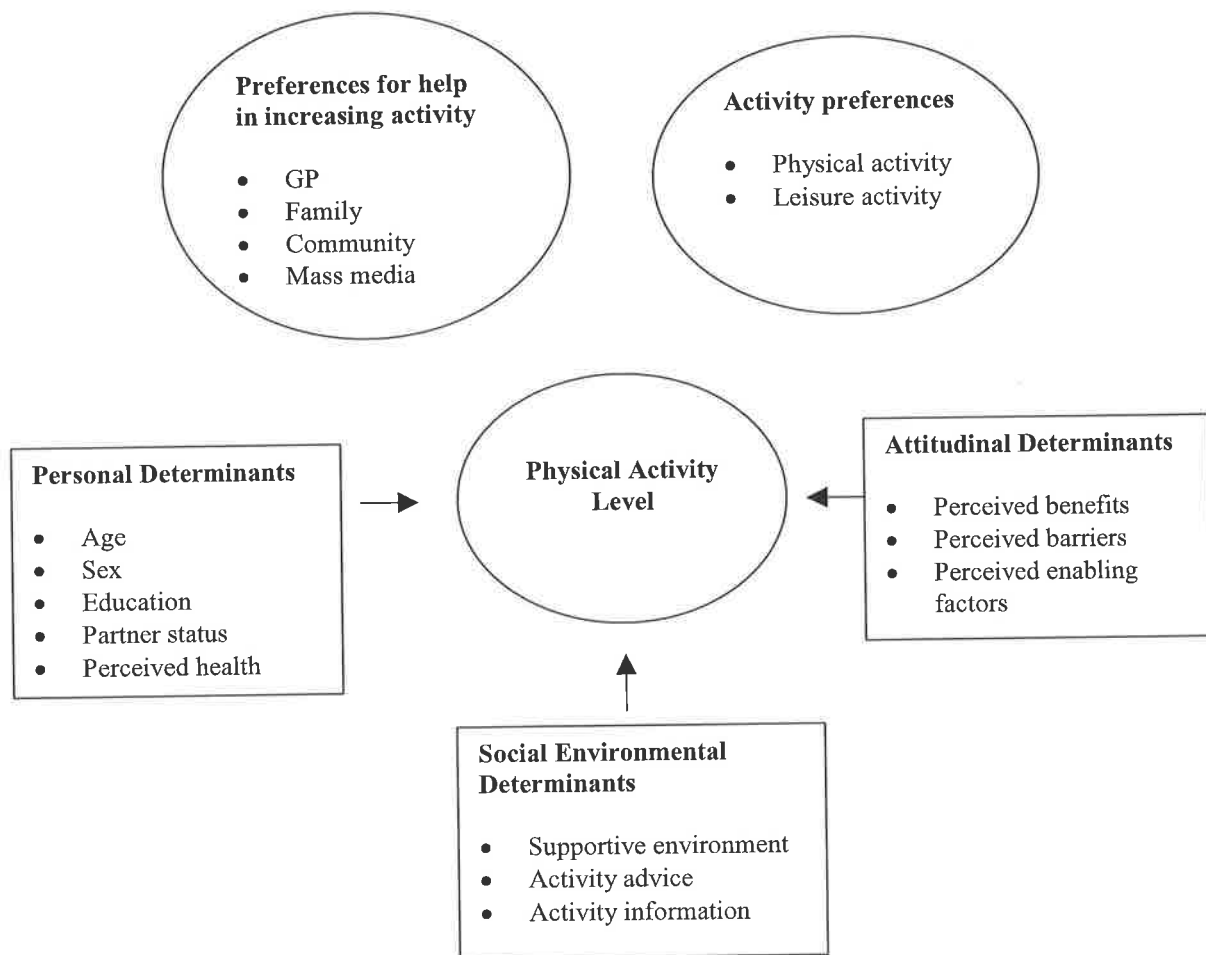
6.2.4 Administration of the survey

The survey was administered over 2-month period. All systematically selected phone numbers were called by the researcher between 9.00 am to 3.00 pm. At least five calls per number were arranged in different times through the week and weekends. The processes of screening the eligible respondents are shown in the questionnaire (Appendix 11). Verbal consent was obtained after explaining the purpose of the study, the length of the interviews and the safeguards for confidentiality. After ascertaining eligibility, participants were asked questions from the interview schedule. Participants were excluded from the survey if they could not complete at least half of the interview. In those cases when two or more eligible people were living in a designated household, either the youngest or oldest person (alternately) was chosen for interview. The researcher conducted all interviews to avoid variations in results due to the influence of different interviewers.

6.2.5 Data Analysis

Since there were many variables in the study, a conceptual framework for data analysis was developed (Figure 6.1).

Figure 6.1 Conceptual framework for data analysis



The following two approaches to analysis were applied. Firstly, univariate statistics were used to describe the sample in terms of: demographic characteristics; perceived health; attitude to active living; social environmental factors (activity

information, activity advice, and supportive environments); physical activity level; physical activity preferences; and preferences for help on increasing physical activity.

Then, analysis of variance (ANOVA) was used to examine the effect of one or more independent variables on the dependent variable (physical activity). The outcome scores for physical activity were derived from factor analysis of data from the questionnaire (see section 6.3.4). A summary of the variables and the overall approach to analysis is shown in Table 6.2. The ANOVA determines whether there is an interaction between two or more independent variables and then whether there is a main effect for each independent variable, in relation to physical activity.

Table 6.2 Summary of variables and inferential statistics approaches

Independent variables	Dependent variable	Statistics approaches and aims
Personal determinants Age Sex Education Partner status Perceived health	Physical activity	Analysis of variance used for investigating the effect of personal variables on physical activity
Social environmental determinants Supportive environment Activity advice Activity information	Physical activity	Comparing means and confidence intervals aimed at illustrating the effect of these factors on physical activity
Attitudinal determinants Perceived benefits Perceived barriers Perceived enabling factors	Physical activity	Comparing means and confidence intervals were used to illustrate the effect of attitudinal variables on physical activity

The following approach was used for conceptualising and grouping the variables for the ANOVA. Non-modifiable factors (age, sex, education and partner status) and perceived health, which might be argued is potentially modifiable, were in a format suitable for ANOVA and were categorised together as ‘personal variables’.

Modifiable factors related to the social environment (activity information, activity advice, and supportive environments) had multiple categories and given the sample size were not included in the ANOVA models but were analysed separately. The relationship between each of the independent variables and physical activity is

demonstrated by comparing the mean physical activity score for respondents who answer in the affirmative for each variable with those who answer in the negative. 95% confidence intervals are presented around the differences in the two groups.

Other modifiable factors, i.e. the attitudinal variables were in a format different to those for the social environment and therefore were also treated separately. The 5-point Likert scale was dichotomised by collapsing 'strongly agree' and 'agree', into an "agree category" and 'not sure', 'disagree' and 'strongly disagree' into a "disagree" category. The relationship between each of the attitudinal statements and physical activity is demonstrated by comparing the mean physical activity score for respondents who are in the agree category with those who are in the disagree category. 95% confidence intervals are presented around the differences in the two groups.

In summary, therefore, where relevant each of the three scales of physical activity derived from the factor analysis (see section 6.3.4) was examined separately in relation to: personal determinants, social and environmental determinants, and attitudinal determinants. The univariate statistics and ANOVA were examined using SPSS version 10.0 for Windows (SPSS Inc, 1999). Confidence Intervals were calculated using the software package Confidence Interval Analysis (Gardner, 1992).

6.3 Results

6.3.1 Response rate

A total of 500 randomly selected phone numbers was contacted. At the end of the survey, 143 participants completed the interviews. There was no person aged 60 years and over living in the households of 211 phone numbers and there were 19 older adults who were not eligible because of incapacity. Fourteen numbers were connected to an answering machine. Interviews were refused by the proxies of 8 eligible persons and 4 eligible elderly refused to take part in the interviews by themselves. Furthermore, 6 eligible persons were not available during the study period and 30 numbers were disconnected. The rest of the telephone numbers did not answer (65 numbers). The records are summarised in Table 6.3.

Table 6.3 The summary of the interview recording

Items	Interview coding	Number of telephone numbers
Interviews completed	I	143
No older person aged 60 years or over	NP	211
There are older person 60 years or over but they were incapable	NE	19
Refused by a proxy	RP	8
Refused by an eligible person	RE	4
The eligible persons were not available	N	6
Answering and fax machine	AM	14
No answer	NO	65
Disconnected lines	D	30
Total		500

In order to establish the accuracy of an eligible person from an unanswered number, the Telephone Company in Bangkok was contacted and a randomly chosen 10 from 65 unanswered numbers were checked. It was found that 6 numbers were faulty and the rest did not answer. This reflected a faulty rate of 60%. Therefore, an estimate of 40% was used for the proportion of eligible persons among unanswered numbers. In order to calculate response rates, the following formula was used:

Figure 6.2 The formula for calculating response rate

$$\frac{I}{I + RE + RP + N + \left(\frac{40 \times NO}{100} \right) + AM}$$

The codes listed below refer to the results obtained for each telephone number after the final call was made.

Major codes used to obtain response rate

- I (Interview): Interviews completed with the eligible older person
- RP (Refusal by proxy): This code was used when there was an eligible person living in the household but someone else refused on behalf of this person.
- RE (Refusal by the elderly): The elderly who was eligible refused to participate
- N (Not available): This code was used when there was an eligible person in the household but he/she was not available during study period (until the end of September 2000).
- NP: There was no older person aged 60 years or over living in the household.
- NE: There was an older person aged 60 years or over living in the house but he/she was not eligible because of incapacity, that is, was physically unable to be interviewed.
- AM (Answering machine).
- NO (No answer)

Based on those records and the above formula, the response rate was 71%.

6.3.2 Demographic characteristics of the samples

The characteristics of 143 respondents are displayed in Table 6.4. The ages of the respondents ranged from 60 to 88 years (mean 68.8, SD 6.9 years). Females

outnumbered males (60.1% and 39.3%). The majority of respondents (91.6%) were Thais. The highest level of education attained was primary school (47.6%), with a further 21.7% having a tertiary education and 16.1% having secondary school. The remaining 14.7% of the elderly had no education. Just over half (53.1%) had partners.

Table 6.4 Demographic characteristic of the samples

Variables	Categories	Number of the elderly 100% (n= 143)
Age group	60 to 70 yrs	65.0
	More than 70 yrs	35.0
Gender	Male	39.9
	Female	60.1
Education level	No education	14.7
	Primary school	47.6
	Secondary education	16.1
	Tertiary education	21.7
Partner status	Had a partner	53.1
	No partner	46.9
Ethnic status*	Thai	91.6
	Chinese	8.4

* As there was low variation of ethnic status among the participants, ethnicity was not included in analysis.

6.3.3 Perceived health and incapacity rate

The participants were asked the question, “*in general would you say your health is excellent, very good, good, fair or poor*”. Just over a third of the participants perceived their health was either good (32.9%) or fair (30.1%) and over a quarter

(26.6%) perceived their health was poor. The remaining 9.8% and 0.7% perceived their health was very good or excellent (Table 6.5).

Table 6.5 Health perception among the Thai elderly

Perceived health	Number of the elderly	% (n=143)
Excellent	1	0.7
Very good	14	9.8
Good	47	32.9
Fair	43	30.1
Poor	38	26.6
Total	143	100

Incapacity rate

A total of 19 people were not eligible because of incapacity. Figure 6.3 shows the formula used to calculate the incapacity rate. It was found that the incapacity rate among the participants was around 12%

Figure 6.3 The formula for calculating incapacity rate

$$\frac{NE}{I + RP + RE + N}$$

6.3.4 Factor analysis of physical activity measure

Factor analysis is a technique to group items together in a consistent and coherent way (Bowling, 1997) and is based on internal criteria (Cockburn and Luise, 1992). This study used factor analysis to construct a physical activity scale for further analysis. Although, the sample size of this study was small (n=143) due to the limitation of resources and time constraints, it was deemed to be appropriate for factor analysis according to the statement by Gorsuch that 'minimum ratio of the number of subjects to variables is five individuals to every variable, but not less than 100 individuals for any analysis' (Gorsuch, p: 332; 1983).

The SPSS for Windows version 10.0 (SPSS Inc, 1999) was used to analyze the data. A factor analytic procedure comprised 3 steps recommended by Coakes and Steed (1999): 1) computation of the correlation matrix, 2) factor extraction, and 3) rotation to make the factor structure more interpretable. The analysis used principal axis factoring analysis as an extraction method because it allows questions to have a unique component as well as variation in common with other questions. The orthogonal rotation (varimax) was used.

The first finding

An initial analysis with principal axis factoring analysis (PAF) was conducted to identify factorability. Bartlett's test of sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy were inspected. It was found that the Bartlett's test of sphericity was large and significant and also the Kaiser-Meyer-Olkin measure

was greater than 0.6. The factorability was therefore accepted (Coakes and Steed, 1999). In addition, PAF was used to identify the number of factors with eigenvalues of 1.0 or greater and to identify communalities of each item. It was found that one item (religious activities) had communalities less than 0.1 so it was dropped from the subsequent analysis. The Scree Plot, which explains the eigenvalues for each factor, showed three predominant factors. However, it was found to have an ambiguous structure as some items had dual or triple loading on more than one factor and also the correlations were not in excess of 0.3 for all items.

As the correlation matrix found to have correlation excess of 0.3 for some items, the use of principal axis analysis was reconsidered (Coakes et al., 1999). In order to provide a more interpretable solution than the varimax rotation, it was suggested that a principal component analysis followed by the oblimin rotation is more appropriate (Coakes et al., 1999). Thus the next step of the factor analysis applied the principal component analysis (PCA) and oblimin rotation method. Three factors were indicated, as it was the number of predominant factors as shown in the Scree Plot. Factor loading value was suppressed absolute value less than 0.3.

The second finding

It was found that the rotation failed to converge in 25 iterations. Therefore the items with the lowest communality value from the first finding was excluded (item 21; exercise at home). Then analysis using the same criteria proceeded.

The last finding

Three factors were extracted. The final statistics outline that these three factors accounted for 39% of the total variance. Factor 1 obtained an eigenvalue of 3.73 and comprised items 1,2,3,4,5,7,8 and 9. Factor 2 obtained an eigenvalue of 2.55 and comprised items 13,15,17,19 and 22. Factor 3 obtained an eigenvalue of 1.47 and was made up of items 6,10,11,12,14 and 20. As item 16 (having a chat with neighbour) obtained a loading value less than 0.3, it was dropped from all factors. One item (preparing a meal) had a substantial loading on both factors. However, it could be more appropriate to fit this item in factor 1 as there was higher loading value in factor 1 than factor 2. Factor loadings for all items are presented in Table 6.6.

Table 6.6 Factor solutions for the 22-item Thai version of the AAP

Question items*	Factors loadings		
	1	2	3
1. Preparing meal	.781	-.345	
2. Washing dishes	.794		
3. Washing clothes	.645		
4. Light housework	.720		
5. Heavy housework	.428		
6. Paid or unpaid work			-.422
7. Caring for other family members	.358		
8. Household shopping	.493		
9. Personal shopping	.408		
10. Light gardening			-.676
11. Heavy gardening			-.765
12. House/car repair or maintenance			-.523
13. Drive car/organise transport		.428	
14. Hobbies			-.410
15. Making telephone call		.576	
16. Having a chat		Dropped from the scale	
17. Attending social activities		.605	
18. Religious activities		Dropped from the scale	
19. Outdoor social activities		.774	
20. Walking outdoors			-.543
21. Exercise at home		Dropped from the scale	
22. Exercising in a group		.392	

*The questions asked were "During the past 2 months, how often do you do....."

Semantic inspection revealed that all items in factor 1 (8 items) represented a variety of domestic chores. Factor 2 (5 items) was an expression of social activities and factor 3 (6 items) related to fitness activities. The comparison of the two

versions of the AAP (Table 6.7) demonstrates that factor 1 of both versions were identical in terms of the number of items fitted in the factor and the characteristics of activities within the factor. Factor 2 of both versions had some different items but those items were related to social activities.

The last factor of the modified version of the AAP was different from those of the original version. The differences were the items fitted in the factor and the number of factors. While the original version had the last two factors, household maintenance and service to other family members, the modified version had only one factor. All of the items within the last factor of the modified version reflected physically demanding activity, for example, paid or unpaid work, light and heavy gardening and walking outdoors. Therefore, it makes sense to name this factor as fitness activities rather than either household maintenance or service to others as the original version of the AAP. In conclusion, the factors derived from factor analysis would be known as domestic chores for factor 1, social activities for factor 2 and fitness activities for factor 3.

Table 6.7 The comparison of the factor structures of the AAP

The factor structure of the original version of the AAP		The factor structure of the modified version of the AAP	
Name of scale	Activities presented	Name of scale	Activities presented
1) Domestic chores	Preparing meals Washing dishes Washing clothes Light housework Heavy house work Household shopping Personal shopping Making telephone calls	1) Domestic chores	Preparing meals Washing dishes Washing clothes Light housework Heavy housework Household shopping Personal shopping Caring for family members
2) Social activities	Caring for other family members Outdoors social activities Outdoor recreation/sport Social activities at a community centre	2) Social activities	Drive a car/organizing transportation Making telephone call Attending social activities Outdoor social activities Exercising in a group
3) Household maintenance	Heavy gardening Light gardening House and car maintenance Driving a car/organizing transportation Heavy housework Hobbies Walking outdoors	3) Fitness activities	Paid or unpaid work Light gardening Heavy gardening House/car repair or maintenance Hobbies Walking out doors
4) Service to others	Attending religious services Voluntary or paid employment Caring for other family members Making telephone calls		

6.3.5 Reliability of the measure

Reliability: Internal consistency of physical activity measure

Reliability was tested in terms of internal consistency for the three subscales of the physical activity measure. Cronbach's alpha was calculated using SPSS (SPSS Inc, 1999). It was found that the alpha coefficients for domestic chores, social activities and fitness activities were 0.75, 0.57 and 0.59, respectively (Table 6.8).

Table 6.8 Cronbach's alpha of three subscales of physical activity measure

Physical activity questions	No. of items	Sample size	Cronbach' alpha
Domestic chores	8	143	0.75
Social activities	5	143	0.57
Fitness activities	6	143	0.59

Reliability: Internal consistency of the attitudinal scale

As the items of the attitudinal scale had explicit meaning, the use of factor analysis to group the items together were not required. The author, in consultation with the supervisor, grouped those items into three groups, which were called as a subscale. The first group was perceived benefits, comprising 8 statements. The second group was perceived barriers, which consisted of 10 statements. The last group was perceived enabling factors comprising 3 statements. The internal consistency of each subscale was calculated separately using Cronbach's alpha. The results are displayed in Table 6.9.

Table 6.9 Cronbach' alpha of the three subscales of attitudinal measure

Attitude questions	No. of active living statements	Sample size	Cronbach's alpha
Perceived benefits	8	143	0.95
Perceived barriers	10	143	0.98
Perceived enabling factors	3	143	0.99

6.3.6 Physical activity level

Domestic chores

Table 6.10 shows the frequencies of engaging in domestic chores of the elderly. It was found that a substantial proportion of the participants never engage in heavy housework, caring for family members, household and personal shopping (75.5, 76.2, 58.7 and 62.2% respectively). In addition, the proportions of participants who never prepare main meals, wash dishes, wash clothes and do light housework (45.5, 42.7, 46.9 and 33.6% respectively) were similar to those who engaged in these activities frequently (42.7, 33.6, 42.7, 39.2% respectively)

Table 6.10 The frequencies of engaging in domestic chores of the elderly

Domestic chores	Number of the elderly	% (n=143)
Preparing main meals		
Never	65	45.5
Less than once a week	6	4.2
Once or twice a week	11	7.7
Almost everyday	61	42.7
Washing dishes		
Less than once a week	61	42.7
Once or twice a week	12	8.4
Almost everyday	22	15.4
Everyday	48	33.6
Washing clothes		
Never	67	46.9
About once a month	2	1.4
About once a fortnight	13	9.1
About once a week or more	61	42.7
Light housework		
Never	48	33.6
Every fortnight or less	15	10.5
About once a week	24	16.8
Several times a week	56	39.2
Heavy housework		
Never	108	75.5
About once a month	14	9.8
About twice a month	8	5.6
Once a week or more	13	9.1
Caring for family members		
Never	109	76.2
About once a month	7	4.9
About twice a month	1	0.7
Once a week or more	26	18.2
Household shopping		
Never	84	58.7
About once a month	6	4.2
About twice a month	11	7.7
Once a week or more	42	29.4
Personal shopping		
Never	86	62.2
Once in three months	29	20.3
About once a month	15	10.5
Twice a month or more	10	7.0

Social activity

Table 6.11 demonstrates the frequencies of engaging in social activities. The majority of respondents never engage in exercising in a group (94.4%) and attending social activities (80.4%). A substantial proportion was found on outdoor social activities (66.4%) and making telephone calls (50.3%). A similar pattern applied for driving a car or organising transportation on their own as one-third of the participants (36.4%) said that they never engaged this activity.

Table 6.11 The frequencies of engaging in social activities of the elderly

Social activities	Number of the elderly	% (n=143)
Driving car/organise transportation		
Never	52	36.4
Up to once a month	33	23.1
Up to once a fortnight	12	8.4
Once a week or more	46	32.2
Making telephone calls		
Never	72	50.3
Three times a week or less	51	35.7
Four to ten times a week	18	12.6
More than ten times a week	2	1.4
Attending social activities		
Never	115	80.4
About once a month	18	12.6
About once a fortnight	1	0.7
Once a week or more	9	6.3
Outdoor social activities		
Never	95	66.4
About once a month	32	22.4
About once a fortnight	9	6.3
Once a week or more	7	4.9
Exercising in group		
Never	135	94.4
About once a month or less	2	1.4
About twice a month	1	0.7
About once a week or more	5	3.5

Fitness activity

Overall, the majority of the elderly never engaged in most types of fitness activities. For example 85.3% of the elderly never did house/car repair or maintenance. Up to 82.5% of the elderly never did heavy gardening and 79% never did paid or unpaid work. Just over half (57.3%) never engaged in a hobby. However, 38.5% and 37.1% of the respondents did light gardening and walked outdoors very often. The results are shown in Table 6.12.

Table 6.12 The frequencies of engaging in fitness activities of the elderly

Fitness activities	Number of the elderly	% (n=143)
Paid or unpaid work		
Not at all or once in a while	113	79.0
One day a week	7	4.9
Two to five days a week	6	4.2
More than five days a week	17	11.9
Light gardening		
Never	61	42.7
About once a month	15	10.5
About twice a month	12	8.4
About once a week or more	55	38.5
Heavy gardening		
Never	118	82.5
About once a month	12	8.4
About twice a month	6	4.2
About once a week or more	7	4.9
House/car repair or maintenance		
Never	122	85.3
Once in three months	12	8.4
About once a month	5	3.5
Twice a month or more	4	2.8
Hobbies		
Never	82	57.3
About once a month	16	11.2
About once a week	15	10.5
More than once a week	30	21.0
Walking outdoors		
Once a month or less	61	42.7
About twice a month	12	8.4
About once a week	17	11.9
Almost everyday	53	37.1

6.3.7 Activity preferences

Preferred physical activities

The elderly were asked to indicate their most preferred physical activities (Table 6.13). The results show that walking was the most preferred activity mentioned by

almost 40% of the participants. The next two most preferred activities were individual exercising (stretching and bending) nominated by 16% of respondents and sports (tennis and golf) was nominated by 7.7 % of respondents. Nearly 7% of the participants chose cycling to be their preferred activity. Of the remaining activities, none was nominated by more than 3% of the participants. However, almost a quarter (24.5%) expressed that they did not like any activity.

Table 6.13 Preferred types of activities among the Thai elderly

Preferred types of activities	Number of the elderly	% (n = 143)
Walking	57	39.9
Individual exercising	23	16.1
Playing sport (Tennis and golf)	11	7.7
Cycling	9	6.3
Jogging	3	2.1
Swimming	3	2.1
Group exercising	2	1.4
None	35	24.5

Preferred leisure activities

The participants were also asked to nominate the most preferred leisure activity. The results in Table 6.14 show that gardening and caring for pets were the most preferred leisure activities nominated by 18.2% of respondents. Reading and watching TV were the second in popularity and nominated by 12.6% of respondents. Arts and crafts had a substantial proportion (11.9%) as group activities and volunteer works. Over a quarter (29.3%) had no leisure activity.

Table 6.14 Preferred leisure activities of the Thai elderly

Leisure activities	Number of the elderly	% (n = 143)
Gardening and caring for pet	26	18.2
Reading and watching TV	18	12.6
Arts and crafts	17	11.9
Group activities and volunteer work	17	11.9
Playing cards and games	9	6.3
Meditation and religious activity	7	4.9
Cooking	7	4.9
None	42	29.3

6.3.8 Preferences for help on increasing activity

Health professionals, family and friends significantly influence physical activity of older adults in both negative and positive ways (Chogahara, 1999). This part of the study aimed at illustrating the positive social influences specific to favourite ways of receiving advice from those sources. In addition, favourite sources of media advice were also explored. The participants were simply asked to nominate their favorite ways of receiving advice from those significant sources.

Doctors/ health professionals

The study illustrated the Thai older adults' favourite ways of receiving advice from doctors/health professionals as shown in Table 6.15 The results show that almost half the participants preferred verbal advice (41.3%) from doctors/health professionals, with a further 15.4% nominating individual counselling and 14 %

preferring written advice. On the other hand, a substantial proportion (28.7%) had no preferences on ways of receiving advice.

Table 6.15 Favourite ways of receiving advice from doctors/health professionals

Favourite ways of receiving advice	Number of the elderly	% (n = 143)
Verbal advice	59	41.3
Individual counselling	22	15.4
Written advice	20	14.0
Peer support group	1	0.7
No preferences	41	28.7

Family

Respondents were also asked to indicate their favourite ways of receiving help from their family on increasing activity. It was found that over a quarter of the participants preferred only encouragement from their families (26.6%), following 16.8% preferred a family member to take part in activity with them. Surprisingly, almost half the participants (44.8%) did not want any help from their family (Table 6.16). The reasons for not requiring any help from families were revealed from the qualitative study (Chapter 4) that they did not want any help or support from their families because they thought that their children were too busy to pay attention to this matter...." *I don't want to bother my children...they never talk about this to me either...*"

Table 6.16 Favourite ways of receiving support from family

Response choices	Number of the elderly	% (n = 143)
A family member provides transportation	17	11.9
A family member to take part in activity	24	16.8
Encouragement from family	38	26.6
Do not want any help from family	64	44.8

Community

Table 6.17 demonstrates preferences for help from community on increasing activity among the elderly. Less than a quarter preferred a leader in a group exercise (12.6%) and almost 1 in 4 preferred a group of people to take part in physical activity with them (19.6%). Unexpectedly, over half the participants (63.6%) did not want any help from their communities. The study illustrated further on reasons for not wanting any help from communities. Qualitative analysis shows that the participants who did not want any help or support from their communities did not engage in any activities in their communities. They felt hesitant to go out and join the activities. One said "*... I don't know many people there and I am not interested in those activities either...*"

Table 6.17 Favourite ways of receiving help from the community

Response choices	Number of the elderly	% (n=143)
A coordinator to organise the activity for the elderly	5	3.5
A leader in a group exercise	18	12.6
A group of people to take part in physical activity with them	28	19.6
Do not want any help from community	91	63.6

Media advice

Table 6.18 illustrates favourite media advice on increasing activity of the elderly. It was found that advice on TV (46.2%) was the most favoured media advice followed by 18.2% for a guideline sent through the mail. However, almost 20% of the respondents did not want any media advice.

Table 6.18 Favourite ways of receiving media advice on increasing activity

Response choices	Number of the elderly	% (n=143)
Advice on TV	66	46.2
Do not want any media advice	28	19.6
A physical activity “guideline” sent through the mail	26	18.2
A column in newspaper or magazine	14	9.8
Advice on radio	9	6.3

6.3.9 Attitudinal determinants

Perceived benefits

The elderly were asked to express their opinions on benefits of being active as shown in Table 6.19. Overall, the elderly agreed with the positive statements, in particular, there was a high level of agreement (strongly agreed and agreed) with the first five statements (60% or higher). However, more than a third (40.2% and 33.3%) were not sure that regular exercise could prevent falls and that the benefits of being active would be noticeable.

Table 6.19 Level of agreement with benefits of being active statements

Statements of benefits of active living	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
	%	%	%	%	%
	(95 %CI)	(95 % CI)	(95 % CI)	(95% CI)	(95% CI)
1. Being active is very important for the elderly (n= 139)	38.8 (30.7 to 47.5)	58.3 (49.6 to 66.6)	2.8 (0.7 to 7.2)	-	-
2. I feel good about myself when I exercise (n= 137)	19.7 (13.4 to 27.4)	60.6 (51.9 to 68.8)	12.4 (7.4 to 19.1)	7.3 (3.5 to 13.0)	-
3. I enjoy being active (n= 133)	6.7 (3.1 to 12.5)	52.6 (43.8 to 61.3)	21.1 (14.5 to 29)	19.5 (13.2 to 27.3)	-
4. Emotional problems can be helped by exercising (n= 133)	10.5 (5.8 to 17.0)	73.7 (65.4 to 80.9)	15 (9.4 to 22.3)	0.7 (0.01 to 4.1)	-
5. Being active can make a difference to your life (n= 132)	28.8 (21.2 to 37.3)	57.6 (48.7 to 66.1)	12.9 (7.6 to 19.8)	0.7 (0.01 to 4.1)	-
6. Exercise regularly can prevent falls (n= 132)	6.0 (2.6 to 11.6)	46.2 (37.5 to 55.1)	40.2 (31.7 to 49)	6.8 (3.1 to 12.5)	0.7 (0.01 to 4.1)
7. The elderly should rest more, rather than being active (n=139)	0.7 (0.01 to 3.9)	40.3 (32.1 to 48.9)	22.3 (16.5 to 31.7)	34.5 (26.7 to 43.1)	2.1 (0.4 to 6.1)
8. Benefits from being active are too slight to notice (n= 132)	-	13.6 (8.29 to 20.7)	33.3 (25.4 to 42.1)	50.8 (41.9 to 59.6)	2.2 (0.4 to 6.5)

Perceived barriers

The respondents were also asked to express their opinions on perceived barriers (Table 6.20). There was substantial proportion of agreement (strongly agreed and agreed) with the lack of motivation (42.4%) and worrying to go out and exercise (42.9%) that made them inactive. The lack of information, embarrassment and perceived being active is 'just for the young' were agreed (including strongly agreed) by 26.1%, 26.5% and 28.6% of the participants.

Perceived enabling factors

Focusing on enabling factors, a very large proportion of the elderly agreed (including strongly agreed) that having friends (88.6%), feeling secure and safe in the community (84.1%) and family support (78.8%) could help them to be more active. (Table 6.21)

Table 6.20 Level of agreement with barriers of being active statements

Statements of barriers of being active	Strongly agree % (95 %CI)	Agree % (95 % CI)	Not sure % (95 % CI)	Disagree % (95% CI)	Strongly disagree % (95% CI)
1. Lack of information about being active makes the elderly more inactive (n= 132)	2.2 (0.4 to 6.5)	24.2 (17.2 to 32.5)	49.2 (40.4 to 58.1)	24.2 (17.2 to 32.5)	-
2. The elderly are not motivated and can't get started (n= 132)	1.5 (0.1 to 5.3)	40.9 (32.4 to 49.8)	43.2 (34.6 to 52.1)	12.9 (7.6 to 19.8)	1.5 (0.1 to 5.3)
3. Fitness activity in the elderly may be dangerous (n= 138)	0.7 (0.01 to 3.9)	18.1 (12.1 to 25.6)	33.3 (25.5 to 41.9)	44.2 (35.8 to 52.9)	3.6 to 8.2)
4. I am worried to go out and exercise (n= 133)	-	42.9 (34.3 to 51.7)	5.2 (2.1 to 10.5)	48.1 (39.4 to 56.9)	3.7 (1.2 to 8.5)
5. Exercising in public is embarrassing (n= 132)	0.7 (0.01 to 4.1)	25.8 (18.5 to 34.1)	4.5 (1.4 to 9.6)	65.2 (56.4 to 73.2)	3.7 (1.2 to 8.6)
6. The elderly are too busy to take part in any activities (n= 132)	2.2 (0.4 to 6.5)	18.2 (12.0 to 25.8)	18.2 (12.0 to 25.8)	58.3 (49.4 to 66.8)	3.0 (0.8 to 7.5)
7. I waste my time when I exercise (n= 137)	-	12.4 (7.4 to 19.1)	7.3 (3.5 to 13.0)	73 (64.7 to 80.2)	7.3 (3.5 to 13.0)
8. The cost for participating in an out door activity for the elderly is expensive (n= 133)	-	19.5 (13.2 to 27.3)	23.3 (16.4 to 31.4)	55.6 (46.8 to 64.2)	1.5 (0.1 to 5.3)
9. Exercise is too much activity to do for the elderly (n= 132)	-	24.2 (17.2 to 32.5)	21.2 (14.6 to 29.2)	52.3 (43.4 to 61.0)	2.2 (0.4 to 6.5)
10. Being active is just for the young (n= 133)	1.5 (0.1 to 5.3)	27.1 (19.7 to 35.5)	12.8 (7.6 to 19.7)	51.9 (43.1 to 60.6)	6.7 (3.1 to 12.5)

Table 6.21 Level of agreement with enabling factors of being active statements

Statements of enabling factors of being active	Strongly agree % (95% CI)	Agree % (95% CI)	Not sure % (95% CI)	Disagree % (95% CI)	Strongly disagree % (95% CI)
1. Feeling secure and safe in the community enables people to get out and exercise (n=132)	11.4 (6.5 to 18.0)	72.7 (64.3 to 80.1)	12.9 (7.6 to 19.8)	2.2 (0.4 to 6.5)	0.7 (0.1 to 4.1)
2. Having friends makes it easy for the elderly to participate in any activities (n= 132)	24.2 (17.2 to 32.5)	64.4 (55.6 to 72.5)	6.8 (3.1 to 12.5)	4.5 (1.6 to 9.6)	-
3. Family plays an important role in encouraging the elderly to be more active (n=132)	15.9 (10.1 to 23.3)	62.9 (54.0 to 71.1)	9.8 (5.3 to 16.3)	11.4 (6.5 to 18.0)	-

6.3.10 Social and environmental determinants

Supportive Environment

Supportive environments for physical activity were evaluated by asking "Have you or haven't you got these facilities in your community?" and "Would any facilities encourage you to do more physical activity?" These facilities were tree-shaded streets with footpaths, open space or parks, play grounds, senior citizens clubs, swimming pools, gyms and recreational centres. The responses are shown in Table 6.22.

Tree-shaded streets with footpaths

Almost two-thirds (64.3%) of the participants reported having the tree-shaded streets with footpaths within their communities. In addition, a substantial proportion of the participants (72.0%) stated that this facility would encourage them to be more active.

Open space or parks

The number of respondents who reported having open space or parks (42.7%) within or close to their community were less than those who expressed they did not have it (57.3%). Similar to tree-shaded streets with footpaths, up to two-thirds of the participants (62.9%) said that open space or parks would encourage them to be more physically active.

Recreation centre, Gym, Swimming pool, Senior citizen club and Play ground

About one-third (35.7%) of the elderly reported as having a playground in their communities but only a small number of participants indicated that they had a recreation centre (6.3%), gym (8.4%), swimming pool (11.2%), and senior citizen club (11.9%). When asked further which facilities would encourage them to be more active, almost 50% of the respondents mentioned a senior citizen club. However, swimming pools, gym, recreation centres and playgrounds were also viewed as encouraging facilities by a number of respondents (23.1%, 26.6%, 25.9% and 32.9% respectively). The results are shown in Table 6.22 and 6.23.

Table 6.22 The availability of supportive environments

*Have you or haven't you got these facilities in your community?	Proportion of the elderly replying "Yes"(n = 143)
Tree-shaded streets with footpaths	64.3
Open space or park	42.7
Playground	35.7
Senior citizens club	11.9
Swimming pool	11.2
Gym	8.4
Recreation centre	6.3

* (>1 answer permitted)

Table 6.23 The encouragement of activity by supportive environments

Would any facilities encourage you to do more physical activity?	Proportion of the elderly replying "Yes" (n = 143)
Tree-shaded streets with footpaths	72.0
Open space or park	62.9
Senior citizens club	49.7
Playground	32.9
Gym	26.6
Recreation centre	25.9
Swimming pool	23.1

Activity advice

Different types of advice on physical activity were assessed. The respondents were asked whether they received verbal advice, informative material and written advice from health professionals/doctors and to what extent they received such advice. The result in Table 6.24 shows that more verbal advice was reported received than written advice. Only 1 in 4 respondents stated that they received informative materials while over a third did not receive any advice.

Table 6.24 Types of activity advice from doctors and health professionals

*Types of activity advice	Proportion of the elderly receiving activity advice (n= 143)
Verbal advice	51.7
Informative materials	25.9
Written advice	4.9
None	36.4

*>1 answer permitted

Activity information

Almost all participants (95.1%) had heard or seen physical activity information and the 87% of the participants had heard or seen it from TV. Almost a half (46.2%) heard from their family. While health organization and health providers who have responsibilities on promoting active living, only a small proportion of the participants reported that they heard about physical activity from health organisations (20.3%) and health providers (16.1%) (see Table 6.25 and 6.26).

Table 6.27 shows the interest levels among the elderly who were exposed to activity information. More than half the participants show interest ranging from moderate interest to no interest about what they heard or saw. More than a quarter (27.2%) felt very interested in the information.

Table 6.25 Availability of information on physical activity for the elderly

Have you heard or seen information on physical activity?	Proportion of the elderly (n = 143)
Yes	95.1
No	4.9
Total	100.0

Table 6.26 Sources of information about physical activity

*Sources of information	Proportion of the elderly (n= 136)	
	Yes	No
TV	86.7	8.4
Family	46.2	49.0
Friends	32.9	62.2
Newspaper or magazine	31.5	63.6
Radio	23.1	72.0
Health organisation	20.3	74.8
Health providers	16.1	79.0
Leaflets	11.9	83.2
Billboard posters	7.7	87.4

*>1 answer permitted

Table 6.27 Interest levels of the elderly when exposed to information about physical activity

Interest levels	Proportion of the elderly (n = 136)
Not at all	16.9
A little	33.8
Moderately	22.1
A lot	27.2
Total	100.0

6.3.11 Association between physical activity and determinants

Personal determinants of physical activity

A 2*3*2*2 analysis of variance model was used to investigate the effect of personal determinants on physical activity. The model included the main effects of sex (male and female), perceived health (poor, fair and good), education levels (lower than secondary school and secondary school and higher) and partner status (partner and no partner) and the two-way interactions between gender and perceived health, gender and education, gender and partner status, perceived health and education, perceived health and partner status and education and partner. The three-way interactions of these factors were excluded due to low frequencies in some cells. As age was an independent variable measured in interval scale, it was therefore included in the analysis as a covariate.

This analysis was initially conducted by including all independent variables and their two-way interactions in the model. Secondly, if interaction terms were not significant, they were excluded and the model was re-estimated. An interpretation of the analysis was made with the last model of each scale. The results of the analysis of variance are presented in Table 6.28, 6.29, 6.30 and 6.31.

Age

There were significant main effects of age for overall physical activity ($F(1,136) = 13.43, p < 0.001$) and domestic chores ($F(1,136) = 11.53, p < 0.001$). The direction of effects was that as age increased, the average physical activity seemed to decline.

Gender

At the overall physical activity scale, there was no significant interaction and main effect of gender with other personal factors. In addition, there was no significant interaction of gender with other variables for domestic chores and social activity but there were significant main effects of gender on domestic chores ($F(1,134) = 16.72, p < 0.001$) and social activity ($F(1,136) = 9.92, p < 0.01$). These effects had a different direction. While females were more active than males on domestic chores, they were less active than males on social activity.

For fitness activity, it was found significant interaction between gender and partner status ($F(1,135) = 10.81, p < 0.001$). This illustrated that males with a partner were more active than males with no partner and females, while males with no partner had the lowest level of physical activity.

Perceived health

While there was no significant interaction of perceived health with other personal factors for overall, social, and fitness activity scales, there were significant main effects of perceived health on overall physical activity ($F(2,136) = 11.88, p < 0.001$), social activity ($F(2,136) = 8.18, p < 0.001$) and fitness activity scales ($F(2,135) = 6.15, p < 0.01$). It indicated that the elderly who perceived their own health as good were more active on these types of activities than those who perceived their own health as poor or fair.

Different from those three scales, there was a significant interaction of perceived health and partner status ($F(2,134) = 3.45, p < 0.05$) for domestic chores, reflecting that the elderly with no partner who perceived their health as poor had the lowest level of physical activity than other groups.

Education

At overall and social activity scales, there was no significant interaction of education and other personal factors but there were significant main effects for overall ($F(11,136)$

= 8.24, $p < 0.01$) and social activity scales ($F(1,136) = 22.97, p < 0.001$). The elderly with a higher education were more active for overall and social activities than those with a lower education. For domestic and fitness activity scales, no significant interaction and main effect of education were found.

Partner status

There were significant interactions of partner status and gender, and, partner status and perceived health, but no main effect of partner status was found on any of the scales. The interaction of partner status was explained in the section of perceived health and gender.

Table 6.28 Effects of personal factors on the overall physical activity

Personal factors	Overall physical activity (n=143)		
	F	df	Mean activity score(SD)
Age	13.43 ***	1,136	
Gender	0.92	1,136	
Male			17.24 (9.7)
Female			16.13 (8.7)
Perceived health	11.88 ***	2,136	
Poor			11.02 (9.42)
Fair			16.18 (8.67)
Good			20.25 (7.46)
Education level	8.24 **	1,136	
Lower than secondary school			14.53 (8.07)
Secondary school and higher			19.94 (9.85)
Partner status	3.76	1,136	
Partner			19.13 (8.49)
No partner			13.68 (9.04)

*p< 0.05, ** p< 0.01, *** p< 0.001

Table 6.29 Effects of personal factors on domestic chores

Personal factors	Domestic chores (n=143)		
	F	df	Mean activity score (SD)
Age	11.53***	1,134	
Gender	16.72***	1,134	
Male			6.91 (5.62)
Female			9.97 (6.09)
Perceived health	5.59*	2,134	
Poor			6.47 (6.67)
Fair			8.86 (5.84)
Good			10.08 (5.53)
Education level	0.93	1,134	
Lower than secondary school			8.39 (5.67)
Secondary school and higher			9.35 (6.71)
Partner status	3.78	1,134	
Partner			9.85 (6.13)
No partner			7.50 (5.82)
Perceived health by partner status	3.45**	2,134	
Poor, no partner			4.52 (5.16)
Fair, no partner			6.80 (5.23)
Good, no partner			10.60 (5.48)
Poor, partner			8.88 (7.64)
Fair, partner			10.81 (5.82)
Good, partner			9.72 (5.61)

*p< 0.05, ** p< 0.01, *** p< 0.001

Table 6.30 Effects of personal factors on social activity

Personal factors	Social activity (n=143)		
	F	df	Mean activity score (SD)
Age	2.50	1,136	
Gender	9.92**	1,136	
Male			4.14 (3.12)
Female			2.19 (1.97)
Perceived health	8.18***	2,136	
Poor			1.47 (1.68)
Fair			2.86 (2.46)
Good			3.96 (2.86)
Education level	22.97**	1,136	
Lower than secondary school	*		2.02 (2.12)
Secondary school and higher			4.53 (2.74)
Partner status	2.13	1,136	
Partner			3.63 (2.78)
No partner			2.22 (2.32)

*p< 0.05, ** p< 0.01, *** p< 0.001

Table 6.31 Effects of personal factors on fitness activity

Personal factors	Fitness activity (n=143)		
	F	df	Mean activity score (SD)
Age	2.77	1,135	
Gender	4.76*	1,135	
Male			6.19 (4.66)
Female			3.96 (2.78)
Perceived health	6.15**	2,135	
Poor			3.07 (3.41)
Fair			4.46 (3.64)
Good			6.20 (3.67)
Education level	2.02	1,135	
Lower than secondary school			4.12 (3.50)
Secondary school and higher			6.05 (3.98)
Partner status	3.45	1,135	
Partner			5.64 (4.08)
No partner			3.95 (3.24)
Gender by partner status	10.81***	1,135	
Male, partner			7.64 (4.26)
Male, no partner			3.50 (4.24)
Female, partner			3.74 (2.85)
Female, no partner			4.14 (2.75)

*p< 0.05, ** p< 0.01, *** p< 0.001

Attitudinal determinants of physical activity

The following results show the differences in the mean physical activity scores regarding attitude statements. The key feature examined in this analysis was the magnitude of the differences in the means. The author, in consultation with the supervisor, decided that where the size of differences in mean physical activity score was larger than the standard deviation it would be a clinically significant difference. The attitude statements with a clinically significant difference in the mean activity score, therefore, are potential issues in promoting physical activity.

Standard deviation and possible range as shown in Table 6.32 were used as the criteria for identifying clinical significance for the following analysis.

Table 6.32 Physical activity level of overall participants, mean and possible range

Physical activity	Mean (SD)	No. of items*	Possible range
Overall activity	16.58 (9.14)	19	0-57
Domestic chores	8.75 (6.08)	8	0-24
Social activity	2.97 (2.66)	5	0-15
Fitness activity	4.85 (3.80)	6	0-18

*Each question had a score ranged from 0-3

Attitude to benefits of being active

Overall activity

Table 6.33 shows the differences in the mean overall activity score between participants who agreed and disagreed with statements to do with the benefits of being active. There were statistically significant differences in the overall mean score for 4 out of 8 statements. This indicates that the participants who agreed with statement 1, 2, 3 and 5 had a higher mean overall activity score than those who disagreed with such statements. The differences in means ranged from 4.53 to 11.8. When comparing the standard deviation for the difference in mean scores, one statement "*Being active is very important for the elderly*" (no.1 Table 6.33) was deemed to have a clinically significant difference in the two comparison groups (11.8 vs. 9.14 for the standard deviation).

Domestic chores

Focusing on domestic chores (see Table 6.34), 4 out of 8 statements were found to have statistically significant differences in the mean domestic chore score (statement 1, 2, 5 and 7). The differences in the mean scores ranged from 2.46 to 6.76. When comparing the standard deviation for the difference in the mean scores, none of the differences were clinically significant in the two comparison groups (6.76 vs. 6.08 for the standard deviation).

Table 6.33 Overall activity level categorised by perceived benefits of being active

Statements	Mean Overall Activity Score (SD)		Differences in Mean (95% CI)
	Agree *	Disagree**	
1. Being active is very important for the elderly (n=139)***	17.05 (9.00)	5.25 (4.11)	11.8 (2.85 to 20.80)
2. I feel good about my self when I exercise (n=137)***	18.32 (8.53)	10.48 (9.06)	7.84 (4.17 to 11.50)
3. I enjoy being active (n=133)***	18.88 (8.9)	14.35 (8.57)	4.53 (1.47 to 7.59)
4. Emotional problems can be help by exercising (n= 133)***	17.26 (8.9)	15.85 (9.92)	1.41 (-2.85 to 5.67)
5. Being active can make a difference to your life (n=132)***	18.31 (8.60)	9.50 (8.30)	8.81 (4.51 to 13.1)
6. Exercise regularly can prevent fall (n= 132)***	17.60 (8.40)	16.57 (9.76)	1.03 (-2.10 to 4.16)
7. The elderly should rest more, rather than being active (n=139)***	14.10 (8.87)	18.53 (8.87)	-4.43 (-7.45 to -1.41)
8. Benefits from being active are too slight to know (n= 132)***	12.38 (6.80)	17.85 (9.17)	-5.47 (-9.93 to -1.01)

*Agree = agree + strongly agree

**Disagree = disagree + strongly disagree + not sure

*** Differences in totals are due to missing values

Table 6.34 Domestic chores level categorised by perceived benefits of being active

Statements	Mean domestic chores Score (SD)		Differences in Mean (95% CI)
	Agree*	Disagree**	
1. Being active is very important for the elderly (n=139)***	9.01 (6.06)	2.25 (2.87)	6.76 (0.73 to 12.8)
2. I feel good about my self when I exercise (n=137)***	9.56 (6.08)	5.96 (5.59)	3.60 (1.06 to 6.14)
3. I enjoy being active (n=133)***	9.55 (6.46)	8.12 (5.42)	1.43 (-0.68 to 3.55)
4. Emotional problems can be help by exercising (n= 133)***	9.15 (6.23)	8.04 (5.23)	1.11 (-1.75 to 3.97)
5. Being active can make a difference to your life (n= 132)***	9.54 (6.09)	5.61 (5.01)	3.93 (0.93 to 6.92)
6. Exercise regularly can prevent fall (n= 132)***	9.21 (6.05)	8.77 (6.17)	0.44 (-1.67 to 2.55)
7. The elderly should rest more, rather than being active (n=139)***	7.52 (5.99)	9.71 (6.04)	-2.46 (-4.51 to -0.40)
8. Benefits from being active are too slight to know (n= 132)***	7.94 (4.17)	9.17 (6.34)	-1.23 (-4.29 to 1.83)

*Agree = agree + strongly agree

**Disagree = disagree + strongly disagree + not sure

*** Differences in totals are due to missing values

Social activity

For social activity (see Table 6.35), there were statistically significant differences in the mean activity score for statement 2, 3, 5, 7 and 8. This indicates that the participants who had a favorable attitude had higher mean social activity scores than those who had unfavorable attitudes. The differences ranged from 1.10 to 2.21. Similar to domestic chores, none of the differences was clinically significant in the two comparison groups (2.21 vs. 2.66 for the standard deviation).

Fitness activity

Table 6.36 shows the differences in the mean fitness activity score between respondents who agreed and disagreed with the statements to do with the benefits of being active. There were statistically significant differences in mean score for 4 out of 8 statements (statement 2, 3, 5 and 8). The size of differences in mean scores ranged from 1.75 to 2.76. When comparing the standard deviation for the difference in the mean scores, none were indicated to have a clinically significant difference in the two comparison groups (2.76 vs. 3.80 for the standard deviation).

Table 6.35 Social activity level categorised by perceived benefits of being active

Statements	Mean Social Activity Score (SD)		Differences in Mean (95% CI)
	Agree*	Disagree**	
1. Being active is very important for the elderly (n=139)***	3.07 (2.67)	0.50 (0.57)	2.57 (-0.80 to 5.22)
2. I feel good about my self when I exercise (n=137)***	3.42 (2.73)	1.33 (1.68)	2.09 (1.00 to 3.18)
3. I enjoy being active (n=133)***	3.63 (2.74)	2.27 (2.42)	1.36 (0.44 to 2.27)
4. Emotional problems can be help by exercising (n= 133)***	3.20 (2.62)	2.42 (3.04)	0.78 (-0.48 to 2.04)
5. Being active can make a difference to your life (n= 132)***	3.39 (2.69)	1.27 (1.84)	2.21 (0.81 to 3.42)
6. Exercising regularly can prevent falls (n= 132)***	3.30 (2.76)	2.88 (2.60)	0.42 (-0.5 to 1.35)
7. The elderly should rest more, rather than being active (n=139)***	2.35 (2.25)	3.45 (2.85)	-1.10 (-1.99 to -0.20)
8. Benefits from being active are too slight to know (n= 132)***	1.61 (1.46)	3.34 (2.76)	-1.73 (-3.05 to -0.41)

*Agree = agree + strongly agree

**Disagree = disagree + strongly disagree + not sure

*** Differences in totals are due to missing values

Table 6.36 Fitness activity level categorised by perceived benefits of being active

Statements	Mean Fitness Activity Score (SD)		Differences in Mean (95% CI)
	Agree*	Disagree**	
1. Being active is very important for the elderly (n=139)***	4.97 (3.84)	2.50 (2.64)	2.47 (-1.36 to 6.30)
2. I feel good about my self when I exercise (n=137)***	5.33 (3.65)	3.18 (4.23)	2.15 (0.54 to 3.75)
3. I enjoy being active (n=133)***	5.69 (3.76)	3.94 (3.81)	1.75 (0.43 to 3.07)
4. Emotional problems can be help by exercising (n= 133)***	4.91 (3.67)	5.38 (4.85)	-0.47 (-2.29 to 1.35)
5. Being active can make a difference to your life (n= 132)**	5.37 (3.80)	2.61 (3.56)	2.76 (0.86 to 4.65)
6. Exercising regularly can prevent falls (n= 132)***	5.08 (3.60)	4.90 (4.18)	0.18 (-1.16 to 1.52)
7. The elderly should rest more, rather than being active (n=139)***	4.22 (3.63)	5.36 (3.91)	-1.14 (-2.44 to 0.15)
8. Benefits from being active are too slight to know (n= 132)***	2.83 (2.22)	5.34 (3.97)	-2.51 (-4.41 to -0.61)

*Agree = agree + strongly agree

**Disagree = disagree + strongly disagree + not sure

*** Differences in totals are due to missing values

To conclude, attitude to benefits of being active somewhat affected the physical activity levels of the elderly. The size of differences in the mean scores was relatively small for most of the statements. Since the importance of attitude towards physical

activity is recognised, the statements, which are statistically significant and found to have the largest differences in the mean scores, are deemed to be an important public health issue. Using this judgment, it is apparent that statement 1 and 5 "*Being active is very important for the elderly*" and "*Being active can make a difference to your life*" are of public health importance to Thai elderly.

Attitude to barriers of being active

Overall activity

Table 6.37 demonstrates the differences in the mean overall activity score between participants who agreed or disagreed with the statements to do with the barriers of being active. Four statements (3, 4, 9 and 10) were found to have a statistically significant difference in the mean overall activity scores. The differences in the mean scores ranged from 4.11 to 7.23. When comparing the standard deviation for the difference in the mean overall physical activity scores, none of those were deemed to have a clinically significant difference in the two comparison groups. However, statement 4 "*I am worried to go out and exercise*" was found to have the largest size of the difference in the mean scores, indicating that this was of public health importance.

Table 6.37 Overall activity level categorised by perceived barriers of being active

Statements	Mean Overall Activity Score (SD)		Difference in Mean (95% CI)
	Agree*	Disagree**	
1. Lack of information about being active makes the elderly more inactive (n=132)***	16.45 (10.05)	17.35 (8.71)	-0.9 (-4.44 to 2.64)
2. The elderly are not motivated and can't get started (n=132)***	17.92 (9.46)	16.51 (8.76)	1.4 (-1.75 to 4.57)
3. Fitness activity in the elderly may be dangerous (n=138)***	11.76 (9.80)	17.92 (8.59)	-6.16 (-9.96 to -2.36)
4. I am worried to go out and exercise (n=133)***	12.91 (7.81)	20.14 (8.73)	-7.23 (-10.10 to -4.34)
5. Exercising in public is embarrassing (n=132)***	15.62 (8.28)	17.64 (9.30)	-2.02 (-5.55 to 1.51)
6. The elderly are too busy to take part in any activities (n=132)***	19.14 (8.66)	16.59 (9.12)	2.55 (-1.30 to 6.40)
7. I waste my time when I exercise (n=137)***	13.17 (8.66)	17.29 (9.14)	-4.12 (-8.78 to 0.53)
8. The cost for participating in an outdoor activity for the elderly is expensive (n=133)***	14.46 (8.03)	17.67 (9.21)	-3.21 (-7.10 to 0.68)
9 Exercise is too much activity to do for the elderly (n=132)***	14.00 (8.54)	18.11 (9.03)	-4.11 (-7.69 to -0.52)
10. Being active is just for the young (n=133)***	13.18 (9.55)	18.58 (8.42)	-5.40 (-8.72 to -2.08)

*Agree = agree + strongly agree

**Disagree = disagree + strongly disagree + not sure

*** Differences in totals are due to missing values

Domestic chores

For domestic chore activity (Table 6.38), only one statement (no 4: *I am worried to go out and exercise*) had a statistically significant difference in the mean activity score. The difference in the mean was 2.19. It should be noticed that the size of difference was less than the standard deviation (2.91 vs. 6.08). Therefore, none of the statements regarding attitude to benefits of being active were found to have a clinically significant difference in the two comparison groups. However, statement 4 had the largest difference in the mean domestic chore score, thus this was deemed to have a public health importance.

Social activity

For social activity (Table 6.39), six statements (2, 3, 4, 7, 9, and 10) were found to have a statistically significant difference in the mean scores regarding barriers for being active. The differences ranged from 1.21 to 2.11. This indicates that the participants who disagreed with those statements had higher mean social activity scores than those who agreed. None of the differences in the mean scores were found to have a clinically significant difference in the two comparison groups (2.11 vs. 2.97 for the standard deviation). Therefore, the largest difference was used to identify a public health importance. Statement 10 "*Being active is just for the young*" had the largest difference of mean score. Therefore this statement was of public health importance for social activity.

Table 6.38 Domestic chores level categorised by perceived barriers of being active

Statements	Mean Domestic Chores Score (SD)		Difference in Mean (95% CI)
	Agree*	Disagree**	
1. Lack of information about being active makes the elderly more inactive (n=132)***	9.57 (7.33)	8.80 (5.60)	0.77 (-1.61 to 3.15)
2. The elderly are not motivated and can't get started (n=132)***	9.46 (6.17)	8.67 (6.05)	0.79 (-1.34 to 2.92)
3. Fitness activity in the elderly may be dangerous (n=138)***	6.76 (6.70)	9.32 (5.90)	-2.56 (-5.17 to 0.40)
4. I am worried to go out and exercise (n=133)***	7.31 (5.21)	10.22 (6.40)	-2.91 (-4.96 to -0.85)
5. Exercising in public is embarrassing (n=132)***	8.68 (5.41)	9.12 (6.34)	-0.44 (-2.82 to 1.94)
6. The elderly are too busy to take part in any activities (n=132)***	10.85 (5.49)	8.53 (6.17)	2.32 (-0.25 to 4.90)
7. I waste my time when I exercise (n=137)***	7.47 (5.94)	9.05 (6.16)	-1.53 (-4.72 to 1.56)
8. The cost for participating in an outdoor activity for the elderly is expensive (n=133)***	9.30 (6.58)	8.89 (5.98)	0.41 (-2.23 to 3.05)
9 Exercise is too much activity to do for the elderly (n=132)***	8.50 (5.80)	9.17 (6.20)	-0.67 (-3.12 to 1.78)
10. Being active is just for the young (n=133)***	7.89 (6.79)	9.41 (5.75)	-1.52 (-3.82 to 0.78)

*Agree = agree + strongly agree

**Disagree = disagree + strongly disagree + not sure

*** Differences in totals are due to missing values

Table 6.39 Social activity level categorised by perceived barriers of being active

Statements	Mean Social Activity Score (SD)		Difference in Mean (95% CI)
	Agree*	Disagree**	
1. Lack of information about being active makes the elderly more inactive (n=132)***	2.94 (2.49)	3.16 (2.76)	-0.22 (-1.27 to 0.83)
2. The elderly are not motivated and can't get started (n=132)***	3.80 (2.79)	2.59 (2.50)	1.21 (0.29 to 2.13)
3. Fitness activity in the elderly may be dangerous (n=138)***	1.61 (1.72)	3.33 (2.75)	-1.72 (-2.84 to -0.60)
4. I am worried to go out and exercise (n=133)***	2.29 (2.54)	3.67 (2.66)	-1.38 (-2.28 to -0.47)
5. Exercise in public is embarrassing (n=132)***	2.48 (2.13)	3.32 (2.84)	-0.84 (-1.88 to 0.20)
6. The elderly are too busy to take part in any activities (n=132)***	2.62 (2.20)	3.22 (2.79)	-0.60 (-1.75 to 0.54)
7. I waste my time when I exercise (n=137)***	1.76 (1.71)	3.19 (2.75)	-1.43 (-2.79 to -0.07)
8. The cost for participating in an outdoor activity for the elderly is expensive (n=133)***	2.38 (2.21)	3.25 (2.78)	-0.87 (-2.03 to 0.28)
9 Exercise is too much activity to do for the elderly (n=132)***	2.18 (2.30)	3.40 (2.74)	-1.22 (-2.28 to -0.15)
10. Being active is just for the young (n=133)***	1.57 (1.65)	3.68 (2.79)	-2.11 (-3.07 to -1.15)

*Agree = agree + strongly agree

**Disagree = disagree + strongly disagree + not sure

*** Differences in totals are due to missing values

Fitness activity

For fitness activity (Table 6.40), 5 statements (3, 4, 8, 9 and 10) were found to have a statistically significant difference in mean fitness activity scores. The differences ranged from 1.78 to 2.96. These differences were smaller than the standard deviation, therefore, none of those were found to have a clinically significant difference (2.96 vs. 3.80 for the standard deviation). Similar to overall and domestic chore activity, statement 4 "*I am worried to go out and exercise*" had the largest difference of mean score. This is, therefore, of public health importance.

Table 6.40 Fitness activity level categorised by perceived barriers of being active

Statements	Mean Fitness Activity Score (SD)		Difference in Mean (95% CI)
	Agree*	Disagree**	
1. Lack of information about being active makes the elderly more inactive (n=132)***	3.94 (3.28)	5.38 (4.01)	-1.44 (-2.94 to 0.05)
2. The elderly are not motivated and can't get started (n=132)***	4.66 (3.94)	5.25 (3.83)	-0.59 (-1.94 to 0.76)
3. Fitness activity in the elderly may be dangerous (n=138)***	3.38 (3.17)	5.26 (3.90)	-1.88 (-3.51 to -0.25)
4. I am worried to go out and exercise (n=133)***	3.29 (2.78)	6.25 (4.09)	-2.96 (-4.20 to -1.72)
5. Exercising in public is embarrassing (n=132)***	4.45 (3.84)	5.19 (3.89)	-0.74 (-2.25 to 0.77)
6. The elderly are too busy to take part in any activities (n=132)***	5.66 (4.56)	4.82 (3.68)	0.84 (-0.81 to 2.49)
7. I waste my time when I exercise (n=137)***	3.94 (4.03)	5.05 (3.82)	-1.11 (-3.08 to 0.86)
8. The cost for participating in an outdoor activity for the elderly is expensive (n=133)***	2.76 (2.50)	5.52 (3.95)	-2.76 (-4.37 to -1.15)
9 Exercise is too much activity to do for the elderly (n=132)***	3.31 (3.08)	5.54 (3.96)	-2.23 (-3.74 to -0.71)
10. Being active is just for the young (n=133)***	3.71 (3.86)	5.49 (3.76)	-1.78 (-3.22 to -0.34)

*Agree = agree + strongly agree

**Disagree = disagree + strongly disagree + not sure

*** Differences in totals are due to missing values

In summary, attitudinal barriers to being active were found to be relevant to physical activity. Although the size of the difference in the mean scores was not large enough to be detected by the standard deviation, two statements "*I am worried to go out and exercise*" and "*Being active is just for the young*" were deemed to be a clinical significance. These two statements are therefore of public health importance regarding barriers to being active.

Attitude to enabling factors

The analysis focuses on the association between attitude to enabling factors and overall, social and fitness activities only. Domestic chores are not included in the analysis due to low relevance to enabling factors.

Overall activity

Table 6.41 shows the differences in the mean overall activity scores between participants who agreed or disagreed with the statements regarding perceived enabling factors. One statement (no. 2 in Table 5.38) "*Having friends makes it easy for the elderly to participate in any activities*" was found to have a statistically significant difference. The size of the difference was 5.17. When comparing the difference in the mean score for the standard deviation, a clinically significant difference was not found

(5.17 vs. 9.14 for standard deviation). However, this statement had the largest size of the difference in the mean score, it was therefore of public health importance.

Table 6.41 Overall activity level categorised by perceived enabling factors of being active

Statements	Mean Overall Activity Score (SD) (n=132)		Differences in Mean (95% CI)
	Agree*	Disagree**	
1. Feeling secure and safe in the community enables people to get out and exercise	17.67 (8.95)	14.14 (9.23)	3.35 (-0.70 to 7.67)
2. Having friends makes it easy for the elderly to participate in any activities	17.70 (8.85)	12.53 (9.64)	5.17 (0.32 to 10.00)
3. Family plays an important role in encouraging the elderly to be more active	17.31 (9.31)	16.35 (8.16)	0.96 (-2.80 to 4.72)

*Agree= Strongly agree+ Agree

**Disagree= Strongly disagree+ Disagree+ Not sure

Social activity

Similar to overall activity, statement 2 "*Having friends makes it easy for the elderly to participate in any activities*" was found to have a statistically significant difference for social activity (see Table 6.42). The size of difference in the mean score was 1.63. When comparing the standard deviation for the difference in the mean score, this

difference was not clinically significant in the two comparison groups (1.63 vs. 2.66 for standard deviation). Regardless of whether the difference was detected by the standard deviation, the enabling factors are still important for promoting physical activity. Therefore, statement 2 " *Having friends makes it easy for the elderly to participate in any activities*" was indicated to be of public health importance.

Table 6.42 Social activity categorised by perceived enabling factors

Statements	Mean Social activity Score (SD)		Differences in Mean (95% CI)
	Agree*	Disagree**	
1. Feeling secure and safe in the community enables people to get out and exercise	3.22 (2.71)	2.47 (2.54)	0.75 (-0.51 to 2.10)
2. Having friends makes it easy for the elderly to participate in any activities	3.29 (2.71)	1.66 (2.09)	1.63 (0.19 to 3.07)
3. Family plays an important role in encouraging the elderly to be more active	3.31 (2.74)	2.32 (2.34)	0.99 (-0.13 to 2.11)

*Agree= Strongly agree+ Agree

**Disagree= Strongly disagree+ Disagree+ Not sure

Fitness activity

Unlike overall and social activity which statement 2 was deemed to be of public health importance, none of the statements regarding enabling factors was found to have a statistically significant difference for fitness activity in the two comparison groups. The results are shown in Table 6.43.

Table 6.43 Fitness activity level categorised by perceived enabling factors of being active

Statements	Mean Fitness Activity Score (SD) (n=132)		Differences in Mean (95% CI)
	Agree*	Disagree**	
1. Feeling secure and safe in the community enables people to get out and exercise	5.22 (4.00)	3.80 (2.94)	1.42 (-0.39 to 3.24)
2. Having friends makes it easy for the elderly to participate in any activities	5.08 (3.93)	4.33 (3.41)	0.75 (-1.35 to 2.85)
3. Family plays an important role in encouraging the elderly to be more active	4.81 (3.77)	5.67 (4.24)	-0.86 (-2.49 to 0.77)

*Agree= Strongly agree+ Agree

**Disagree= Strongly disagree+ Disagree+ Not sure

To conclude, the relationship between perceived enabling factors and physical activity was determined. It is apparent that 'having friends' is an enabling factor in relation to

promoting physical activity, in particular overall and social activity, although the size of difference in the mean score of this statement was relatively small.

Social environmental determinants of physical activity

The study identified supportive environments, activity advice and activity information as social environmental determinants of physical activity. The following analysis demonstrates whether or not the social environmental determinants affect physical activity of the elderly.

Supportive environments

The analysis focused on the relationship of overall, social and fitness activities with supportive environments. As supportive environments are less likely to affect physical activity of domestic chores, no analysis in this respect would be performed.

Overall activity

Overall, the participants who reported having supportive environments in their community had a higher overall mean activity score than those who did not (see Table 6.44). Statistically significant differences in the mean activity scores were found for three facilities; open space or park, recreation centre and senior citizens club. The size of the differences ranged from 4.42 to 8.20. When comparing the standard deviation

for the difference in the mean scores, none of these were found to be a clinically significant difference (the largest difference = 8.20 vs. 9.14 for standard deviation).

Table 6.44 Overall activity categorised by having supportive environment

Have you or haven't you got this facility in your community	Mean Overall Activity Score (SD)		Differences in Mean (95% CI)
	Yes	No	
1. Open space or park (n=141)*	19.22 (9.35)	14.80 (8.52)	4.42 (1.43 to 7.41)
2. Tree-shaded street with footpaths (n= 140)*	17.42 (9.27)	15.27 (8.54)	2.15 (-1.03 to 5.33)
3. Gyms (n= 133)*	19.41 (8.70)	16.95 (8.66)	2.46 (-2.73 to 7.65)
4. Swimming pool (n= 136)*	19.93 (8.33)	16.79 (8.97)	3.14 (-1.55 to 7.83)
5. Playground (n=138)*	17.84 (8.80)	16.60 (8.99)	1.24 (-1.87 to 4.35)
6. Recreation centre (n= 128)	25.00 (8.21)	16.80 (8.58)	8.20 (2.35 to 14.1)
7. Senior citizen club (n=131)*	21.64 (9.09)	16.50 (8.84)	5.14 (0.57 to 9.70)

* Differences in total are due to missing value and “not sure” answers

Social activity

Similar to overall activity, open space or park, recreation centres and senior citizen clubs were found to have a statistically significant difference for social activity (see Table 6.45). The size of differences ranged from 1.90 to 2. When comparing the standard deviation for the differences in the mean scores, none of these were deemed to be a clinically significant difference (the largest difference = 2.16 vs. 2.66 for standard deviation).

Table 6.45 Social activity categorised by having supportive environment

Have you or haven't you got this facility in your community	Mean Overall Activity Score (SD)		Differences in Mean (95% CI)
	Yes	No	
1. Open space or park (n=141)*	4.06 (2.75)	2.16 (2.30)	1.90 (1.06 to 2.74)
2. Tree-shaded street with footpaths (n= 140)*	3.17 (2.67)	2.66 (2.63)	0.51 (-0.42 to 1.45)
3. Gyms (n= 133)*	4.16 (1.89)	3.00 (2.72)	1.16 (-0.43 to 2.75)
4. Swimming pool (n= 136)*	3.25 (2.64)	3.07 (2.68)	0.18 (-1.23 to 1.59)
5. Playground (n=138)*	3.29 (2.58)	2.90 (2.70)	0.39 (-0.53 to 1.32)
6. Recreation centre (n= 128)	5.11 (2.08)	2.95 (2.68)	2.16 (0.35 to 3.97)
7. Senior citizen club (n=131)	5.00 (2.89)	2.89 (2.55)	2.11 (0.77 to 3.44)

* Differences in total are due to missing value and “not sure” answers

Fitness activity

For fitness activities, only open space or park was found to have a statistically significant difference in the mean activity score (see Table 6.46). The size of difference was 1.76. When comparing the standard deviation for the mean activity score, a clinically significant difference was not found (1.76 vs. 3.80 for the standard deviation).

Table 6.46 Fitness activity categorised by having supportive environment

Have you or haven't you got this facility in your community	Mean Overall Activity Score (SD)		Differences in Mean (95% CI)
	Yes	No	
1. Open space or park (n=141)*	5.88 (4.04)	4.12 (3.47)	1.76 (0.50 to 3.10)
2. Tree-shaded street with footpaths (n= 140)*	5.05 (3.73)	4.58 (3.97)	0.47 (-0.79 to 1.73)
3. Gyms (n= 133)*	5.25 (2.56)	5.00 (3.86)	0.25 (-2.01 to 2.51)
4. Swimming pool (n= 136)*	5.06 (2.64)	5.01 (3.94)	0.05 (-1.96 to 2.06)
5. Playground (n=138)*	4.45 (3.39)	5.13 (3.98)	-0.68 (-1.99 to 0.62)
6. Recreation centre (n= 128)	6.77 (4.05)	5.01 (3.82)	1.76 (-0.86 to 4.39)
7. Senior citizen club (n=131)*	6.00 (4.33)	4.96 (3.76)	1.04 (-0.93 to 3.01)

*Differences in total are due to "not sure" answers

There is evidence from a recent systematic review (Kahn et al., 2002) that supportive environments are important factors to increase physical activity. Regardless of the size of the differences in the mean activity score, it therefore suggests that open space or parks, recreational centres and senior citizens clubs were clinically significant determinants of physical activity.

Activity advice

The associations between physical activity level and activity advice are displayed in Table 6.47. Overall, the participants who received activity advice from doctors or health professionals had a lower mean activity score than those who did not. None of

the differences in the mean physical activity scores was found to be a statistically significant difference in the two comparison groups.

Table 6.47 Overall activity categorised by receiving activity advice

Survey questions	Mean Overall Activity Score		Difference in Mean (95% CI)
	Yes	No	
1. Have you ever been given any verbal advice on increasing physical activity from your doctor? (n= 137)*	16.50 (9.10)	16.96 (8.96)	-0.46 (-3.52 to 2.60)
2. Have you ever been given any written advice for increasing your physical activity from your doctor? (n=143)*	14.42 (6.75)	16.69 (9.25)	-2.45 (-9.47 to 4.57)
3. Have you got any supportive materials such as brochures or pamphlet on increasing physical activity from health professional? (n=143)*	15.45 (8.24)	16.97 (9.43)	-1.52 (-4.97 to 1.93)

*Differences in total are due to missing values

Information about activity

Overall, the participants who reported receiving activity information had higher mean physical activity scores than those who did not. A statistically significant difference

was found only for social activity. The size of the difference in the mean activity score was 2.23. When comparing the standard deviation for the difference in the mean social activity score, it was not found to be a clinically significant difference (2.23 vs. 2.66 for standard deviation). The results are shown in Table 6.48.

Table 6.48 Activity level categorised by receiving activity information

Physical activity	Have you heard or seen any information about promoting physical activity for the elderly? (n=143)		Differences in Mean (95% CI)
	Yes	No	
Overall activity	16.88 (9.03)	10.57 (9.74)	6.31 (-0.63 to 13.3)
Domestic chores	8.88 (6.08)	6.14 (5.78)	2.74 (-1.91 to 7.39)
Social activity	3.08 (2.66)	0.85 (1.46)	2.23 (0.22 to 4.24)
Fitness activity	4.91 (3.80)	3.57 (3.69)	1.34 (-1.57 to 4.25)

6.4 Discussion

This chapter has examined responses of older Thais, analysing their preferences for physical activity and for help in increasing physical activity. The physical activity measure for this analysis has been modified for validity across cultures. The chapter has also examined the personal, attitudinal, social and environmental determinants of physical activity.

6.4.1 Response rate

The response rate was 71%. This compares well with the overall response rate of 53.3% for telephone surveys of physical activity in six European countries (Belgium, Finland, Germany, Netherlands, Spain and Switzerland) (Rutten et al., 2001). However, it was not possible to compare with others in Thailand as no data from telephone surveys in Thailand have been published so far.

6.4.2 Sample characteristics

The demographic pattern of the respondents in this study is comparable to data supplied by the Thai Bureau of Statistics Census in terms of distribution of gender, education and ethnic status of the Thai population (National Statistical Office, 2001), as well as to the results of one study on the elderly in Bangkok (Siriboon, 1996). Nevertheless, as this telephone survey was conducted in only one urban area in Bangkok and the telephone cover rate in Bangkok is less than 100% (National Statistical Office, 2000), this may lead to some limitations of the study, in particular, in terms of the generalisability.

Focusing on health status, more than a half of the respondents perceived their health as fair or poor. This finding is consistent with other reports on health status for Thai elderly (Siriboon, 1996) and is similar to the pattern of the perceived health of the

elderly from a cross-sectional study in Spain (Gama, Damian, Perez del Molino, Lopez, Perez and Iglesias, 2000). As the self-rated health is a good predictor of future health (Newbury and Marley, 2001; Rutten et al., 2001), the finding on perceived health and the incapacity rate of the respondents (12%) therefore reflects a sizable health problem among the Thai elderly. Moreover, the situation of health problems among the elderly seems to be worse as just over a half of them used health services, predominantly for chronic conditions (Jitapunkul, Na Songhkla, Chayovan et al., 1999).

6.4.3 Psychometric properties of the measure

The survey instruments were assessed for reliability and validity through a series of studies with the Thai elderly. Content and face validity of the survey instruments (the AAP and attitudinal measure) were obtained through the use of focus group discussions and individual face-to-face interviews. For the factor structure of the AAP, it was investigated by the use of a factor analysis of data obtained from the survey. These qualitative and quantitative techniques have been used widely in the assessment of psychometric properties of measures (O'Brien-Cousins, 1996; Dwyer, Allison and Makin, 1998; Fillenbaum, Chandra, Gangul et al., 1999; Stanton, Balanda, Gillespie, Lowe and Baade, 2000; Resnick, Zimmerman, Orwig, Furstenberg and Magaziner, 2000).

Both physical activity and attitudinal measures showed satisfactory validities. The cross-cultural adaptation technique can produce an equivalent instrument to be used in a different culture, although minor discrepancies between the original and the modified version of the AAP were found. The study offers clear evidence to support the equivalence of the instruments in two ways. Firstly, the procedures of translation and modification of the measure were derived from standardised guidelines, which included recommendations for obtaining semantic, idiomatic, experiential and conceptual equivalence (Guillemin et al., 1993). Secondly, the factor structures and the pattern of the internal consistency of both versions of the measure were similar as shown in Table 6.49

Table 6.49 The comparison of the instruments

The Adelaide Activities Profile (Original version)	The Adelaide Activities Profile (Modified version)
<ul style="list-style-type: none"> • Used with 1799 older people living in a community • Comprised 21 items • A 4- point response scale • Factor analysis revealed 4 factors <p>Factor 1: Domestic chores Factor 2: Household maintenance Factor 3: Service to others Factor 4: Social activities</p> <ul style="list-style-type: none"> • Internal consistency reliability (Theta) <p>Factor 1 = 0.80 Factor 2 = 0.70 Factor 3 = 0.52 Factor 4 = 0.51</p>	<ul style="list-style-type: none"> • Administered to 143 older people living in a community • Comprised 19 items • A 4-point response scale • Factor analysis obtained 3 factors <p>Factor 1: Domestic chores Factor 2: Social activities Factor 3: Fitness activities</p> <ul style="list-style-type: none"> • Internal consistency reliability (Cronbach's alpha) <p>Factor 1 = 0.75 Factor 2 = 0.57 Factor 3 = 0.59</p>

The minor differences between the original and modified version of the physical activity measure were that, 1) items fitted in different subscales, 2) there was a smaller number of subscales and 3) the name of one subscale was changed. One item, which was moved to a different subscale, is the “making a telephone call” item. The item was fitted in the social activity subscale of the modified version rather than the domestic chores subscale or service to others as with the original version (see Table 6.7). This difference may be explained in part by the physical environment of Bangkok, which is characterised by heavy density traffic. This has resulted in

telephones being used predominantly for social reasons rather than for ordering or organising domestic assistance located elsewhere. Another example was the "paid or unpaid work" item, which was loaded in the fitness activity subscale. Results from participants' input through the focus group interviews (Chapter 4) reflect that the details of this activity were working as a carpenter or working at a temple for males and cooking for a party for females. Clearly, "paid or unpaid work" item represents fitness activity.

There was a smaller number of subscales for the modified version because 3 items were not relevant to other items and then were dropped from the scale. While the original version of the AAP had 4 subscales, the modified version had only 3 subscales. The "religious activity" item was one of those dropped from the scale because of its limited relevance to each of the three factors, as reflected in its relatively low loading value of 0.3. This may reflect the fact that the majority of participants followed Buddhism, which does not tend to relegate religious practices to specific areas of activity, but rather promotes an integrated approach to life. This phenomenon may have produced the low loading value for the religious activity item.

For the last difference, as two subscales of the original version were combined into one of the modified version, this was given a new name as fitness activity rather than either household maintenance or service to others. This name was given because this subscale comprised physically demanding items such as gardening, paid or unpaid work, house/car repair or maintenance hobbies and walking out doors. It is clear that

the differences in the factor structure of the two versions of the measure come from the differences in cultural context that affect lifestyle activities.

6.4.4 Physical activity level

One of the major aims of this study was to examine physical activity levels of the Thai elderly. The findings revealed that the participants were inactive in all types of activities, with only a small number of the participants engaged in social and fitness activities. For example, just over a third (37.1%) of the participants walked out doors almost every day, only one fifth (21.0%) had hobbies once a week and up to 80% never attended social activities. These findings are similar to one research finding for physical activity of older adults in Thailand. A Thai study (Siriboon, 1996) reported that over a half (56.8%, n=132) of the respondents in Bangkok did nothing when they had free time, only 15% had hobbies, 10% talked with neighbors and up to one-third (31.1%) never participated in any community activities during the previous year.

The physical activity pattern of the Thai elderly is also similar to that in other Asian countries as well as some western countries but slightly different from the physical activity pattern of the elderly in Finland. In Taiwan, a physical activity study reported that less than a half of older adults (43.8%, n=500) exercised regularly and 19.2% never exercised (Wang et al., 1996). Similar patterns applied to Singapore where Lian et al. (1999) reported that with a total of 2494 subjects aged 60 years and older, 47.0% of older men and 38.5% of older women practiced regular leisure-time physical

activity. In America, one study revealed that the prevalence of regular physical activity was 37% (n=2783) among older men and 24% (n=5018) among older women (Yusuf et al., 1996). In addition, an Australian study (Armstrong et al., 2000) reported that around 50% of men and 40 % of women who aged over 60 years achieved sufficient time and sessions in physical activities. Similar results were found from a study in Finland (Ruuskanen et al., 1995) that with a total of 1244 Finnish adults aged 65 to 84 years, about 50% of respondents carried out regular walking and 40% practiced some forms of home gymnastics.

6.4.5 Preferences for physical activity

The most-preferred physical activity among the Thai elderly in the present study was walking and the most preferred leisure-time activity was gardening and caring for pets. These findings are consistent with studies in Australia (DASET, 1992; Booth et al., 1997). They are also consistent with similar findings in USA (Yusuf et al., 1996; Clark, 1999a), in Finland (Ruuskanen et al., 1994), in Canada (Collette et al., 1994) and in Taiwan (Wang et al., 1996). All of these reported that walking is the most prevalent and preferred physical activity among older adults. The finding suggests that, for the older Thais, one of the activities which should be further promoted and facilitated is walking.

6.4.6 Preferences for help in increasing physical activity

With regard to preferences for help in increasing physical activity, the findings revealed that verbal advice from doctors or health professionals was the most preferred advice, whereas help from family and community was less required. This finding is somewhat surprising because of a long tradition of family support in Thai society. One possible explanation for this result may be that Thai society has changed rapidly during the past 10 years, in particular in terms of the economy and of modernisation, which have affected family and social structure (Choowattanapakorn, 1999). This implies that the older Thais are less likely to be able to rely solely on the support from their family than they were in the past.

6.4.7 Physical activity and personal determinants

The findings from an analysis of variance of personal factors and physical activity accord with those of previous research that a higher degree of physical activities related to better perceived health and higher education (Yusuf et al., 1996; Parkatti, Deeg, Bosscher and Launer, 1998; Cott, Gignac and Badley, 1999; Leinonen, Heikkinen and Jylha, 1999; Schuit, Feskens and Seidell, 1999; Booth, Owen, Bauman, Clavisi and Leslie, 2000; Rutten et al., 2001; Lawlor, Taylor, Bedford and Ebrahim, 2002). According to studies by Parkatti et al. (1998) and by Leinonen et al. (1999), perceived health not only affects physical activity, but also physical activity can in turn, affect perceived health. Thus increasing physical activity may improve some quality of life dimensions among the elderly through perceived health.

In relation to gender, the results showed that females were more active than males for domestic chores but less active for social and fitness activities. This finding is similar to that of a study in UK (Bennett, 1998) that older women had a higher level of indoor activity, but a lower level of outdoor activity than men. This finding could be explained in two ways. Firstly, for Thai culture, women are expected to take more responsibility for domestic chores than men. Secondly, women may believe that they have little or no right to leisure (Henderson and Dialeschki, 1991; Muraki, Maehara, Ishii, Ajimoto and Kikuchi, 1993). Thus, the engagement of women in active living, especially in social and fitness activities is clearly limited because of social norms and social structures. According to Denton & Walters (1999), in a Canadian study, stated that while smoking and alcohol consumption are more important determinants of health status for men than women, being physically inactive is more important for women. Applying this statement to the results of the current study, it leads to the conclusion that Thai women are particularly vulnerable because of the limitation on their social and fitness activities. This issue is compounded by the fact that, as in western countries, women are in the majority of the older population in Thailand (National Statistical Office, 2001). In addition, Thai women are more likely to have higher rates of illness (Fuller, Edwards, Sermsri and Vorakitphokatorn, 1993) and less proportion of active life than men (Jitapunkul et al., 2000). It was also found from a Thai study (Swaddiwudhipong, Lerdlukanayonge, Chaovakiratipong et al., 1996) that women had higher proportion of difficulties with activities in daily living than men. Thus, physical activity promotion in Thailand may need to aim at helping the elderly,

especially women, to overcome barriers of being active, in particular social disadvantages among them.

6.4.8 Attitude to active living

In determining the attitudes to active living, it is clear that most participants held favourable attitudes, in particular in relation to the perceived benefits of being active, although physical activity levels were relatively low. This finding is similar to that of an American study (Mouton, Calmbach, Dhanda, Espino and Hazuda, 2000) showing that Mexican Americans reported lower levels of physical activity, although they perceived greater benefits and fewer barriers to physical activity than European Americans. Similarly, a physical activity study in older adults by Deforche & De Bourdeaudhuij (2000) also reveals that perceived barriers or benefits of being active were not significantly associated with physical activity levels.

The first attitudinal determinant examined in the research was that of perceived benefits as follows: “*Being active is very important for the elderly*” and “*Being active can make a difference to your life*”. The participants who agreed with these statements were more active than those who disagreed. This finding therefore suggests that a social marketing program or a physical activity campaign should promote the concepts of these statements among the older Thais.

One important dimension of attitudinal determinants is perceived barriers. Almost half of the participants agreed that inactivity was due to worry about going out to exercise and the lack of motivation. This finding is similar to studies from America (Clark, 1999a) and England (Chinn et al., 1999) but slightly different from a study in Australia (DASET, 1992). Older adults in Australia reported that an existing injury or disability was the major barrier to being active, while lack of motivation was less important than physical problems.

The last dimension of attitudinal determinants of the study is the perceived enabling factors. Most of the participants agreed that having friends, feeling secure and safe in the community, and family support could help them to be active. This result confirms the finding of a study in Australia that the participation of friends and family and finding safe places for walking were associated with being active (Booth et al., 2000). Similar results have been reported by a study in Singapore. Lian and colleagues (1999) reported that family support was significantly related to physical activity. Another study from the USA also found that social support was significantly related to physical activity and the support from friends and families were not different in relation to physical activity (Eyler, Brownson, Donatelle, King, Brown and Sallis, 1999). Similarly, results from the Ontario Health Survey (Spanier and Allison, 2001) showed that general social support, such as number of friends/family members and frequency of contact, was associated with levels of physical activity. Based on the present findings and the evidence from previous studies, it is suggested that enhancing social support is an important aspect of promoting physical activity among the elderly.

6.4.9 Social environments

The relationship between social environments and physical activity was evident by the following factors: availability of a recreational centre; access to open space/parks within the participants' community; and exposure to activity information. The results of the survey indicate that there were substantial proportions of tree-shaded streets with footpaths within the participants' community and information on television programs. While just over half of the participants received verbal advice from doctors or health professionals on their physical activity, up to one third did not receive any such advice. The results suggest that the quantity and quality of activity advice from doctors and health professionals may be insufficient to motivate or educate the elderly to be active as no relationship was found in this respect. One study from Australia (Bull et al., 1995) indicated that general practitioners asked about and discussed physical activity only with the patients who had symptoms of a condition that could benefit from exercise. It may be the same situation in Thailand. However, there is no report in Thailand to explain this finding so far.

The result of the present study also shows that activity information from television programs was a predictor of physical activity. A Scottish study on an intervention incorporating TV advertising plus telephone helplines and support booklets revealed that at a population level, the campaign had a notable positive impact on knowledge about walking as a form of exercise but no impact on walking behaviour (Wimbush et

al., 1998). Based on the present findings and the fact that up to 96.8% of the people in Bangkok have televisions in their households (National Statistical Office, 2000), a media-based intervention focusing on television may be a first step for promoting physical activity in Thailand.

6.5 Conclusion

Older Thais in Bangkok did not participate to a significant extent in any of the activities examined. Not surprisingly, women were more active than men for domestic chores but less active for social activities. Perceived health was related to physical activity in that the elderly who perceived health as good or fair were more active than those who perceived health as poor. In addition, the elderly with no partner and who perceived their health as poor were the least active group.

The most preferred physical and leisure activities were walking, gardening and caring for pets. The preferences for help on increasing physical activity were predominantly verbal advice from doctors or health professionals, although this was found to be insufficient. In addition, advice from television programs was preferred. Support from community and family was not required as strongly as had been anticipated.

Most of the elderly held favourable attitudes to active living. Importantly, five attitudinal statements were significantly associated with physical activity. Social and environmental facilities (tree-shaded streets with footpaths and activity information

from TV) were reported as widely available. Interestingly, availability of a recreational centre, access to open space/park within the participants' community, and exposure to activity information were related to physical activity.

Key factors for maximising physical activity of the elderly in Bangkok include: access to physical environments, exposure to mass media focusing on television, providing advice by health professionals, and enhancing social support by targeting the participation of the elderly and family members at a recreation centre. The next chapter will examine the potential factors derived from this chapter in conjunction with the results from the focus group discussions (Chapter 4). A model for increasing physical activity among the elderly will then be developed.

Chapter 7- A model for promoting physical activity

7.1 Introduction

As outlined in Chapter 1, the final aim of this study is to develop a model for promoting physical activity among older Thais. It was decided that the model would reflect the criteria of being: 1) evidence based, 2) theoretically sound and 3) acceptable to stakeholders. These three criteria provided opportunities to ensure appropriateness, acceptability and feasibility of the developed model, which are important factors of its utilisation. In order to develop a model reflecting these criteria, qualitative and quantitative approaches as well as a review of literature were conducted to identify a prototype model and subsequently refine and confirm the model from the perspective of stakeholders.

The first criterion, evidence based knowledge of physical activity, was obtained from three main sources. The notion of active living among older Thais was derived from the focus group discussions conducted with 22 older adults living in the community (Chapter 4). Older Thais' perspectives regarding enabling factors and barriers to physical activity were also reflected from this qualitative approach. Raphael and Bryant (2002) suggests that this 'lay or interactive knowledge' provides information about health and its determinants which is as accurate as that from large-scale surveys. He also suggests that it reflects lay perceptions are integrally related to local contexts. Williams and Popay (1997) support and extend this idea by pointing out that utilising

lay knowledge enables researchers to 'develop robust and holistic explanations' of health patterns. From these views, it is evident that the use of lay knowledge can contribute to more appropriate and effective policies and should be an important factor in decision making. In the current study, it was therefore decided to use qualitative data revealed from the focus groups as a necessary component of model development.

Determinants of active living were also obtained through the telephone interviews carried out in Bangkok with 143 respondents (Chapter 6). This quantitative study provided an opportunity to validate determinants of active living with the previous qualitative data and to generalise the results to Thai elderly people. Level 1 evidence (systematic reviews) concerning physical activity interventions and internationally recognised best practice guidelines for promoting physical activity were also gained through the review of literature (Chapter 2).

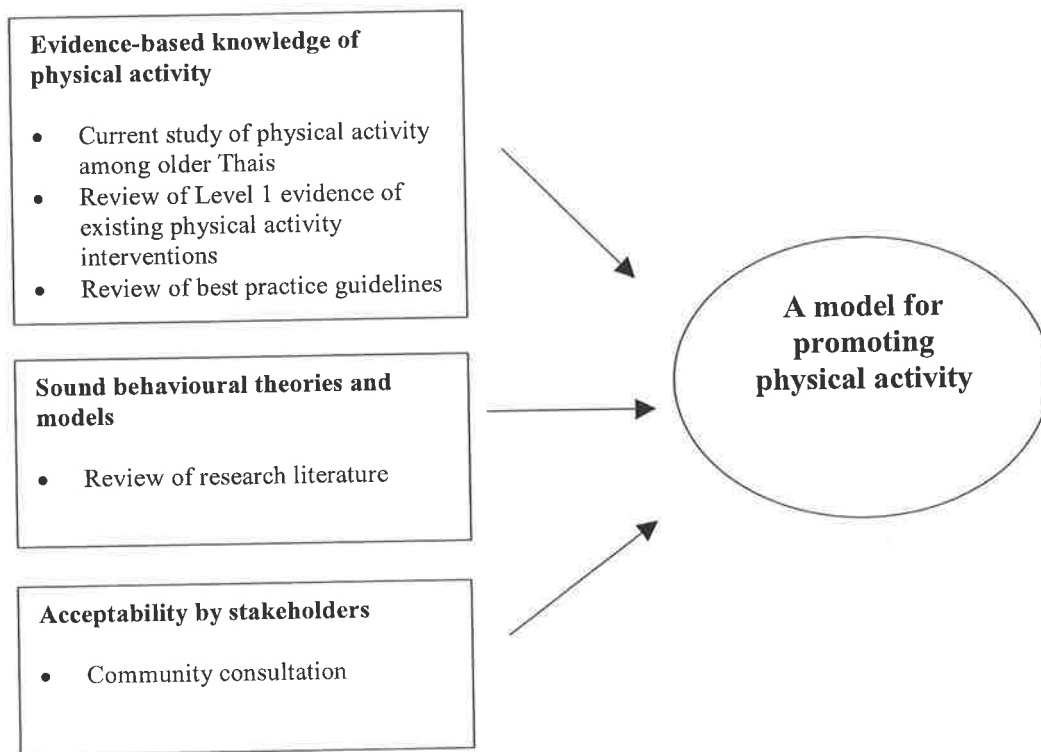
The second criterion, sound relevant theories, was identified through the review of theories in promoting physical activity. The third criterion, acceptability of the model, was obtained through a community consultation conducted with stakeholders. Both the review of theories and the community consultation will be described in this chapter.

A 'rapid appraisal' framework (Murray, 1999) was applied for the community consultation. This is a qualitative technique for community assessment which combines interviews with key people and group meetings and aims to 'gain insight quickly into the population of interest' (Bowling, 1997, p.370). It has been widely used

in the assessment of local needs and planning in both developed and developing countries (Murray, 1999). For the current study, this 'rapid appraisal' technique provided opportunities to ensure the involvement of stakeholders in guiding the development of the model.

This chapter draws together data from previous chapters and demonstrates the process of model development. A prototype model for promoting physical activity among the Thai elderly is then presented. A process of community consultation, including methods and results, is also demonstrated in this chapter. This method aims to confirm the model and make recommendations for utilising the model. Criteria and methods for model development are summarised in Figure 7.1.

Figure 7.1 Criteria and methods used for model development



7.2 Evidence-based knowledge of physical activity

A sound knowledge base is required when developing meaningful physical activity programs (Harper, 1999). This section was aimed at identifying and translating evidenced-based physical activity knowledge into practice. The three types of evidence including: 1) existing knowledge of physical activity among older Thais, 2) Level 1 evidence of existing interventions, and 3) best practice guidelines, are identified in this section.

7.2.1 Summary of information on physical activity of older Thais

Results from the focus group discussions and the telephone surveys demonstrated in Chapters 4 and 6 were validated and interpreted against each other. The key issues derived from these approaches are briefly summarised in two parts: 1) determinants of active living and 2) suggestions for increasing physical activity as demonstrated in Tables 7.1 and 7.2.

Table 7.1 Summary of significant determinants derived from the focus group discussions and telephone surveys

Determinants of active living	Results from focus group discussions	Results from telephone surveys
1) Attitudinal determinants	The elderly thought that they are too 'old' to be active	<ul style="list-style-type: none"> • 28.6% of respondents agreed that being active is just for the young and they had lower levels of physical activity than those who disagreed • 42.4% of respondents agreed that lack of motivation led to inactivity
2) Social determinants	<p>Lack of friends</p> <p>Lack of information</p>	<ul style="list-style-type: none"> • 78.8% agreed that having friends could help them to be active as could having friends associated with physical activity levels • Having information about activity was associated with physical activity levels
3) Environmental determinants	Unsafe walkways, unsafe community, lack of public park and inconvenient transportation were expressed as barriers to participation in activities.	<ul style="list-style-type: none"> • 42.9% of the elderly agreed that they felt worried about going out to exercise and they had lower levels of physical activity than those who disagreed • 6.3% had recreational centres or/and 42.7% had open space/park within their community. The presence of these facilities is associated with physical activity • 84.1% of respondents agreed that feeling secure in their community could help them to be active

Table 7.2 Suggestions made by the Thai elderly for increasing physical activity

Suggestions	Results from the focus groups	Results from the telephone survey
Support for physical activity	<ul style="list-style-type: none"> • Wanted governmental support through TV programs for the elderly, community, and local councils • Wanted support from health professionals 	<ul style="list-style-type: none"> • 46.2% wanted advice from TV • 41.3% of respondents wanted verbal advice from doctors/health professionals
Physical activity preferences	<ul style="list-style-type: none"> • Preferred activities are gardening, looking after grandchildren, socialising with neighbours, attending religious activity and walking 	<ul style="list-style-type: none"> • The most preferred leisure time activities are gardening and caring for pets (18.8%) • The most preferred physical activity is walking (39.9%)

Determinants of active living

From the results shown in Table 7.1, significant issues related to physical activity can be concluded as follows:

- Self-efficacy and motivation
- Support from friends
- Information regarding physical activity and programs
- Environments

Self-efficacy and motivation

From the focus group discussions and telephone surveys, feelings of low self-efficacy and lack of motivation appear to be significant barriers to being active. Many participants in the focus groups expressed these concerns. In the survey, agreement with the statement “*Being active is just for the young*” was found to be associated with low levels of physical activity. In addition, almost 50% of participants in the surveys agreed that lack of motivation made for inactivity. Thus, feelings of low self-efficacy and lack of motivation to be active are issues to be addressed.

Support from friends

The Thai elderly participating in focus group discussions expressed the opinion that they needed friends to go out with and that they wanted to take part in activity with friends. They also mentioned that it was difficult to go out by themselves without friends or family members. These issues were confirmed by the results from the surveys that almost 80% of the elderly agreed that having friends could help them to be active. In addition, having friends was associated with physical activity levels. Support from friends is therefore an issue to be promoted to help the elderly to be active.

Information regarding physical activity and programs

The elderly in the focus group discussions mentioned that they lacked information regarding physical activity and programs. In addition, having physical activity

information was found to be associated with physical activity levels in the surveys. These results suggest that providing physical activity information to the elderly may help them to be more active.

Environments

Environments, such as unsafe walkways, unsafe communities, lack of public parks and inconvenient transportation, were expressed in the focus groups as barriers to physical activity. These were confirmed by the results from the telephone interviews that the elderly who agreed that they felt worried to go out had lower levels of physical activity than those who disagreed. In addition, 84.1% of respondents agreed that feeling secure could help them to go out and to be active. Having access to recreational centres and open spaces or parks was related to physical activity. These results therefore indicate the importance of supportive environments in promoting physical activity.

Suggestions for increasing physical activity

Physical activity support and preferences

Results from both the focus groups and the telephone interviews (Table 7.2) found that the elderly wanted support from two sources, from government and health professionals. Suggestions for support from the government included TV programs for the elderly focusing on promoting physical activity, and support from community and local councils in terms of providing and creating safe walkways, security in the

community, convenient transportation for the elderly and open spaces or public parks in the community. Support wanted from health professionals was principally advice concerning physical activity.

The Thai elderly also stated their preferred physical activities such as walking, gardening, caring for pets, looking after their grand children, religious activity and socialising with neighbours. These activities should be considered when developing programs for the elderly.

In conclusion, there was evidence that significant determinants of active living among older Thais was a combination of psychosocial and environmental factors. The Thai elderly wanted information, friends, supportive environments and support and/or advice from health professionals to assist them to be more active. A model focusing on these factors is therefore required, and a mechanism needs to be created for encouraging health professionals to take on the role of promoting physical activity.

7.2.2 Review of level 1 evidence of existing physical activity interventions

Evidence from systematic reviews, found in research literature of physical activity interventions (Chapter 2), was used to inform the model. A large systematic review (Kahn et al., 2002) strongly recommended two types of physical activity interventions: 1) individually adapted health behaviour change, and 2) creation of or enhanced access to places for physical activity combined with informational outreach activities. In

addition, systematic reviews of promoting physical activity in clinical settings (Hillsdon and Thorogood, 1996; Ashenden et al., 1997; Eaton et al., 1998; Lawlor and Hanratty, 2001; Petrella et al., 2002) concluded that advice about physical activity provided by health professionals produces promising results, but long-term effects are still limited. These systematic reviews are summarised in Table 7.3.

Table 7.3 Summary of Level 1 evidence of physical activity interventions

Study	Number and type of trial	Sample	Results
1) Kahn et al., 2002	29 studies using informational approaches 45 studies using behavioural and social approaches 10 studies using environmental and policy approaches	Not available	1) Informational approaches : prompts to encourage stair use and community-wide campaigns were effective 2) Behavioural and social approach : school-based physical education, social support in community settings and individually-adapted behaviour change were effective 3) Environmental and policy approaches : creation of or enhanced access to places for physical activity combined with informational outreach activities
2) Hilldons & Thorogood, 1996	11 randomised controlled trials	Healthy, free living adults	Interventions to encourage walking and which do not require attendance at a facility are most likely to increase overall physical activity
3) Ashenden et al., 1997	6 physical activity advice trials from a total 37 behavioural trials in general practice	Adults aged 18-75 in both clinical settings and community	Three short-term trials had positive results Two long-term trials had positive results
4) Eaton & Menard, 1998	8 clinical trials	Adults aged 17-85 attending general practice	Five of 8 trials had positive results. All short-term trials were positive Three of four trials assessing moderate levels of physical activity were positive
5) Lawlor & Hanratty, 2001	2 randomised controlled trials and 6 quasi-experimental studies	4747 participants attending primary care consultations	Four of six short-term trials found positive results One of four long-term trials found a sustained positive effect. Two randomised controlled trials had negative short-and long-term results
6) Petrella & Lattanzio, 2002	6 randomised controlled trials, 7 quasi-experimental designs	Adults aged 18-85, attending primary care consultations	Most trials found positive results in terms of adoption of physical activity, stage of change and change in physical activity level Long-term effect was not available in all trials

On the basis of the summary of the reviews and the information gathered in this study, it was decided that a model for promoting physical activity among older Thais should be based on individual approaches focusing on health professionals in providing physical activity counselling in clinical settings. Although the 'new public health' concept, which is demonstrated in the Ottawa Charter (WHO, 1986), has moved away from behavioural change to healthy public policy and community empowerment (O'Connor and Parker, 1995), the 'old public health' concept, such as individual approaches to lifestyle management, still needs to be combined with the new public health concept (Holman, 1992). Multiple approaches are therefore suggested including individual, mass media, environmental and policy approaches.

While recognising the effectiveness of multiple approaches, the Thai health policy regarding physical activity promotion focused on community, mass media, and environmental and policy approaches (Department of Health, 2002a). Individual approaches, in particular promoting physical activity in clinical settings, seem to be neglected. It is obvious that there is a 'gap' in the approach of existing strategies of promoting physical activity in Thailand. To fill this gap, individual approaches, in particular physical activity counselling, are required.

The most significant determinants that arose from the focus group discussions and the telephone survey with older Thais were feelings of low self-efficacy, and lack of motivation and information. These findings suggest that a worthwhile component of an intervention model should be physical activity counselling. Such individually based intervention designed to achieve behavioural change was also

found to be an effective approach in the large systematic review (by Kahn, 2002) of informational, behavioural, and environmental and policy approaches (see Table 7.3). The other five systematic reviews of 'individual only' approach, listed in Table 7.3, similarly confirmed the effectiveness of this approach.

Two major limitations to individually based interventions have been identified. These approaches seem to have less impact at a population level (Bennett et al., 1998), and are less likely to 'prevent non-targeted individuals from adopting high-risk behaviour' (Cohen, Scribner and Farley, 2000. p.152). However, the proposed model for physical activity counselling in this study is complementary to the population level programs which already exist in Thailand. The other limitations of the counselling approach is the lack of long-term effects or maintenance, but it has been shown that this can be overcome by conducting intensive intervention (King, Sallis, Dunn et al., 1998c) and providing social support (Steptoe et al., 1999b). In the model proposed here, social support is therefore one of the key components.

The next step of model development is identifying best practice guidelines and a theoretical basis for implementation.

7.2.3 Review of best practice guidelines

This study used the international best practice guidelines for promoting physical activity from the World Health Organisation (WHO) (WHO, 1996) and the National Heart Foundation of Australia (2002). The WHO proposed the Heidelberg

guidelines (WHO, 1996) for promoting physical activity among older persons focusing on creating 'healthy public policy' which would be achieved by influencing: 1) health policy, and 2) educating, disseminating, and creating conducive environments. The guidelines recommend that health policy at international, national, regional and local levels should be addressed. They also suggest that policy makers at all levels should aim to stimulate greater appreciation of the importance of regular physical activity, and that educating, disseminating and creating supportive environments should involve a wide variety of sectors. These sectors include: families; peer support groups; community and social service providers; the media; self-help groups; health care providers; universities; adult education institutions; rehabilitation and therapeutic centres; residential facilities; private and public sectors; and sporting and social clubs.

The National Heart Foundation (2002) proposed a guide for health professionals to reduce risk of cardiovascular disease including smoking, hypertension, hyperlipidaemia and physical inactivity. The guidelines for physicians to address physical inactivity comprised three steps: 1) identifying, 2) counselling, and 3) follow-up. Details of the guidelines are demonstrated in Table 7.4.

Table 7.4 Guidelines for promoting physical activity in clinical settings proposed by the National Heart Foundation of Australia

Assessment	Goal	Intervention	Review
Routinely ask about physical activity	30 minutes or more of moderate physical activity on 5 or more days or 30 minutes or more of vigorous activity on 3 or more days	Counselling: Appropriate for stage in behaviour change model. May suggest patients to accumulate their physical activity in shorter bouts of 10 minutes duration. Provide a guide for monitoring symptoms and intensity level of activity for individual patients For all patients: Negotiate appropriate physical activity goal	At each visit

Source: Adapted from Guide to risk reduction for patients with/or at risk of cardiovascular disease (CVD), National Heart Foundation of Australia (2002)

7.3 Theories and models

Interventions for promoting physical activity should be based on 'theoretical models rather than a pragmatic principle' (Stevens, Bult, de Greef, Lemmink and Rispen, 1999). In addition, these theoretical models should be multi-dimensional and dynamic (Stevens et al., 1999). This section aims at identifying an appropriate theoretical basis for the model implementation. As it is unlikely that any one theoretical framework will itself provide a sufficient conceptual base for all aspects of interventions (Marcus, King, Clark, Pinto and Bock, 1996), the framework for developing a new model should be based on integrated aspects of psychological approaches. A review of the research literature was conducted resulting in

identifying three relevant theoretical models for individually-based physical activity interventions: 1) Transtheoretical (TTM) or stages of change model, 2) social cognitive theory, and 3) social support. Key concepts of these theories and models are summarised in Table 7.5.

Table 7.5 Theories and models used in physical activity promotion

Theory/Model	Summary	Key Concepts
<u>Individual level</u> Stages of change (Transtheoretical model)	In adopting healthy behaviours such as regular physical activity, people process through five levels related to their readiness to change; pre-contemplation, contemplation, preparation, action and maintenance. At each stage, different intervention strategies will help people progress to the next stage	Pre-contemplation Contemplation Preparation Action Maintenance
<u>Interpersonal level</u> Social cognitive theory Social support	Health behavioural change is the results of reciprocal relationships among the environment, personal factors and attributes of the behavioural itself. Self-efficacy is one of the most important characteristics that determine behavioural change. Often incorporated into interventions to promote physical activity, social support can be instrumental, informational, emotional or appraising (providing feedback and reinforcement of new behaviour)	Self-efficacy Reciprocal determinism Behavioural capability Outcome expectations Observational learning Instrumental support Informational support Emotional support Appraisal support

Source: Adapted from US Department of Health and Human Services. Physical Activity Evaluation Handbook, Atlanta, GA: US Department of Health and Human Services, Centre for Disease Control and Prevention; 2002, p: 43-44.

7.3.1 Transtheoretical or stages of change model

The model most often used in individual-based physical activity interventions or physical activity counselling is the Transtheoretical or stages of change model (TTM) (Prochaska and DiClemente, 1983). The key concept of this individual-level model is that in order to engage in a new behaviour, individuals move through a series of five stages: pre-contemplation, contemplation, preparation, action, and maintenance (Pinto, Goldstein and Marcus, 1998). These five stages of readiness for change are important in that providing messages that match individuals' stages of change will assist them to move towards their stages until they are ready to demonstrate new behaviours (Pinto et al., 1998; Ronda, Assema and Brug, 2001).

This model has been used in many studies in physical activity counselling (Calfas et al., 1996; Cardinal and Sachs, 1996; Marcus et al., 1997; Stevens et al., 1999; Peterson and Aldana, 1999; Bock, Marcus, Pinto and Forsyth, 2001; Pinto et al., 2001; Kirk, Higgins, Hughes et al., 2001). Of these, Kirk's randomised controlled trial (Kirk et al., 2001) focused on comparing the effectiveness of an exercise program with 26 sedentary people with Type 2 diabetes. The intervention group received an exercise consultation together with standard exercise information while the control group received standard exercise information alone. The intervention based on the TTM was designed to educate, strengthen motivation, and develop realistic strategies to promote physical activity. There were positive changes from baseline to the five-week follow-up. The participants of the intervention group had greater increase in their stages of change than those in the control group (82% vs

33% respectively). In addition, the number of participants taking part in sport and leisure increased 55% in the intervention group while this decreased by 6% in the control group. These positive results were similar to those in other randomised controlled trials that used the TTM as a basis of physical activity counselling (Calfas et al., 1996; Peterson et al., 1999; Bock et al., 2001). These results suggest that the TTM can help health professionals to be effective in counselling patients to become more active.

7.3.2 Social cognitive theory

Social cognitive theory (SCT) (Bandura, 1986), an interpersonal-level theory, implies that personal, behavioural, and environmental factors operate as 'reciprocal interacting determinants' to health behaviours (Marcus et al., 1996). The key concepts of the SCT are those of self-efficacy, focussing on 'the importance of individuals's ability to control their own behaviour' and of interaction between individual and environment (Marcus et al., 1996). These lead to changes in health behaviours (Marcus et al., 1996). Self-efficacy, in particular, has been found to be consistently relevant to physical activity in many studies (McAuley, Courneya, Rudolph and Lox, 1994; Calfas, Sallis, Oldenburge and Ffrench, 1997; McAuley, Katatula, Mihalko et al., 1999; Booth et al., 2000) and King (1998) proposed that self-efficacy would increase the effectiveness of physical activity counselling.

Pinto and colleagues (Pinto et al., 1998) developed guidelines for physicians to provide physical activity counselling integrating the TTM and the social cognitive

theory. These guidelines demonstrate the counselling processes as comprising a series of questions and statements of the “5 A’s”: *address* the agenda, *assess* physical activity levels, *advise* and *assist* pertinent to each stage of change, and *arrange* follow-up. These processes integrating the TTM and the social cognitive theory were found to be practical and effective (Pinto et al., 1998). It may be concluded that these theoretical bases are appropriate for physical activity counselling.

7.3.3 Social support

Many studies have demonstrated that social support is associated with physical activity (Eyler et al., 1999; Kaplan, Newsom, McFarland and Lu, 2001; Spanier et al., 2001). In more detail, a survey in Canada indicated that the number of friends/family members and the frequency of contact were associated with higher levels of physical activity (Spanier et al., 2001). In the USA, a telephone survey (Eyler et al., 1999) revealed that social support was related to being active for women who were not regular exercisers. For older adults, another Canadian survey (Kaplan et al., 2001) found that social support was related to physical activity among older females. In addition, Steptoe and colleagues (1999) suggest that social support and more extended counselling may help to produce sustained changes in physical activity.

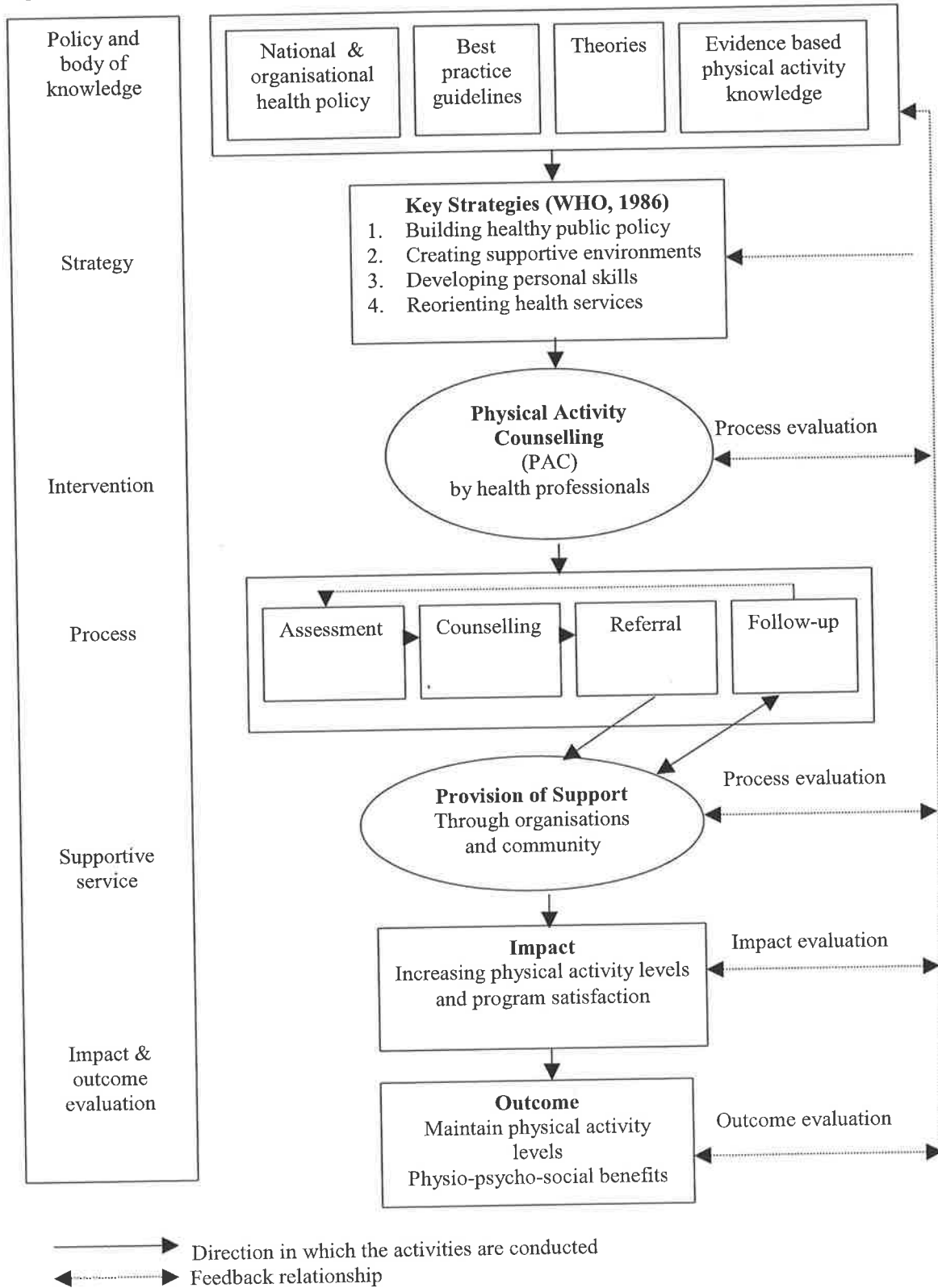
For the current study, support from friends was found to be associated with physical activity. In addition, support from health professionals, in terms of

information, advice and encouragement, was mentioned as an enabling factor for physical activity of the Thai elderly. It is therefore necessary to combine the concept of social support theory in a model for promoting physical activity

7.4 A proposed model of physical activity promotion

In keeping with principles of the 'new public health' focusing on multi-approaches (O'Connor et al., 1995), it has been identified in this study that physical activity counselling by health professionals should be combined into the existing community, and environmental and policy approaches (Department of Health, 2001). The physical activity counselling model (PAC) (Figure 7.2) comprised six components including policy and body of knowledge, strategy, intervention, process, supportive service, and impact and outcome evaluation. The PAC model shows time sequence for implementing the model (see *solid arrows*) and how these components are evaluated (see *dotted arrows*).

Figure 7.2 A model for promoting physical activity



The first component is the determination of the policy and body of knowledge including, the national and organisational health policy, best practice guidelines, theories, and evidence-based knowledge of physical activity. These elements derived from the first two criteria of model development, which are that the model should be informed by the evidence-based knowledge and sound theories.

Strategies for the model utilisation were derived from the features of the Ottawa Charter (WHO, 1986). As the model focuses on physical activity counselling, only four strategies of the Ottawa Charter were found to be relevant to the model. These strategies include building healthy public policy, creating supportive environments, developing personal skills and reorienting health services. It is important, however that these key strategies are interpreted in the context of the organisation where the model is utilised. The interpretation of these strategies will be carried out as part of the testing for acceptability through the community consultation, which will be described in the following section of this chapter.

The model focused on physical activity counselling (PAC) by health professionals. A key aim of the PAC model is that of encouraging the elderly to be physically active by tailoring the intervention to be pertinent to their specific needs and interest. This aim is fulfilled by providing physical activity counselling and supportive services to the elderly. The intervention process of the PAC model comprises three steps derived from the National Heart Foundation of Australia (2002) including assessment, counselling, and follow-up. The additional step of referral is included in the model to lead to the component of supportive services.

Focusing on the process component of the intervention, an assessment is the first step where the concepts of the TTM (as described in section 7.2.1) are used. Patients will be identified according to their stages of change of precontemplation, contemplation, preparation, action, or maintenance. For the second step, counselling, a message provided by health professionals needs to be matched to the patients' stages of change because it is important to '*get the right message to the right person*' (Gorin et al., 1998) in order to help patients to move through one stage of change to another. Self-efficacy, a significant determinant of physical activity in this study, will also be addressed at this step. The concept of self-efficacy is reported in section 7.3.2.

The third step is that of referring patients to the supportive services within organisations or the community. This referral system is derived from the concept of social support theory as described in section 7.3.3. Supportive services providing appropriate activities are important for patients in each of the stages of change, in particular, the action and maintenance stages. It means that networks and resources, in organisations and the community, need to be identified. In order to maintain or increase program adherence, activities of support services should be concerned with enjoyment or pleasure (Stevens et al., 1999).

Increasing long-term effects is also promoted through the final step, follow-up or review of intervention process of the model. Supportive services from health organisations and community are also essential for this purpose. At this step,

patients may return to the assessment step in the intervention process and repeat the cycle until they move to the next level of stages of change of independent lifestyle activity.

Evaluation is the last component of the PAC model. A comprehensive approach to evaluating health programs has been proposed by Hawe and colleagues (1990) and can be used appropriately to evaluate this intervention. The approach comprises three levels of evaluation: process, impact and outcome evaluations. These three types of evaluation need to be carried out in sequence 'to avoid premature evaluation' (Hawe et al, 1990, p. 60). Details of these three types of evaluation are demonstrated in Table 7.6.

Process or 'formative' evaluation reflects the performance of program delivery (Hawe et al., 1990) such as whether all activities of the program are implemented, the extent to which it is reached by target groups and the extent to which the intervention protocol is followed (Hawe et al., 1990; King et al., 1998c). A process of evaluation is essential in that it can influence the impact and outcomes of the program. This should therefore be conducted prior to the impact and outcome evaluation so that the program can be redesigned and re-implemented (Hawe et al., 1990) in order to ensure expected clinical and psychological outcomes of the interventions. For this PAC model, variables of process evaluation include program reach, satisfaction, activities, performance, and materials. These variables can be investigated by using program records, survey questionnaires and/or focus group discussions.

Impact and outcome evaluation aims to reflect program effects. While impact evaluation is concerned with immediate effects, outcome evaluation is concerned with longer-term effects (Hawe et al., 1990). Expected immediate effects of the PAC model include increasing physical activity levels and enjoyment of activities. Investigation methods used for these variables can include self-report of physical activity for investigating physical activity levels, and survey questions or focus group discussions for assessing enjoyment of provided activities.

The long-term effects of the model include maintenance of physical activity, lowering risks of cardiovascular disease, increasing muscle strength and balance and improvement of psychosocial well being. Muscle strength and balance can be assessed by techniques used in Jette's study (1999). Psychosocial well being can be evaluated by using the SF-36 (Ware et al., 1993). It is suggested that these long-term effects should be evaluated at 6, 12 and 24 months (King et al., 1998c). The detail of elements of these evaluations will be further refined through a community consultation process with stakeholders.

Table 7.6 Key features of evaluation of the model: process, impact and outcome evaluation

Levels of evaluation	Variables	Investigation methods
Process evaluation	<p>Program reach</p> <p>Program satisfaction</p> <p>Program activities</p> <p>Program performance and materials</p>	<p>Program record</p> <p>Survey questions and focus group discussions</p> <p>Program record</p> <p>Survey questions and/or focus group discussions of participants and those responsible for program delivery</p>
Impact evaluation (immediate effects)	<p>Increasing physical activity levels</p> <p>Enjoyment of activities</p>	<p>Self report of physical activity levels</p> <p>Survey questions and/or focus group discussions</p>
Outcome evaluation (long-term effects)	<p>Maintaining physical activity levels</p> <p>Lower risk factors for cardiovascular disease (high blood pressure, high blood cholesterol, high plasma insulin, obesity, high plasma insulin)</p> <p>Increasing muscle strength and balance</p> <p>Psychosocial well being</p>	<p>Self report of physical activity levels</p> <p>Physical examination</p> <p>Clinical examination</p> <p>Muscle strength test</p> <p>Balance test</p> <p>SF 36</p>

7.5 Testing for acceptability: Community consultation

Acceptability is the last criterion for the developed model. This study utilised a community consultation, within a 'rapid appraisal' framework (Murray, 1999), to obtain acceptability and feedback from stakeholders to refine the developed model. This technique has been widely used to gain community perspectives and social needs that can be translated into action (Murray, 1999). In addition, it can be used to ensure public involvement (Murray, 1999) which is an important factor for the model implementation. Hecker (1997) pointed out that strategies that emerge through a community consultation enhance the likelihood of the developed model being implemented. The advantages of a rapid appraisal technique used in this study therefore ensure acceptability and applicability of the model.

7.5.1 Aims

The specific aims of the community consultation meeting were as follows:

1. To present results of the research
2. To present the PAC model of physical activity intervention
3. To obtain preliminary feedback from key stakeholders on the model
4. To develop recommendations for implementation based on the results of the consultation.

7.5.2 Methods

Participant selection

Stakeholders in the area of *promoting the health of older people* were identified by the researcher who was professionally involved in this area during 1988-1998. The participants were not selected randomly but 'purposefully' in order to reach a range of people who were in the best position to understand the issues (Murray, 1999) and interested in promoting physical activity. In addition, it was aimed to have stakeholders from various types of professional groups including physicians, nurses, social workers, health educators and dieticians.

Promotion of the meeting

An invitation letter (see Appendix 13) was sent out to potential participants who were in different organisations such as community health centres and general hospitals. The invitation letters attached a summary of meeting issues (see Appendix 13) based on the results from focus group discussions (Chapter 4) and the telephone surveys (Chapter 6). The potential participants were contacted by telephone in order to confirm their attendance and to inform them that a proxy or/and their comments were welcome if they could not attend the meeting personally.

After the telephone follow-up, it became clear that there was a low possibility of conducting a meeting with health professionals who came from several

organisations, as their availability was varied. The researcher decided to organise the meeting with health professionals who came from the same organisation to provide a convenient place and time. The Thammasart University Hospital, which is located 60 km. north of Bangkok, was selected for a pragmatic reason namely that there was a sufficiently large number of interested staff available for the meeting. Therefore this setting was deemed to be acceptable, although it is outside the pilot study areas (areas of the focus group discussions and telephone interviews).

Conducting the consultation

A consultative process was conducted in April 2002 at the meeting room of the Thammasart University. A checklist for organising a meeting recommended by Hawe and colleagues (1990, p. 54) was used in order to ensure that the consultation was effective and productive. The consultation was organised according to techniques used for effective group meetings as follows:

- On arrival participants were welcomed and given nametags. Refreshments were provided.
- At the beginning of the meeting, all participants were asked to introduce themselves to the group including names of their units or departments.
- The meetings were audio taped with permission of all participants.
- The researcher, acting as moderator of the meeting, started by presenting all issues concerning results of the study, and introduced a model of physical activity to the meeting.

- A summary of relevant results and questions to be discussed (see Appendix 14) were prepared on overhead transparency sheets for use during the meeting.
- After the presentation, the participants were encouraged to discuss the questions prepared by the researcher.
- At the conclusion of the meeting, all recommendations made by the participants were summarized and returned to the participants for agreement.
- Time spent for the consultation was approximately one and a half hours.

7.5.3 Results and discussion

Participants

Fourteen staff from the Thammasart University Hospital (TUH) participated in the consultation. These included:

- Physicians (n=2)
- Social Worker (n=1)
- Public Relation Officer of the hospital (n=1)
- Health Educator (n=1)
- The president of the Thammasart Senior Citizens Club (n=1)
- Nurses (n=8)

Outcomes

The following points emerged from the consultation with the staff of the Thammasart University Hospital. These were summarised by the researcher using

content from the notes and the audio tape recording made at the meeting as shown in Table 7.7.

Policy and body of knowledge

Overall, participants of the meeting seemed to appreciate the PAC model. In particular, the nurse participants stated that they realised the importance of promoting physical activity. They also mentioned that it was difficult to conduct physical activity counselling in their hospital because there was no supportive policy and system for this model.

It is good if we apply this concept to our practice. Yes it is an important work but we don't have a service system to support it. (female nurse)

As the TUH is a teaching hospital, its health services are involved in promotive, preventive and curative care. The health educator participating in the consultation stated that supportive policies should be developed specifically for promoting physical activity.

I agree that it is a good idea. I think we need clear policy on health promotion services in the hospital. It is difficult to do this without policy. (female health educator)

Table 7.7 Summary of feedback against six key components of the model

Key components	Feedback
1. Policy and body of knowledge	<ul style="list-style-type: none"> • Supportive policy and system for promoting physical activity needs to be developed and should conform to existing organisational policy. • Local needs, preferences and interests relating to physical activity needs to be confirmed
2. Strategy	<p>The key strategies derived from the Ottawa Charter for Health Promotion were accepted and interpreted into practical strategies as follows:</p> <ul style="list-style-type: none"> • Create supportive policy and system • Modify existing facilities to be supportive • Develop skills for physical activity counselling among health professionals • Develop collaborative relationships between the hospital and the senior citizens club as well as local councils and community health centres
3. Intervention	<ul style="list-style-type: none"> • The PAC was generally favourable. • Nurses were accepted by the group of health professionals as a potential facilitator, coordinator and counsellor of this intervention. Nurses themselves also accepted this role. • Physicians preferred to demonstrate the PAC when they do clinical teaching.
4. Process	<ul style="list-style-type: none"> • Referral step, it was suggested that patients should be referred to supportive services such as the senior citizens club or exercise groups in the community.
5. Supportive service	<ul style="list-style-type: none"> • The senior citizens club can be a potential supportive services but a collaborative relationship between the hospital and the club needs to be established as well as linkages between the hospital, local council and community health centres.
6. Evaluation	<ul style="list-style-type: none"> • It is accepted that evaluation of the physical activity counselling should apply process, impact and outcome evaluations as well as a cost effectiveness measure.

Most of the participants also appreciated best practice guidelines proposed here in this study. The participants recommended that local needs, preferences and interests relating to physical activity should be confirmed before implementing the model.

Strategies

The participants accepted that the key strategies from the Ottawa Charter (WHO, 1986) seem to be useful for the model. They identified and interpreted such strategies into practice as follows:

- 1) Creating a supportive policy and system
- 2) Modifying existing facilities to be supportive and developing new relevant resources
- 3) Developing skills for physical activity counselling among health professionals
- 4) Establishing collaborative relationships between the hospital and the senior citizens club as well as local councils and community health centres. This would ensure support of physical activity counselling in the organisation and the community.

Intervention

Response to the proposed PAC model was generally favourable. However some concerns emerged from the consultation as follows:

- 1) Who should take the leadership role?
- 2) What specific roles/actions should they undertake?
- 3) From where does the funding come?

The participants seemed to agree that nurses are more likely to be appropriate coordinators, facilitators and key leaders in this model than other health

professionals. The nurses themselves also accepted this role but they were not confident to undertake it currently, as they perceived their lack of information, skills, and knowledge regarding physical activity.

I know that this is our job, we usually do some things for the elderly patients but it is not as systematic as this model. I would not be confident now. I would like to be trained. (female nurse)

For physicians, time constraints were expressed as a barrier to counselling patients or giving physical activity advice. They thought that curative care is a more important role for physicians than promotive and preventive care. However, they stated that they should demonstrate promotive and preventive roles when they did clinical teaching.

I think we cannot do it as a day to day practice because we have to focus on curative care and there are many patients everyday. Anyway, when we teach medical students, it is quite good if we can demonstrate promotive role to them. (male physician)

Skills of physical activity counselling were also required among physicians. This raises the important issue of staff development for both nurses and physicians.

Funding was also found to be a major concern of the PAC model implementation. Physicians seemed to pay more attention to the financial system of this program and argued that the program should not only provide health benefits to the patients, but should also make profits for the hospital. However some argued that the program should provide health benefits to the patients but be a non-profit making

program. Others stated that it was too early to make a decision on this point so that the consultation did not reach consensus.

We need to think about our pocket first when we want to do some things new. It is good if we can gain profits from this service and it will show that this program is interesting for other hospitals. (male physician)

Process

The majority of participants stated that the process of the PAC model was appropriate. They also identified more details in the referral step suggesting that patients should be referred to supportive services such as the senior citizens club or the Exercise for Health Club in the community.

Supportive service

It was suggested that these supportive services, the senior citizens club, which is under the supervision of the hospital, and the Exercise for Health Club in the community, should be equipped to be potential resources to promote physical activity.

The Senior Citizens Club of TUH should pay more attention to providing activities for the club members and we should help them, to help us, promote physical activity to the elderly, I think they will be very pleased to do so. (female nurse)

Affirmatively, the president of the club agreed that the club could be a referral unit for the PAC model. However, there were some concerns regarding this matter. The president of the club stated that:

I am very happy to be involved in this program. I am sure our members are happy too but we need to talk and find out ways to do it properly. I have no idea now but I think we can do it.

Establishing linkages between the hospital and these potential services would be required. In addition, physical environments within the hospital should be modified to suit the program and support the elderly. The participants also suggested that families of the patients should be encouraged to support the elderly in their physical activity.

Evaluation

All participants agreed that the intervention should be evaluated in terms of process, impact and outcome as well as in terms of economic factors. If these evaluations found an increase in the satisfaction of services among patients and decreased in the cost of medical services, they would be more readily further accepted to help raise awareness of the importance of promoting physical activity in clinical settings. Qualitative and quantitative approaches to evaluating the PAC model were suggested, such as investigating the acceptability of the intervention by using focus group discussions and assessing satisfaction of staff and patients by using a questionnaire survey.

Summary and discussion of recommendations

These recommendations were based on the feedback on each of the components of the model and categorised into three groups: 1) implementing strategy, 2) supportive strategies, and 3) evaluation strategies as demonstrated in Table 7.8.

Table 7.8 Summary of recommendations

Category	Recommendations
1) Implementing Strategy	<p>Recommendation 1: The establishment of a supportive policy and systems that conforms to existing policy to ensure successful implementation of the PAC.</p> <p>Recommendation 2: Confirmation of local needs in light of results from the pilot area.</p> <p>Recommendation 3: The staff development of health professionals in terms of skills and current knowledge about promoting physical activity.</p>
2) Supportive Strategy	<p>Recommendation 4: The development of supportive facilities and services such as the physiotherapy unit and the senior citizens club, as well as physical environments within the hospital.</p> <p>Recommendation 5: The establishment of linkages between the hospital, the senior citizens club, the exercise for health club in the community, community health centres and relevant private sectors.</p>
3) Evaluation Strategy	<p>Recommendation 6: Evaluation of process, impact, and outcomes as well as cost-effectiveness of the PAC using both qualitative and quantitative approaches.</p>

The *Implementing Strategy* comprised three recommendations, to be conducted prior to the model implementation. Firstly, the establishment of a supportive policy and system that conforms to existing policy, was suggested. It has been pointed out that policies and legislation can promote sustainability of physical activity interventions (Dunn and Blair, 2002). This recommendation therefore provides a powerful opportunity for the implementation of the model and its sustainability. In order to establish supportive policy and system, policy makers need to be informed with research evidence, and potential benefits of promoting physical activity in hospitals. Elliott and Popay (2000) pointed out that research evidence was more likely to influence policy in indirect ways because the direct influence on decision making from research evidence was impeded by financial constraints, shifting time-scales and decision makers' own experiential knowledge. These factors should be therefore considered and mediated against in order to make it possible for policy makers to establish such a policy and system.

The second recommendation involves the confirmation of local needs, preferences and interests concerning physical activity ensuring valid information at the time of implementation. Rychetnik and colleagues (2002) support this recommendation because they recognise that public health interventions tend to be context dependent. The 'rapid appraisal' techniques are useful methods for this recommendation (Murray, 1999). It is therefore suggested that the confirmation of local needs should be carried out by using rapid appraisal techniques.

The third recommendation suggests that the development of health professionals is required, concerning current knowledge and skills of promoting physical activity. This recommendation was derived from attempts to address common problems found in physical activity counselling, such as lack of counselling skills, lack of confidence in counselling, lack of time, lack of organisational support and limited availability of educational materials (Pinto et al., 1998). It is also relevant to the features of the Ottawa Charter for Health Promotion (WHO, 1986) and the Heidelberg Guidelines for promoting physical activity among older persons (WHO, 1996), as well as results from studies concerning health professionals' attitudes and perspectives about physical activity in western countries (Gould et al., 1995; Steptoe et al., 1999a).

Swinburn and colleagues (1997) suggest that development of health professionals' skills to be capable of providing physical activity counselling can help to increase its effectiveness. This has been shown in some English and Australian studies (Steptoe et al., 1999b; Kerse et al., 1999). It may be argued that professional development should be expanded further into the development of medical and nursing curricula, in order to provide a high possibility of sustainable development. This idea is also supported by results in Williford's study (1992) that the majority of respondent physicians wanted to have a course related to physical activity in medical curricula.

Nurses were identified in the meeting as appropriate personnel for implementing the PAC model. The nurses themselves were also interested in providing physical

activity counselling. It is therefore a high possibility that the PAC model will be conducted by nurses in this hospital. However there is no published study of the effectiveness of physical activity counselling conducted by nurses in Thailand so far. In western countries, physical activity counselling conducted by nurses was found to be effective in some studies (Campbell et al., 1998; Steptoe et al., 1999b) but to be less successful in studies by Carlsson et al. (1997) and Sims et al. (1999). King and colleagues (1998c) pointed out that perceived 'physician credibility and authority' helps patients to change their physical activity behaviour. This may lead to a study exploring whether nurses can gain credibility and authority from patients in promoting physical activity.

The *Supportive Strategy* in the summary of recommendations (see Table 7.8) comprises two recommendations: 1) the development of supportive services and facilities within the hospital such as the Hospital Senior Citizens Club and physical environments, and 2) the establishment of linkages between the hospital, the Hospital Senior Citizens Club, community health centres, local councils, and the Exercise for Health Clubs. Generally, the Senior Citizens Clubs are under the supervision of, and physically located in, hospitals and their development for providing supportive services would be mutually beneficial for both patients of the intervention and the club members. For this study, there is a high possibility that the Senior Citizens Club of Thammasart University Hospital support referred patients. However, this still needs establishment of linkages between the hospital and such potential sources.

The relationship between the hospital and the Senior Citizens Club as well as community health centres, local councils, and the exercise for health clubs needs to be developed. As discussed in Chapter 2, one objective of the Year of Health Promotion in Thailand (Department of Health, 2002d) is to establish at least one Exercise for Health Club in each municipality or sub-district in order to coordinate and promote physical activity. This initiative will be a useful starting point for establishing such linkages.

The last strategy, the *Evaluation Strategy* consists of just one recommendation, which involves process, impact, outcome and economic evaluations. Each evaluation has its own importance. For example, process evaluation aims to check performance of program delivery (Hawe et al., 1990) and the attainment of expected outcomes of the intervention.

Impact and outcomes of the physical activity counselling are generally focused on physical activity levels, health related fitness, and psychological functions (American College of Sports Medicine, 1998). Each outcome needs a specific measure and method resulting in many methods to be used for assessing such outcomes. Although the model demonstrates all possible evaluations which may seem to be unattainable, it is possible that these evaluations can be modified to suit goals and objectives of the program, and to ensure practical evaluation, by choosing the most important variables of process, impact and outcome components to be evaluated. This impact and outcome evaluation provides a picture of the effectiveness of the intervention in chronological order (Hawe et al., 1990).

Finally, economic evaluation is a crucial measure in that its results will provide evidence for policy makers to make decision about resources required for the intervention, resource allocation (Briss, Zaza, Pappaioanou et al., 2000), and the model dissemination (Dunn et al., 2002).

7.6 Discussion and conclusion

The ultimate goal of this study was to develop a model for promoting physical activity. The rigour of the developed model is highlighted by the fact that its criteria were based on evidence based knowledge of physical activity, sound behavioural theories, and acceptability by stakeholders. The evidence based knowledge of physical activity was derived from validated data of the qualitative and quantitative studies conducted as parts of this thesis, and from the review of existing interventions and guidelines. Sound behavioural theories and models were also identified through the review of relevant theories and models used in promoting physical activity. The acceptability of stakeholders was gained through the community consultation. Using these multi methods of data collection known as 'triangulation' ensures the validity of the results (Murray, 1999). In addition, using an evidence-based approach to identify and recommend effective interventions reduces any biases in information collection and interpretation (Briss et al., 2000).

On the basis of the reviews and results of the current study, an individually based intervention was developed focusing on physical activity counselling (the PAC

model). Although, this type of intervention has less impact at a population level (Bennett et al., 1998), and is less likely to 'prevent non-targeted individuals from adopting high-risk behaviours' (Cohen et al., 2000, p.152), it was considered an appropriate complementary approach to existing physical activity programs in Thailand.

The PAC model comprised six components, which were confirmed and refined through a process of the consultation. This 'rapid appraisal' technique (Murray, 1999) provided opportunities for public involvement and obtaining stakeholders' perspectives on promoting physical activity. Six recommendations for the implementation of the PAC model were also derived from the consultation. The first three recommendations are considered as a useful preparation for the model utilisation. The following two recommendations are pertinent to the supportive strategy which will help to increase adherence of the program. While other physical activity interventions are less likely to combine supportive services into physical activity counselling (Calfas et al., 1996; Steptoe et al., 1999b), this thesis uniquely integrated such services into the model expecting that this will overcome the shortcoming of physical activity counselling in clinical settings. The last recommendation involves the evaluation strategy of the model.

The central platform of the PAC model, individual counselling, is recognised as an effective approach in promoting physical activity in Australia (Kerse et al., 1999), England (Steptoe et al., 1999b) and the USA (Calfas et al., 1996). Existing knowledge of physical activity among older Thais also suggests that individual

counselling is an appropriate approach. It is therefore accepted that physical activity counselling can be successfully implemented in Thailand, as in western countries.

To conclude, the PAC model was developed based on rigorous criteria. It was refined by stakeholders through the community consultation resulting in acceptability, sense of ownership and recommendations for its utilisation. The multi methods used for developing the model ensured effectiveness, practicability and acceptability of its utilisation. The confirmed model was found to be feasible and comprehensive. The fact that it demonstrates the order in which activities should be implemented was appreciated. It also shows the feedback relationship that reflects on each component of the model. In addition, the step by step intervention of the PAC model helps users understand how to implement the model. Establishing linkages between the hospital and the Senior Citizens Club and other organisations in the community will also ensure ongoing social support in terms of services within the hospital and the community and a variety of activities for the elderly. Evaluation strategy of the model is comprehensively demonstrated as guidelines for evaluating the model. A broad-based perspectives of evaluation methods is proposed to allow future opportunities to modify the PAC model.

Concluding remarks

Appropriate regular moderate physical activity has been described as "...a simple, enjoyable, cost-effective and accessible multi-purpose Medicine for all" (WHO, 2002) and it has been promoted worldwide. This thesis attempted to develop a model for promoting physical activity of the Thai elderly by conducting focus group discussions, telephone surveys and a community consultation resulting in a proposed model of an individually targeted intervention in clinical settings. The PAC model is unique in that it demonstrates a comprehensive structure and function as well as recommendations for its implementation. This model also aimed to overcome a limitation of physical activity counselling, that is a lack of long-term physical activity participation, by proposing supportive strategies.

As the PAC model has not been implemented, it is difficult to conclude whether the model will be effective. It is expected, however, that the next two phases of development of the model are implementation and evaluation phases. There is a high possibility that the consultative hospital of this study will be a setting of the model implementation because acceptability and sense of ownership of the model was gained through the consultation of staff of this organisation. A completion of the implementation and evaluation phases will provide opportunities for model dissemination.

The findings derived from the focus group discussions and the telephone surveys conducted here in this thesis including the notion and determinants of active living,

an instrument for assessing physical activity, as well as physical activity levels of the elderly Thai people, certainly have implications for policy development regarding the promotion of healthy ageing in Thailand. The findings also have implications for future studies involving physical activity promotion. Future studies will need to pay particular attention to issues of policy makers' and health professionals' attitudes to promoting physical activity, impact and outcomes, and cost-effectiveness and generalisability of the PAC model. As the Year of Health Promotion in Thailand has been launched (Department of Health, 2002d), it is the right time to propose this model for promoting physical activity. Thai policy makers, health professionals and consumers will gain benefits through the adoption of this model.

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Appendix 1: Focus group discussion guidelines

The older Thais' views of active living

- 1) What do you think of the elderly in this story?
- 2) What does active living mean to you?
- 3) How do you feel about active living?

Perceived barriers and facilitators of being active

- 1) What makes it difficult for you to be physically active?
- 2) What makes it easier for you to be physically active?

Suggestions for increase physical activity

- 1) In your opinion, what are suggestions that would help the elderly in doing more physical activity?

Activities showing be active

- 1) What do you currently do in your daily life?

Appendix 1

ภาคผนวก 1 แนวคำถามสำหรับประชุมกลุ่มปรึกษา (Focus group discussion)

ทัศนคติของผู้สูงอายุต่อ Active living

1. คุณคิดอย่างไรต่อผู้สูงอายุในเรื่องที่ได้รับฟังนี้ ?
2. ลักษณะการดำเนินชีวิตของผู้สูงอายุในเรื่องนี้ มีความหมายต่อคุณอย่างไร ?
3. คุณรู้สึกอย่างไรต่อการดำเนินชีวิตแบบนี้ ?

การรับรู้อุปสรรคและปัจจัยเอื้อ ต่อ Active living

1. คุณคิดว่ามีอะไรบ้างที่เป็นอุปสรรคต่อการมีกิจกรรมในชีวิตประจำวัน ?
2. คุณคิดว่ามีอะไรบ้างที่ช่วยให้คุณมีกิจกรรมในชีวิตประจำวัน?

ข้อเสนอแนะสำหรับการเพิ่มกิจกรรมในผู้สูงอายุ

1. คุณคิดว่าอะไรที่ช่วยให้ผู้สูงอายุทั่วไปมีกิจกรรมมากขึ้น?

กิจกรรมที่ผู้สูงอายุทำอยู่ในปัจจุบันนี้

1. ตอนนี้คุณมีกิจกรรมในชีวิตประจำวันอะไรบ้าง?

Appendix 2: Consent form for focus group discussions

Consent Form

Active Living Study

SUPERVISORS: Dr Deborah Turnbull and Dr Julie Hepworth

INVESTIGATOR: Ms Kaysorn Sumpowthong

NAME OF PERSON WHO ISSUES THE FORM: Ms Kaysorn Sumpowthong

- 1. I acknowledge that the nature and purpose of the project have been explained to me in a letter that I have been given. I understand it and agree to take part and my consent is given freely.*
- 2. I understand that while the study may not benefit me directly, information I provide will assist in promoting active living of the elderly.*
- 3. I understand that, while information gained during the study may be published, I will not be identified and my personal results will remain confidential.*
- 4. I understand that my answers will not affect my medical care or any activity in any way.*
- 5. I understand that I am free to withdraw from the project at any time and this will not affect my care, now or in the future.*
- 6. I have had the opportunity to discuss taking part in this study with a family member or friend.*

Name of Subject: (please print name)

Signed:

Dated:

I certify that I have explained the study to the elderly and consider that he /she understands what is involved.

Signed: (Investigator)

Appendix 2

ภาคผนวก 2 แบบแสดงความจำนงเข้าร่วมโครงการ การศึกษาการดำเนินชีวิตอย่างมีคุณภาพของผู้สูงอายุ

ผู้ตรวจสอบโครงการ Dr Deborah Turnbull

ผู้รับผิดชอบโครงการ ผศ. เกษร สำเภาทอง

1. ข้าพเจ้าได้รับคำอธิบายถึงลักษณะและวัตถุประสงค์ของโครงการ เป็นที่เรียบร้อยแล้ว
ข้าพเจ้ามีความเข้าใจ และยินดีเข้าร่วมโครงการ
2. ข้าพเจ้าเข้าใจดีว่า โครงการนี้อาจไม่ก่อประโยชน์โดยตรงแก่ข้าพเจ้า แต่ข้อคิดเห็นของ
ข้าพเจ้าที่ให้แก่โครงการนี้ จะเป็นประโยชน์ในการพัฒนารูปแบบเพื่อส่งเสริมสุขภาพประชากรผู้
สูงอายุต่อไป
3. ข้าพเจ้าเข้าใจดีว่า ข้อคิดเห็นของข้าพเจ้าที่ให้แก่โครงการนี้ จะถูกเผยแพร่ในภาพรวมโดยไม่
ระบุตัวบุคคล และข้อมูลส่วนตัวของข้าพเจ้าจะได้รับการปกปิด
4. ข้าพเจ้าเข้าใจดีว่า ข้าพเจ้าสามารถออกจากโครงการได้ตลอดเวลา โดยไม่กระทบต่อการรักษา
พยาบาลของข้าพเจ้า ในขณะนี้หรือในอนาคต
5. ข้าพเจ้าเข้าใจดีว่า ข้อคิดเห็นของข้าพเจ้าที่ให้แก่โครงการนี้ จะไม่มีผลกระทบต่อการรักษา
พยาบาล หรือกิจกรรมใดๆก็ตามที่ข้าพเจ้าจะได้รับจากโรงพยาบาล

ชื่อผู้ร่วมโครงการ.....

ลายเซ็น.....

วันที่.....

ข้าพเจ้าขอยืนยันว่าได้อธิบายโครงการแก่ผู้สูงอายุอย่างละเอียด และผู้สูงอายุมีความเข้าใจโครง
การเป็นอย่างดี

ลงชื่อ ผู้รับผิดชอบโครงการ

Appendix 3: Information Sheet for Focus Group Discussions

Study Information Sheet

Active Living Study

This is an invitation to you to take part in a study which aims to understand active living among older people such as yourself, in order to develop a model to encourage the elderly to be more active which will bring good health, independence and quality of life for the elderly. We are asking a small number of elderly people if they would like to take part in the study.

The study is being run by the Department of Public Health at the University of Adelaide, Australia. The researcher who will be conducting the study is Ms Kaysorn Sumpowthong. Ms Kaysorn is currently completing a Doctor of Philosophy in Public Health at the University of Adelaide.

We are asking a small number of the elderly to participate in a group interview to talk about active living. Information obtained from these interviews will be used to develop a questionnaire and an assessment of activities. We will also ask you if these interviews may be taped and noted by the research team.

Please be assured that your confidentiality will be maintained at all times. If you agree to be involved in the study, your name and details will be kept strictly confidential and will not be published.

While the study will not benefit you directly, the information you provide will be of real help in promoting active living for the aged population. Your answers will not affect your medical care or your activities in any way.

You are under no pressure to join the study and you can drop out at any time.

If you would like to participate in the discussion, all you need to do is read all of the information contained in this letter and complete the associated consent form.

You are free to speak with a family member or friend about this information.

If you have any further questions you can contact the project coordinator, Ms Kaysorn Sumpowthong on

Appendix 3

ภาคผนวก 3

เอกสารแนะนำโครงการ การศึกษาการดำเนินชีวิตอย่างมีคุณภาพของผู้สูงอายุ

เอกสารนี้เป็นเอกสารแนะนำ และเรียนเชิญท่านเข้าร่วมโครงการ ซึ่งมีวัตถุประสงค์ เพื่อทำความเข้าใจการดำเนินชีวิตอย่างมีคุณภาพของผู้สูงอายุ อันจะนำไปสู่การพัฒนารูปแบบการส่งเสริมการดำเนินชีวิตอย่างเหมาะสม, มีสุขภาพดี, มีความเป็นอิสระ และมีคุณภาพชีวิตที่ดี ดังนั้นเราจึงต้องการผู้สูงอายุจำนวนหนึ่งเข้าร่วมโครงการ

โครงการนี้ดำเนินการโดย ภาควิชาสาธารณสุขศาสตร์ แห่งมหาวิทยาลัยอติเลด ประเทศออสเตรเลีย ผู้ช่วยศาสตราจารย์ เกษร สำภาทอง ซึ่งกำลังศึกษาระดับปริญญาเอก สาขาการส่งเสริมสุขภาพ ณ มหาวิทยาลัยแห่งนี้ เป็นนักวิจัยผู้รับผิดชอบโครงการ

ผู้สูงอายุที่สนใจเข้าร่วมโครงการ จะมีโอกาสได้ร่วมแสดงความคิดเห็นต่อประเด็นสำคัญของงานวิจัย โดยใช้การพูดคุยในกลุ่มผู้สูงอายุ ซึ่งใช้เวลาประมาณ 1 ชั่วโมง ข้อมูลที่ได้จากท่านจะถูกนำไปใช้ในการพัฒนาเครื่องมือและแบบประเมิน ซึ่งมีความสำคัญต่อความสำเร็จของงานวิจัย หากท่านยินดีเข้าร่วมโครงการ เราใคร่ขออนุญาตบันทึกข้อคิดเห็นของท่านและจะนำไปใช้ให้เกิดประโยชน์ต่อประชากรผู้สูงอายุ โดยที่ ข้อมูลส่วนตัวของท่านจะได้รับการปกปิด และไม่มีการเผยแพร่แต่อย่างใด

เราขอชี้แจงให้ท่านทราบว่า โครงการนี้อาจไม่ก่อประโยชน์แก่ท่านโดยตรง แต่ข้อมูลและความคิดเห็นของท่านจะเกิดประโยชน์อย่างแท้จริงต่อการส่งเสริมการดำเนินชีวิตอย่างมีคุณภาพในประชากรผู้สูงอายุ การร่วมโครงการนี้ จะไม่มีผลกระทบต่อการรักษาพยาบาล หรือ การร่วมกิจกรรมกับโรงพยาบาลของท่านแต่อย่างใด ดังนั้นท่านจึงสามารถตัดสินใจเข้าร่วมโครงการได้อย่างอิสระ

หากท่านสนใจเข้าร่วมโครงการซึ่งจะก่อให้เกิดประโยชน์ต่อส่วนรวมในครั้งนี้ โปรดอ่านรายละเอียด และลงนามในเอกสารที่แนบมาพร้อมนี้

หากท่านมีข้อสงสัยประการใด โปรดสอบถามรายละเอียดเพิ่มเติมได้ที่ ผู้ช่วยศาสตราจารย์ เกษร สำภาทอง โทร ; และขอขอบคุณมา ณ. โอกาสนี้

Appendix 4: Sociodemographic Data Sheet

Active Living Study

Information on Participants

1. Age.....

2. Sex

Male.....

Female.....

3. Marital status

Single...

Married.....

Widow or widower.....

Divorced.....

4. Education level

Primary school.....

Secondary school.....

College.....

University.....

5. Career.....

6. Current health status

Healthy..... Fairly healthy..... Weak.....

Appendix 4

ภาคผนวก 4 โครงการศึกษาการดำเนินชีวิตอย่างมีคุณภาพของผู้สูงอายุ ข้อมูลทั่วไปของผู้ร่วมโครงการ

ชื่อ.....นามสกุล.....

เพศ.....อายุ.....ปี

ที่อยู่.....

โทรศัพท์.....

สถานภาพการสมรส

โสด..... คู่.....

หม้าย..... หย่า.....

ระดับการศึกษา

ประถมศึกษา.....มัธยมศึกษา.....

วิทยาลัย.....มหาวิทยาลัย.....

อาชีพ ปัจจุบัน.....

อดีต.....

ภาวะสุขภาพปัจจุบัน

แข็งแรง.....ปานกลาง.....

อ่อนแอ.....

Appendix 5: Scenarios for focus group discussions

Active Living Scenario 1: Less educated females

Chaleoy, a seventy-year-old woman, has been living in a village. She lives with her husband aged 75 years. Their children have moved to live in other villages. Chaleoy has fair economic status.

Every morning after waking up, Chaleoy walks around her house, opens all windows and then cleans their small garden, which has plenty of fallen leaves. At breakfast time, she prepares a meal for her husband and herself. Her husband listens to the news on a radio.

All of the housework is done by Chaleoy. Her husband helps her to fix up some broken things in her house. He used to be a carpenter but he cannot work now since he has hypertension. He has to go to see his doctor every month. He stays at home almost every day.

After breakfast, Chaleoy's husband has a rest while Chaleoy washes clothes and listens to a radio. She does domestic chores by herself.

In the afternoon, Chaleoy walks to the market, which is 1 km from her house. She wants to have her husband walk with her but he thinks that it is too far for him to walk. Again, Chaleoy has to walk there by herself.

On the way back home, Chaleoy stopped at her friend's house. Saijai is Chaleoy's close friend. Saijai cannot go out much because of a problem with her knees and eyes. Saijai is very happy when Chaleoy has a chat with her. They enjoy talking and get to know things that happen in their village.

Good news in their village, Saijai told Chaleoy that the local council wants to organize a leisure activity group for anyone interested in spending their free time participating in a good and useful activity. Chaleoy and Saijai are looking forward to this activity.

When Chaleoy got back home, her husband complained that she had gone for such a long time. She told him the story from her friend. She also wants her husband to take part in that activity so she asked him to come with her.

Active living scenario 2: Less educated males

Sri, a widower, resides at a village with his two children. He had lost his wife many years ago. At present he is 75 years old.

Every morning after waking up, Sri enjoys walking around his house. He believes that the elderly will have a problem with moving and walking when they don't walk or don't walk enough. Sri has many friends who are old. They have some difficulties while they are walking. Sri strongly intends to walk everyday.

This morning, his daughter prepared breakfast for Sri and has gone to work. Sri finished his breakfast, then walked to a small garden to water his plants. He did that until lunch time.

In the late afternoon, Sri has a meeting with the committee of his village. He has been a committee member for many years. The agenda of the meeting today is asking for a volunteer to grow plants along the street in their village. Sri volunteered to do that work immediately as that is his favorite leisure activity.

Sri told his son and daughter that he would do gardening as volunteer work. His daughter said that digging and lifting is too hard work for Sri. He should not do that. Sri insists but promises that he won't do much. He would do as much as he could do without injuring himself.

Next morning, Sri offers food to monks and has a chat with his neighbours about growing plants. His life is not quiet but rather he has many good things to do. He feels happy and lively.

Active living Scenario 3: Highly educated males

Sri, a 75-year-old man has lived in Bangkok for many years. He is widower. His wife passed away 10 years ago. He lives with his one daughter. Sri used to work with the government. He retired from his job for many years.

Sri wakes up early very morning. After he wakes up, he usually walks around his house. He believes that walking can help keep him healthy. Sri has many friends who are old. They have some disabilities and difficulties with walking. Sri is afraid that if he does not walk, he may have difficulties too. He intends that he will walk as much as he can so that he can maintain good health.

His daughter is very kind to him. She prepares meals for him every day. Sri does not have to do cooking but he does gardening. He has a small garden in front of his house. One of his favorite activities is planting vegetables. He works in the garden for many hours a day. He does watering, pruning and sweeping leaves.

In the afternoon, Sri has a meeting with the local committee. He has been a long serving member and has participated in activities of the committee regularly. The meeting today was about how to make a beautiful environment within the village. Sri proposed his idea to plant some trees and flowers along the street in the community. Everybody agreed with his idea. They plan to do it as soon as possible.

Sri was very pleased with his new work. He told his daughter but she thought that it might be too much for him to do both in his garden and on the public street. Sri said that he would do only the things he can do easily.

Next morning, Sri offers food to monks and has a chat with his neighbours about growing plants. His life is not quiet but rather he has many good things to do. He feels happy and lively.

Active living Scenario 4: Highly educated females

Somsri, a seventy-year-old woman, has been living in a village in Bangkok. She lives with her husband aged 75 years. Somsri used to be a government officer. She retired from her job 10 years ago.

Every morning after waking up, Somsri walks around her house, opens all windows and then cleans their small garden, which has plenty of fallen leaves. Somsri always plan what she wants to do everyday.

At breakfast time, she prepares a meal for her husband and herself. Her husband listens to the news on a radio.

All of the housework is done by Somsri. Her husband helps her to do some things in her house such as cleaning a car and does some gardening. He used to be a businessman but he cannot work now since he has hypertension. He has to go to see his doctor every month. He stays at home almost every day.

After breakfast, Somsri's husband has a rest while Somsri washes clothes and listens to a radio. She does domestic chores by herself.

In the afternoon, Somsri asked him to walk to the market, which is 1 km from her house. She wanted to have her husband walk with her but he said it is too far for him to walk. He wanted to drive the car but Somsri said that it is a good exercise and she wanted to do some walking. Finally she walked to the market by herself.

On the way back home, Somsri stopped at her friend's house. Saijai is Somsri's close friend. Saijai cannot go out much because of a problem with her knees and eyes. Saijai is very happy when Somsri has a chat with her. They enjoy talking and get to know things that happen in their village.

Good news in their village, Saijai told Somsri that the local council wants to organize a leisure activity group for anyone interested in spending their free time participating in a good and useful activity. Somsri and Saijai are looking forward to this activity.

When Somsri got back home, her husband complained that she had gone for such a long time. She told him the story from her friend. She also wants her husband to take part in that activity so she asks him to come with her.

Appendix 5

ภาคผนวก 5

Active living Scenario 1

ป้าฉลุย อาศัยอยู่ในหมู่บ้านชนบทแห่งหนึ่งกับสามี ส่วนลูกๆแยกครอบครัวไปหมดแล้ว ป้าฉลุยอายุ 70 ปี ส่วนสามีอายุ 75 ปี ฐานะของป้าพอมีพอกินไม่เดือดร้อน ต่อไปนี่เป็นการดำเนินชีวิตของป้าฉลุยและสามี

ตอนเช้าของทุกวันหลังจากตื่นนอน ป้าฉลุยจัดการเปิดประตู หน้าต่าง แล้วเดินรอบๆบ้านสูดอากาศยามเช้า การเดินทำให้ป้ารู้สึกกระฉับกระเฉง ป้ามักคิดในใจว่าวันนี้จะทำอะไร ป้าฉลุยกวาดใบไม้ กิ่งไม้ที่ร่วงอยู่ตามทางเดิน ใกล้เวลาอาหารเช้าของครอบครัว ลุงคงจะตื่นแล้วและนั่งฟังข่าวอยู่ในห้อง

ป้าเข้าครัวทำอาหารเช้าสำหรับตัวป้าเองและสามี งานบ้านทั้งหมดป้าเป็นคนทำ สิ่งที่ต้องอาสาและเต็มใจทำคืองานซ่อมแซม เล็กๆน้อยๆภายในบ้าน ลุงเคยเป็นช่างไม้ หลังจากอายุเข้า 70 ปีและมีโรคความดันโลหิตสูง ต้องไปหาหมอทุกเดือน ลุงหยุดงานช่างและอยู่บ้านทุกวัน

หลังอาหารเช้า ลุงกินยาแล้วนอนพัก ป้าฉลุยซักผ้าอยู่หลังบ้านพร้อมกับฟังวิทยุไปพลาง เอาผ้าขึ้นราวตากผ้าเรียบร้อยแล้ว นั่งคุยกับลุงพักหนึ่ง แล้วนอนหลังพักผ่อน

อาหารเย็นมื้อนี้ลุงอยากกินแกงกะทิ เครื่องแกงไม่มี ป้าตัดสินใจไปร้านค้ากลางหมู่บ้าน ป้าชวนลุงเดินไปด้วยกันแต่ลุงบอกไกลเกินไปตั้งเป็นกิโล ป้าฉลุยจึงเดินไปร้านค้าคนเดียวในตอนบ่าย อากาศไม่ร้อนมากแต่การเดินเกือบครึ่งชั่วโมงก็ทำให้ได้เหงื่อเหมือนกัน

ระหว่างทางกลับบ้าน ป้าฉลุยตัดสินใจแวะคุยกับป้าสายใจคนคุ้นเคย ป้าสายใจไปไหนมาไหนไม่ได้แล้วเพราะปัญหาเรื่องปวดเข่าและสายตา ป้าฉลุยคิดว่าการได้พูดคุยกับคนวัยเดียวกันทำให้ป้าเพลิดเพลินและได้รู้ความเป็นไปของคนในหมู่บ้าน

มีข่าวจากหลานป้าสายใจว่า กรรมการหมู่บ้านกำลังจะจัดให้มีกลุ่มฝึกอาชีพเสริม ป้าฉลุยสนใจอยากช่วยเพราะป้ามีฝีมือในการทำงานม คงต้องปรึกษากับลุงในเรื่องนี้

ป้าลงมือทำกับข้าวเมื่อถึงบ้าน ลุงบ่นอุบอิบเพราะป้าหายไปนาน ป้าเล่าให้ลุงฟังถึงเรื่องที่ได้ยินมา ลุงบ่นต่ออีกว่า ป้าคงทิ้งให้ลุงอยู่บ้านคนเดียว ถ้าป้าไปเข้ากลุ่มในหมู่บ้าน ป้าได้จ้างหะชวนลุงไปด้วย

Active Living Scenario 2

ลุงศรี อาศัยอยู่ในหมู่บ้านชนบทแห่งหนึ่งกับลูกๆ ภรรยาลุงศรีเสียชีวิตไปนานแล้ว ปีนี้ลุงอายุ75ปี ลุงมีลูกหลายคน แต่ปัจจุบันที่อยู่ในบ้านเดียวกันกับลุงมีเพียง2 คน ต่อไปนี้เป็นการดำเนินชีวิตของลุงศรี

ตอนเช้าของทุกวันหลังตื่นนอน ลุงศรีจัดการเปิดประตู หน้าต่าง แล้วเดินรอบๆบ้าน สูดอากาศยามเช้า ลุงเชื่อว่าการเดินทำให้ลุงแข็งแรง การเดินในวันนี้จะทำให้ลุงเดินได้ใน วันพรุ่งนี้ ลุงศรีมีเพื่อนบ้านหลายคนที่พออายุมากขึ้นก็เดินลำบาก และในที่สุดก็เดินไม่ได้ ซึ่งเป็นสิ่งที่ลุงศรีกลัวมากที่สุด ลุงศรีตั้งใจแน่วแน่ว่าจะเดินออกกำลังกายทุกวันเพื่อให้ร่างกายแข็งแรง

ลูกของลุงทำอาหารเช้าไว้ให้แล้วออกไปทำงาน ลุงกินอาหารเช้าแล้วเดินไปแปลงสวน ครัวข้างบ้าน ลุงตักน้ำใส่ถังเล็ก แล้วเดินรดน้ำในแปลงผักอย่างช้าๆ กว่าจะเสร็จก็สายมาก แล้วเกือบได้เวลาอาหารกลางวัน ลุงเข้าครัวอุ่นอาหารที่ยังเหลือตั้งแต่เมื่อเช้าเป็นอาหารกลางวัน

ตอนบ่ายลุงเอนหลังพักผ่อน บ่ายแก่ๆลุงเดินไปประชุมกรรมการหมู่บ้านซึ่งลุงเป็น กรรมการมาหลายปีแล้ว การประชุมในวันนี้ผู้ใหญ่บ้านขอความร่วมมือและขออาสาสมัครในการปลูกไม้ดอกตลอดแนวทางเดินสาธารณะในหมู่บ้าน ลุงศรีรับอาสาทันที เพราะลุงชอบและถนัดในการปลูกต้นไม้ ลุงกะการในใจว่าจะเริ่มงานในวันพรุ่งนี้ตอน บ่าย ลุงศรีคิดเกี่ยวกับเรื่องนี้และเล่าให้ลูกฟัง ลูกของลุงแย้งขึ้นว่าการขุดดินเป็นงานหนักเกินไปสำหรับคนแก่ ลุงไม่ควรทำ ลุงศรีจึงอาสาทำงานนี้เพียงแค่พรวนดินและรดน้ำต้นไม้

วันรุ่งขึ้นลุงศรีออกไปตัดบาตรพระ แล้วเลยเดินออกกำลังกายตอนเช้าพร้อมทักทาย กับเพื่อนบ้าน คุยกันถึงเรื่องดอกไม้ที่จะปลูก ลุงศรีรู้สึกมีความสุขและไม่เหงาเพราะทุกๆ วัน ลุงศรีได้ทำในสิ่งที่ลุงชอบ ลุงศรีคิดว่าการไม่อยู่เฉยๆเป็นเรื่องดีสำหรับคนแก่

Active Living Scenario 3

ลุงศรี อาศัยอยู่ในหมู่บ้านแห่งหนึ่งในเขตชานกรุงเทปกับลูก ภรรยาลุงศรีเสียชีวิตไปนานแล้ว ปีนี้ลุงอายุ75ปี ลุงเคยรับราชการ หลังเกษียณอายุแล้วลุงก็อยู่บ้าน ลุงมีลูกหลายคนแต่แยกครอบครัวไปเกือบหมดแล้ว ปัจจุบันที่อยู่บ้านเดียวกับลุงมีเพียง1 คน ต่อไปนี่เป็นการดำเนินชีวิตของลุงศรี

ตอนเช้าของทุกวันหลังตื่นนอน ลุงศรีจัดการเปิดประตู หน้าต่าง แล้วเดินรอบๆบ้านสูดอากาศยามเช้า ลุงเชื่อว่าการเดินทำให้ลุงแข็งแรง การเดินในวันนี้จะทำให้ลุงเดินได้ในวันพรุ่งนี้ ลุงศรีมีเพื่อนบ้านหลายคนทีพออายุมากขึ้นก็เดินลำบาก และในที่สุดก็เดินไม่ได้ ซึ่งเป็นสิ่งที่ลุงศรีกลัวมากที่สุด ลุงศรีตั้งใจแน่วแน่ว่าจะเดินออกกำลังกายทุกวันเพื่อให้ร่างกายแข็งแรง

ลูกของลุงทำอาหารเช้าไว้ให้แล้วออกไปทำงาน ลุงกินอาหารเช้าแล้วเดินไปแปลงสวนครัวข้างบ้าน ลุงรดน้ำใส่ถังเล็ก แล้วเดินรดน้ำในแปลงผักอย่างช้าๆ กว่าเสร็จก็สายมากแล้วเกือบได้เวลาอาหารกลางวัน ลุงเข้าครัวอุ่นอาหารที่ยังเหลือตั้งแต่เมื่อเช้าเป็นอาหารกลางวัน

ตอนบ่ายลุงเอนหลังพักผ่อน บ่ายแก่ๆลุงเดินไปประชุมกรรมการหมู่บ้านซึ่งลุงเป็นกรรมการมาหลายปีแล้ว การประชุมในวันนี้ประธานกรรมการหมู่บ้านขอความร่วมมือและขออาสาสมัครในการปลูกไม้ดอกตลอดแนวทางเดินสาธารณะในหมู่บ้าน ลุงศรีรับอาสาทันทีเพราะลุงชอบและถนัดในการปลูกต้นไม้ ลุงกะการในใจว่าจะเริ่มงานในวันพรุ่งนี้ตอนบ่าย ลุงศรีคิดถึงเกี่ยวกับเรื่องนี้และเล่าให้ลูกฟัง ลูกของลุงแย้งขึ้นว่าการขุดดินเป็นงานหนักเกินไปสำหรับผู้สูงอายุ ลุงไม่ควรทำ ลุงศรีจึงขออาสาทำงานนี้เพียงแค่พรวนดินและรดน้ำต้นไม้

วันรุ่งขึ้นลุงศรีออกไปตัดบาตรพระ แล้วเลยเดินออกกำลังกายตอนเช้าพร้อมทักทายกับเพื่อนบ้าน คุยกันถึงเรื่องดอกไม้ที่จะปลูก ลุงศรีรู้สึกมีความสุขและไม่เหงาเพราะทุกๆวัน ลุงศรีได้ทำในสิ่งที่ลุงชอบ ลุงศรีคิดว่าการไม่อยู่เฉยๆเป็นเรื่องดีสำหรับผู้สูงอายุ

Active living Scenario 4

ป้าสมศรี อาศัยอยู่ในหมู่บ้านชานกรุงแห่งหนึ่งกับสามี ส่วนลูกๆแยกครอบครัวไปหมดแล้ว ป้าอายุ 70 ปี ส่วนสามีอายุ 75 ปี สถานะของป้าไม่ได้ดีดร้อนเนื่องจากป้าเป็นข้าราชการบำนาญ ต่อไปนี้เป็นการดำเนินชีวิตของป้าสมศรีและสามี

ตอนเช้าของทุกวันหลังจากตื่นนอน ป้าสมศรีจัดการเปิดประตู หน้าต่าง แล้วเดินรอบๆบ้านสูดอากาศยามเช้า การเดินทำให้ป้ารู้สึกกระฉับกระเฉง ป้ามักคิดในใจว่าวันนี้จะทำอะไร ป้ากวาดใบไม้ กิ่งไม้ที่ร่วงอยู่ตามทางเดิน ใกล้เคียงเวลาอาหารเช้าของครอบครัว ลุงคงจะตื่นแล้วและนั่งฟังข่าวอยู่ในห้อง

ป้าเข้าครัวทำอาหารเช้าสำหรับตัวป้าเองและสามี งานบ้านทั้งหมดป้าเป็นคนทำ สิ่งที่ลุงอาสาและเต็มใจทำคืองานซ่อมแซม เล็กๆน้อยๆภายในบ้าน ลุงเคยทำธุรกิจ หลังจากอายุเข้า 70 ปีและมีโรคความดันโลหิตสูง ต้องไปหาหมอทุกเดือน ลุงหยุดงานและอยู่บ้านทุกวัน

หลังอาหารเช้า ลุงกินยาแล้วนอนพัก ป้าเอาผ้าเข้าเครื่องซักอยู่หลังบ้านพร้อมกับฟังวิทยุไปพลาง เอาผ้าขึ้นราวตากผ้าเรียบร้อยแล้ว นั่งคุยกับลุงพักหนึ่ง แล้วเอนหลังพักผ่อน อาหารเย็นนี้ลุงอยากกินแกง ป้าตัดสินใจไปร้านค้ากลางหมู่บ้าน ป้าชวนลุงเดินไปด้วยกันแต่ลุงบอกไกลเกินไปตั้งเป็นกิโลและลุงไม่อยากรับรถ ป้าฉวยจึงเดินไปร้านค้าคนเดียวในตอนบ่าย อากาศไม่ร้อนแต่การเดินเกือบครึ่งชั่วโมงก็ทำให้ได้เหงื่อเหมือนกัน ป้าคิดในใจว่าการเดินเป็นการออกกำลังกายที่ดี

ระหว่างทางกลับบ้าน ป้าสมศรีตัดสินใจแวะคุยกับป้าสายใจคนคุ้นเคย ป้าสายใจไปไหนมาไหนไม่ได้แล้วเพราะปัญหาเรื่องปวดเข่าและสายตา ป้าสมศรีคิดว่า การได้พูดคุยกับคนวัยเดียวกันทำให้ป้าเพลิดเพลินและได้รู้ความเป็นไปของคนในหมู่บ้าน

มีข่าวจากหลานป้าสายใจว่า กรรมการหมู่บ้านกำลังจะจัดให้มีกลุ่มฝึกอาชีพเสริม ป้าสมศรีสนใจอยากช่วยเพราะป้ามีฝีมือในการทำดอกไม้ประดิษฐ์ คงต้องปรึกษากับลุงในเรื่องนี้

ป้าลงมือทำกับข้าวเมื่อถึงบ้าน ลุงบ่นเพราะป้าหายไปนาน ป้าเล่าให้ลุงฟังถึงเรื่องที่ได้อินมา ลุงบ่นต่ออีกว่า ป้าคงทิ้งให้ลุงอยู่บ้านคนเดียว ถ้าป้าไปเข้ากลุ่มในหมู่บ้าน ป้าได้จังหวะชวนลุงไปด้วย

Appendix 6: Indexed transcripts

Examples of an indexed transcript (Group 1: less-educated females)

Index code	Theme
V	View about active living
A	Current daily activities of the elderly
VA	View about ageing
G	Gender and active living
BE	Benefits of active living
BA	Barriers to active living
S	Suggestion for increasing physical activity
R	Religious and active living
F	Family and active living

Transcript	Index code
A; I think she is good, excellent and diligent. She is knowledgeable about active living, actually she did things the same as I did. I wake up early in the morning and work around my house everyday.	V A
B: I agree, she is a good woman, diligent and a good wife. She seems to be generous and kind.	V
D: I think she is the same as I am. I have done everything in my house. I thought that when I got older, I would be free from work but actually I still keep busy with housework everyday.	A VA
C: I do housework everyday as well, but I haven't done volunteer work, so she is better than I am.	A
E: I think because we are women, that is why we have to do housework, take care of our family and cook everyday.	G
D: Yes, that is our work, we cannot say no. We do or don't do, nobody is interested but we will feel guilty and are not happy if we let things be done in our house by someone else.	G
A: She is so active and that is very good for her health and her family. It is good to hear about this kind of elderly. We can think about ourselves that what we do now and what we used to do in the past. We cannot think about it if we have nobody to talk about it. When I heard this story it came back to me that we have to think of what we have done and what we should do.	V BE
B: It is the general life of women at old age. There are not many things in our life. We don't have exciting things. It sounds boring. We can up our feelings by enjoying time with either children or neighbors. I like to walk outdoors and have a chat with my neighbors when I am alone. They can make my world a bit more excited.	V G VA A BE

<p>E: We need to do such things and think of tomorrow. At our age tomorrow can mean anything, good or bad. We may wake up or may not. Our Buddha said that life is uncertain today or tomorrow. I try to keep this in mind so I can do things for my life. Whoever loves to have activities, they will do them. For those who do not like it, don't push them. Activities can be a good thing in your life if you get something good from it. If you get bad things, then you can not appreciate them.</p>	<p>VA V R V S</p>
<p>C: I like this lifestyle. I feel good when I think that I can do, yes I can. I am still valuable. I can do things by myself, I can help my children, take care of them and help them in something I can do. We don't know the future, I agree, but we can do the best for today, can't we? I hope I can do this for the rest of my life.</p>	<p>V A V</p>
<p>D: It depends on what you can do. If you are good at cooking, doing housework and enjoy doing it. You are lucky. I know it can help your body working everyday. But if you get bored with those things because you do them all of your life, you cannot change your attitude towards them. Benefits are just the thing you know about but it might not be the thing you want. It is good for active living but how can we do it or change our behaviour when we are not ready and change our habits or family circumstances.</p>	<p>V V</p>
<p>A. I think if we do a good job for ourselves, we will get good things from it. It is the same as when we make merit, we deserve good things. Because when we do things, we feel good in both body and mind. The elderly who love a lazy lifestyle think that having someone to care for them and do things instead of them, is good luck. Actually it is bad luck because you cannot do things for yourself. Anyway, when we have to work out many things, we should be happy to do them. We don't want to think we are being pushed or forced to do. When we think like that we don't want to do them any more. It is sad and disheartening.</p>	<p>R BE V V</p>
<p>B. I don't like to be busy. It is confusing and I will forget this and that and cannot do any thing well. Doing things bit by bit is the best for me. When I get excited or when I have a hectic time, I will be sick the next day. When you are getting older, you need to be calm, relaxed and peaceful. I don't think it is good for us to be too active. I prefer to be bit quiet and do thing gradually, not so fast.</p>	<p>V VA V</p>
<p>C. I don't think we have to think much about this. Activity is the thing that we do as part of our life since we were born. Humans have to fight for their life to survive. At older age, your body cannot work well, we should not push it so much at our age. To be honest, we are waiting to go to peace, aren't we? We just protect our body, get rid of diseases and illness, that should be enough. Don't expect that much from your children, otherwise you will be disappointed. If we can give to them don't expect to get back. They are too</p>	<p>V VA F</p>

<p>busy to be interested in simple things like going out with us or walking with us. We have to take responsibility for ourselves. Do as much as you can do. Our body is declining everyday, please understand that nobody can stop the physical decline of us. The best thing is accept it, we cannot stop it. Stay calm and understanding</p>	<p>VA</p>
<p>D: When I was a young lady, I wanted to do this and that but I could not do them as I had so many things to take care of; my children, my parents and family. Now, I have free time but I can not go out and enjoy my life because my body is not strong and it will never be strong again. Anyway, we cannot complain, it is nature. I agree that we have to accept it but to keep on going it until we cannot. Actually I like to keep busy, I feel that time goes fast and it is not so boring.</p>	<p>VA V</p>
<p>D: Yes, it is good. I feel happy when my house is clean, when we get tired, just have a rest, it will be disappeared and I feel proud as I can make everyone in my family happy and enjoy.</p>	<p>V</p>
<p>A: So do I. I like to do house work. I don't care if anyone in my family won't do it. When I do work hard I can sleep well. I exercise early in the morning sometimes.</p>	<p>A BE</p>
<p>B: Fortunately I am free from housework as I am too old to do it now. I think it is time for resting at my age as I did a lot when I was young. My children told me to stop it.</p>	<p>V VA</p>
<p>C: I'd like to do housework. I agree that I feel happy when my house is tidy and my family is comfortable when they come back home in the afternoon.</p>	<p>A</p>
<p>D: I am so tired when I do my housework but when I finish it and have a rest, just a few minutes, I felt better. Even though, not many people like to do housework but I don't want to ask any help from my children, as I am so tired of asking them so I decided to do it by myself.</p>	<p>A F</p>
<p>B: For me, I feel happy that I can do things by myself but my children don't want me to, they usually say " please have a rest" I don't know, sometimes I feel sick as they treat me as I am sick. I still can walk to my children's house. It is only a short walk that I can do as it will hurt me if I walk long a way, my legs don't allow me.</p>	<p>F BA</p>
<p>E: Yes when I got sick and I couldn't do things and it is very hard to get back to be active again.</p>	<p>BA</p>
<p>D: I think staying active is good for body and mind. I joined at a Thai temple group on Buddhism Activities last year for a week. They provided good activities, not only praying and meditation but also exercising. I think it is good for health, I felt fresh, lively and energetic.</p>	<p>BE R BE</p>
<p>C: Certainly it up to their health, some people are too old to do some work or to be active and sometimes it is hard to walk outdoors because walkways are not safe enough. I mean that we have to be careful of accidents.</p>	<p>BA BA</p>
<p>A: It seems to be true that when you are sick you can't go out and it takes time before you can go out again.</p>	<p>BA</p>
<p>E: Some people don't have any friends so they can't take part in any activities.</p>	<p>BA</p>
<p>D: If you have no friends you don't want to go out and you don't want to engage in any activity. Friends are very important, you can walk out and chat</p>	<p>BA</p>

with people, you will enjoy yourself and relax, and sometimes you can forget your problems or loneliness. Anyway, some people are not friendly so not many people want to talk to them.	
B: Sometimes I don't want to go out or do things because my body does not work well at my age and I feel sick quite often. Nobody could stop ageing. I like exercise but I don't think I can do it.	BA VA
C: Well, money matters is another reason, I asked my neighbour to come along with me to see a performance, she said she'd love to come but she had no money so it was too difficult.	BA
E: If you like to be active you can do the things that are cheap or free like walking or exercising at home or gardening. But you have to find out where you can walk. Cars travel so fast and we don't believe that they will stop for you.	S BA
C: My neighbour, who is quite old, walks for exercise every day, I think he is healthy, I haven't seen him get any health problem.	A
A: He might have plenty of time. If I have enough time, I think I would walk out side too.	BA
C: No, it is not the reason, he has good family, his wife encourages him and walks with him every time so that is why he can do it. His wife is younger than he is, he is a rich man and very lucky. When there is no need to think about your pocket, you can do things about your health.	F BA
D: I think we work or exercise more than men, you see we do a lot of work during the day. I think it is probably enough.	G
E: I think, I am ashamed if I exercise in public and people look at me. I think I feel comfortable to exercise at home.	BA
C: For me, I am fine, I don't feel embarrassed at all. I am too old to feel like that but I usually walk around my house, I didn't walk outside.	V A
C: I am too busy to go out anyway. It is too much effort and I can't find a good place. You see, we have to make some changes, like walk away from home. Sometimes, particularly in the morning we are cooking, aren't we? So if we walk around house we have exercise while we are cooking.	BA A
D: I really appreciate it if anyone ask me to go out, I like to go out, not only take a walk but to attend performance. If some one organizes an activity I really like to go, my family can't stop me.	A
A: So do I, if you get any information let me know, I'd like to come. I feel relaxed when I see a performance.	S BE
B: I'd like to come too but it is too difficult for me to go out in the nigh time. If it is in the daytime and my children can take me to there, I probably can come.	BA
C: When we attend any performance or social activity we meet people and friends, we can chat, have fun and enjoy.	BE
E: Well, we can watch TV. at home and it is very convenient, no need to pay money or travel.	S
A: But you can't see people, can you? It is so boring if you just stay at home and watch TV. An another reason is the TV programs, I think, show a lot of teenage programs, nothing for older people. You know, if you don't see	BA

anyone you will loose interest in your world. You will have no friend, get lonely and that is a bad feeling.	BA
E: I just do my workhouse such as cleaning and washing. Usually I watch TV.	A
A: I have no free time actually, I have to look after my grandsons but I enjoy with them. Playing with kids is good fun.	A
B: But you can't go anywhere, can you? Because you have to keep your eyes on them. Kids will play around, it is a hard work I think.	BA
C: I like to go to the temple, I feel peaceful when I go to a temple, I prefer to donate some money to the temple or give food to a monk, I feel happy to do that.	A R
B: Yes I agree, the first things that the elderly should do are praying, giving food to monks and donating. These will help older people to be happy and calm. Another thing is when we go to the temple sometimes we take part in social activities, but actually I can't go every week, it is too much to do but I love to.	A R BE BA
D: I like to travel, go sight seeing, see the ancient buildings or old temples or have a picnic with my family.	A
A: No, I don't. I usually meet my friends at the market or somewhere outside.	A
C: Meeting friends outside is more convenient than inviting them to our place because of traffic problems.	S BA
B: I think it is about privacy and convenience. If you live with your children, it might not be convenient for you to have friends at your house.	BA
E: I don't know about recreational activities, where is it?	BA
A: We don't have that in our community.	BA
B: Sport for the elderly is the things that I never think before. How can we play sport? Just take a walk that is enough. Actually we can stretch or bend our body everyday at home. It is help. No need to go out and play sport or do exercising at the club.	V A
A: Exercise in a group is quite good because you can see people, you can make friends, and have a group to be belonged to.	A BE
D: I think it is a problem for each individual, it's hard to understand them and change their habits. For example, I like to go out and have fun, but you probably don't like it so, it is an individual preference, isn't it?	V
C: I think if they have friends or their family who can encourage them it may be easy to be active such as walking, exercising or working together. It is not convenient for the elderly to go anywhere without friends or family members.	S,F BA
A: I think so, your family get involved with our lifestyle very much, like when I cook something and they don't like it I think I will not cook it again. If our family understand and encourage us, we would be very happy but I think they are too busy to be interested in our activities, they just talk and that is all.	F BA
E: We should understand them as they are very very busy, like my daughter, she leaves home at 6 am. and comes back at 6 pm. or 9 pm if she has to work over time. So how can she help me? We should do it by ourselves.	F
C : That's why I told you, friends are important, particularly friends that are active and are at the same age as you.	S
A: It would be good if we can go out together.	S

B: I'd like them take me to a lovely place or to a temple on special days. You know, I can't go anywhere by myself, it is a bit difficult to get in or get off a bus like today I have to ask my neighbour take me to see doctor, my family is too busy during weekday.	A BA
E: For me, if they are well, have a good job that is enough. I am happy if they are happy. I don't want to ask anything from them.	F

Appendix 7: Example of charting

Theme: The older Thais' views of active living		
Group	Definition	Attitude towards active living
1) Less educated female group	<ul style="list-style-type: none"> • Being calm, relaxed and peaceful • Freedom and not being pushed to be active • Good act bring a good return so that being active will provide benefits 	<ul style="list-style-type: none"> • Being active is good for health • Having little or no housework and/or caring for family is viewed as a comfortable lifestyle
2) Less educated male group	<ul style="list-style-type: none"> • Doing things that they should be able to do by them selves including working and exercising 	<ul style="list-style-type: none"> • Being active is very important for good health
3) Highly educated male group	<ul style="list-style-type: none"> • Having something to do everyday and enjoying it • Not too much and not too little relating to Buddhism concept of the 'Middle path' 	<ul style="list-style-type: none"> • Keeping busy is better than being lonely • Social activities are very important
4) Highly educated female group	<ul style="list-style-type: none"> • Attitudes, habits, enjoyment and family influent active living 	<ul style="list-style-type: none"> • Doing housework is good but boring

Appendix 8: Individual interview guidelines

The interviewer will introduce herself, explain the purposes of the study and the time used this time to gain acceptance and trust. By making participants comfortable, providing a comfortable chair and privacy, the interviews will be conducted in a relaxed atmosphere

The interviewees will be asked whether the Adelaide Activities Profile make sense to them in relation to their daily activities, is comfortable to answer, is the language commonly used by the Thai elderly and are any questions confusing or not clear. The interviewees will be asked to give their views, and to give an example of each item of the Adelaide Activities Profile.

The interviewer will record all the responses exactly.

The Adelaide Activities Profile

The questions of The Adelaide Activity Profile are as follows:

1. How often have you prepared a main meal?
2. How often have you washed the dishes?
3. How often have you washed clothes?
4. How often have you done light housework?
5. How often have you done heavy housework?
6. How many hours of voluntary or paid employment have you done?
7. How often have you cared for other family members?
8. How often have you done household shopping?
9. How often have you done personal shopping?
10. How often have you done light gardening?
11. How often have you done heavy gardening?
12. How often have you done household and /or car maintenance?
13. How often have you needed to drive a car or organise your own transport?
14. How often have you spent some time on a hobby?
15. How many telephone calls have you made to friends or family?

16. How often have you invited people to your home?
17. How often have you participated in social activities at a centre such as a club, a church, or a community centre?
18. How often have you attended religious services or meeting?
19. How often have you participated in an outdoor social activity?
20. How often have you spent some time outdoors participating in a recreational or sporting activity?
21. How often have you walked outdoors for 15 minutes or more?

Appendix 9: Consent form for individual interviews

Consent Form

Active Living Study

SUPERVISORS: Dr Deborah Turnbull and Dr Julie Hepworth

INVESTIGATOR: Ms Kaysorn Sumpowthong

NAME OF PERSON WHO ISSUES THE FORM: Ms Kaysorn Sumpowthong

- 2. I acknowledge that the nature and purpose of the project have been explained to me in a letter that I have been given. I understand it and agree to take part and my consent is given freely.*
- 2. I understand that while the study may not benefit me directly, information I provide will assist in promoting active living of the elderly.*
- 3. I understand that, while information gained during the study may be published, I will not be identified and my personal results will remain confidential.*
- 4. I understand that my answers will not affect my medical care or any activity in any way.*
- 5. I understand that I am free to withdraw from the project at any time and this will not affect my care, now or in the future.*
- 6. I have had the opportunity to discuss taking part in this study with a family member or friend.*

Name of Subject: (please print name)

Signed:

Dated:

I certify that I have explained the study to the elderly and consider that he /she understands what is involved.

Signed: (Investigator)

Appendix 9

ภาคผนวก 9

แบบแสดงความจำนงเข้าร่วมโครงการ การศึกษาการดำเนินชีวิตอย่างมีคุณภาพของผู้สูงอายุ

ผู้ตรวจสอบโครงการ Dr Deborah Turnbull

ผู้รับผิดชอบโครงการ ผศ. เกษร สำเภาทอง

1. ข้าพเจ้าได้รับคำอธิบายถึงลักษณะและวัตถุประสงค์ของโครงการ เป็นที่เรียบร้อยแล้ว
ข้าพเจ้ามีความเข้าใจ และยินดีเข้าร่วมโครงการ
2. ข้าพเจ้าเข้าใจดีว่า โครงการนี้อาจไม่ก่อประโยชน์โดยตรงแก่ข้าพเจ้า แต่ข้อคิดเห็นของ
ข้าพเจ้าที่ให้แก่โครงการนี้ จะเป็นประโยชน์ในการพัฒนารูปแบบเพื่อส่งเสริมสุขภาพประชากรผู้
สูงอายุต่อไป
3. ข้าพเจ้าเข้าใจดีว่า ข้อคิดเห็นของข้าพเจ้าที่ให้แก่โครงการนี้ จะถูกเผยแพร่ในภาพรวมโดยไม่
ระบุตัวบุคคล และข้อมูลส่วนตัวของข้าพเจ้าจะได้รับการปกปิด
4. ข้าพเจ้าเข้าใจดีว่า ข้าพเจ้าสามารถออกจากโครงการได้ตลอดเวลา โดยไม่กระทบต่อการรักษา
พยาบาลของข้าพเจ้า ในขณะนี้หรือในอนาคต
5. ข้าพเจ้าเข้าใจดีว่า ข้อคิดเห็นของข้าพเจ้าที่ให้แก่โครงการนี้ จะไม่มีผลกระทบต่อการรักษา
พยาบาล หรือกิจกรรมใดๆก็ตามที่ข้าพเจ้าจะได้รับจากโรงพยาบาล

ชื่อผู้ร่วมโครงการ.....

ลายเซ็น.....

วันที่.....

ข้าพเจ้าขอยืนยันว่าได้อธิบายโครงการแก่ผู้สูงอายุอย่างละเอียด และผู้สูงอายุมีความเข้าใจโครงการเป็นอย่างดี

ลงชื่อ ผู้รับผิดชอบโครงการ

Appendix 10: Information Sheet for Individual Interviews

Study Information Sheet

Active Living Study

This is an invitation to you to take part in a study which aims to understand active living among older people such as yourself, in order to develop a model to encourage the elderly to be more active which will bring good health, independence and quality of life for the elderly. We are asking a small number of elderly people if they would like to take part in the study.

The study is being run by the Department of Public Health at the University of Adelaide, Australia. The researcher who will be conducting the study is Ms Kaysorn Sumpowthong. Ms Kaysorn is currently completing a Doctor of Philosophy in Public Health at the University of Adelaide.

We are asking a small number of the elderly to participate in an individual interview to talk about active living. Information obtained from these interviews will be used to modify a questionnaire. We will also ask you if these interviews may be noted by the research team.

Please be assured that your confidentiality will be maintained at all times. If you agree to be involved in the study, your name and details will be kept strictly confidential and will not be published.

While the study will not benefit you directly, the information you provide will be of real help in promoting active living for the aged population. Your answers will not affect your medical care or your activities in any way.

You are under no pressure to join the study and you can drop out at any time.

If you would like to participate in the interview, all you need to do is read all of the information contained in this letter and complete the associated consent form.

You are free to speak with a family member or friend about this information.

If you have any further questions you can contact the project coordinator, Ms Kaysorn Sumpowthong on 5

Appendix 10

ภาคผนวก 10

เอกสารแนะนำโครงการ การศึกษาการดำเนินชีวิตอย่างมีคุณภาพของผู้สูงอายุ

เอกสารนี้เป็นเอกสารแนะนำ และเรียนเชิญท่านเข้าร่วมโครงการ ซึ่งมีวัตถุประสงค์ เพื่อทำความเข้าใจการดำเนินชีวิตอย่างมีคุณภาพของผู้สูงอายุ อันจะนำไปสู่การพัฒนารูปแบบการส่งเสริมการดำเนินชีวิตอย่างเหมาะสม, มีสุขภาพดี, มีความเป็นอิสระ และมีคุณภาพชีวิตที่ดี ดังนั้นเราจึงต้องการผู้สูงอายุจำนวนหนึ่งเข้าร่วม โครงการ

โครงการนี้ดำเนินการโดย ภาควิชาสาธารณสุขศาสตร์ แห่งมหาวิทยาลัยอติเลด ประเทศออสเตรเลีย ผู้ช่วยศาสตราจารย์ เกษร สำภาทอง ซึ่งกำลังศึกษาระดับปริญญาเอก สาขาการส่งเสริมสุขภาพ ณ มหาวิทยาลัยแห่งนี้ เป็นนักวิจัยผู้รับผิดชอบโครงการ

ผู้สูงอายุที่สนใจเข้าร่วมโครงการ จะมีโอกาสได้ร่วมแสดงความคิดเห็นต่อประเด็นสำคัญของงานวิจัย โดยใช้การพูดคุยกับนักวิจัย ซึ่งใช้เวลาประมาณ 1 ชั่วโมง ข้อมูลที่ได้จากท่านจะถูกนำไปใช้ในการพัฒนาเครื่องมือ และแบบประเมิน ซึ่งมีความสำคัญยิ่งต่อความสำเร็จของงานวิจัย หากท่านยินดีเข้าร่วมโครงการ เราใคร่ขออนุญาตบันทึกข้อคิดเห็นของท่านและจะนำไปใช้ให้เกิดประโยชน์ต่อประชากรผู้สูงอายุ โดยที่ ข้อมูลส่วนตัวของท่านจะได้รับการปกปิด และไม่มีมีการเผยแพร่แต่อย่างใด

เราขอชี้แจงให้ท่านทราบว่า โครงการนี้อาจไม่ก่อประโยชน์แก่ท่านโดยตรง แต่ข้อมูลและความคิดเห็นของท่านจะเกิดประโยชน์อย่างแท้จริงต่อการส่งเสริมการดำเนินชีวิตอย่างมีคุณภาพในประชากรผู้สูงอายุ การร่วมโครงการนี้จะไม่เกิดผลกระทบต่อการรักษาพยาบาล หรือ การร่วมกิจกรรมกับโรงพยาบาลของท่านแต่อย่างใด ดังนั้นท่านจึงสามารถตัดสินใจเข้าร่วมโครงการได้อย่างอิสระ

หากท่านสนใจเข้าร่วมโครงการซึ่งจะก่อให้เกิดประโยชน์ต่อส่วนรวมในครั้งนี้ โปรดอ่านรายละเอียด และลงนามในเอกสารที่แนบมาพร้อมนี้

หากท่านมีข้อสงสัยประการใด โปรดสอบถามรายละเอียดเพิ่มเติมได้ที่ ผู้ช่วยศาสตราจารย์ เกษร สำภาทอง โทร และขอพบพระคุณมา ณ. โอกาสนี้

Appendix 11: Questionnaire for telephone interviews

Interview Schedule for Active Living Survey

THE UNIVERSITY OF ADELAIDE - DEPARTMENT OF PUBLIC HEALTH

ACTIVE LIVING STUDY

ID No.

Date of interview

Introduction:

Hello, I am Kaysorn Sumpowthong from the Department of Public Health, at the University of Adelaide. Your telephone number has been selected at random for a survey about how older people spend their time. Would you please tell me how many people aged 60 years and over in your household?

IF NONE: THANK PERSON. STOP.

IF ONE ONLY, SEEK INTERVIEW WITH HIM or HER.

IF MORE THAN ONE, ASK: Who are the youngest (or oldest for alternation) person among them? SEEK INTERVIEW WITH THIS PERSON.

WHEN SPEAKING TO THE RIGHT PERSON: - REPEAT INTRODUCTION.

ADD= Your participation will ultimately help us to understand the health of Thai people and also your information will be used in the future to promote the health and well being of the elderly. So please feel free to answer these questions. There is no right or wrong answer and please be assured that your confidentiality will be maintained at all times. The interview will take about 20 minutes – perhaps a little less. Just before we start; can I check that the number I dialed was (READ OUT NUMBER). IF INCORRECT, TERMINATE.

Q 1 First, I'd like to ask you some questions about a number of activities in which you may participate. I want you to tell me how often you participate in each activity in a typical 2-month period. So it could be from May until now. How often do you prepare the main meals? (You prepare and cook breakfast, lunch or dinner. Not snacks).

Never	0
Less than once a week	1
Once or twice a week	2
Almost everyday	3

Q2 How often do you wash the dishes and other tableware? (You do it alone or equally share the task with others).

Everyday	3
Almost everyday	2
Once or twice a week	1
Less than once a week	0

Q3 How often do you wash the clothes yourself? (You hand wash and dry, machine wash or send it to the cleaner).

Never	0
About once a month	1
About once a fortnight	2
About once a week or more	3

Q4 How often do you do light housework? (Cleaning, dusting, and rearranging things in place).

Several times a week	3
About once a week	2
Every fortnight or less	1
Never	0

Q5 How often do you do more physically demanding housework? (Removing rubbish, cleaning bathroom, windows, floor or rearranging tables and chairs).

Never	0
About once a month	1
About twice a month	2
Once a week or more	3

Q6 How often do you do unpaid work (like volunteer work) or paid work?

More than five days a week	3
Two to five days a week	2
One day a week	1
Not at all or once in a while	0

Q7 How often do you look after your family members? (Caring for a sick relative, baby sitting, looking after your spouse or visiting a sick relative).

Never	0
About once a month	1
About twice a month	2
Once a week or more	3

Q8 How often do you do your household shopping? (Planning and going to buy household articles, food, fruit and vegetables and paying utility bills).

Once a week or more	3
About twice a month	2
About once a month	1
Never	0

Q9 How often do you shop for your own personal needs? (you actually plan and shop for your clothing, personal items and gifts)

Never	0
Once in three months	1
About once a month	2
Twice a month or more	3

Q10 How often do you do light gardening? (Sowing seeds, watering, potting, light pruning and sweeping leaves).

About once a week or more	3
About twice a month	2
About once a month	1
Never	0

Q11 How often do you do heavy gardening? (Digging, heavy pruning and mowing the lawn).

Never	0
About once a month	1
About twice a month	2
About once a week or more	3

Q12 How often do you do repair and maintenance work on your house or your car? (Cleaning gutters and downpipes, painting, repairing things around the house, replacing fuses, cleaning or repairing a car)

Twice a month or more	3
About once a month	2
Once in three months	1
Never	0

Q13 How often do you drive or travel some where on your own? (You arrange the trip, drive the car, or take a bus, a train or a taxi yourself).

Never	0
Up to once a month	1
Up to once a fortnight	2
Once a week or more	3

Q14 How often do you enjoy your hobby? (Something to stimulate both physical and mental activities such as knitting, arranging flowers, arts and crafts, cooking, sewing, playing, music and caring for pets).

More than once a week	3
About once a week	2
About once a month	1
Never	0

Q15 How often do you ring your friends or relatives? (You initiate the calls. Not just receiving the calls.)

Never	0
Three times a week or less	1
Four to ten times a week	2
More than ten times a week	3

Q16 How often do you have a chat with your neighbors or others in the village?

Once a week or more	3
About once a fortnight	2
About once a month	1
Never	0

Q17 How often do you join your social activities such as groups, clubs, community centers or training sessions?

Never	0
About once a month	1
About once a fortnight	2
Once a week or more	3

Q18 How often do you practice religious rituals such as going to the temple, making merit, listening to the sermons and worshipping the image of Lord Buddha?

Once a week or more	3
About once a fortnight	2
About once a month	1
Never	0

Q19 How often do you have activities outside the house such as having a meal, visiting a show or a trade fair, having an excursion or an educational trip?

Never	0
About once a month	1
About twice a month	2
Once a week or more	3

Q20 How often do you walk continuously for 1.5 km? (A continuous walk to cover the distance of 1.5 km or more that might require occasional short breaks along the way. The walk could be for any purposes.)

Almost everyday	3
About once a week	2
About twice a month	1
Once a month or less	0

Q21 How often do you exercise at home?

Never	0
About once a month or less	1
About twice a month	2
About once a week or more	3

Q22 How often do you join in group exercise?

- About once a week or more 3
 - About twice a month 2
 - About once a month or less 1
 - Never 0
-

Q23 Of all the physical activity you have taken part in or would like to have taken part in, what has been your favorite? (READ OUT 1-8 OR 8-1 CODE ROTATION)

- Swimming 1
 - Walking 2
 - Jogging 3
 - Cycling 4
 - Individual exercising 5
 - Group exercising 6
 - Dancing 7
 - None 8
 - Other(Please specify).....9
-

Q24 Apart from favourite physical activity, could you please tell me about your favourite leisure activity?

.....
.....

Q25 Now I'm going to read some statements about various attitudes and feelings which people have about their activities. We would like to know how you feel about such things. There are no right or wrong answers to these questions, rather we would like your opinion, so could you please say whether you agree or disagree with these statements. If you neither agree nor disagree say so as well. (If AGREE ASK: Is that agree or strongly agree. If DISAGREE ASK: Is that disagree or strongly disagree)

	SA	A	not sure	D	SD
a) <i>Being active is very important for the elderly</i>	5	4	3	2	1
b) <i>The elderly should rest more, rather than being active</i>	5	4	3	2	1
c) <i>Fitness activity in the elderly seems to be more dangerous than it is worth</i>	5	4	3	2	1
d) <i>I waste my time when I exercise</i>	5	4	3	2	1
e) <i>I feel good about my self when I exercise</i>	5	4	3	2	1
f) <i>I enjoy being active</i>	5	4	3	2	1
g) <i>I am worried to go out and exercise</i>	5	4	3	2	1
h) <i>Emotional problems can be coped with exercising</i>	5	4	3	2	1
i) <i>Being active is just for the young</i>	5	4	3	2	1
j) <i>Exercise is too much activity to do for the elderly</i>	5	4	3	2	1
k) <i>Being active can make a difference to your life</i>	5	4	3	2	1
l) <i>Benefits from being active are too slight to notice</i>	5	4	3	2	1
m) <i>Exercise regularly can prevent falls</i>	5	4	3	2	1
n) <i>Lack of information about being active makes the elderly more inactive</i>	5	4	3	2	1
o) <i>Feeling secure and safe in the community enables people to get out and exercise</i>	5	4	3	2	1
p) <i>Having friends makes it easy for the elderly to participate in any activities</i>	5	4	3	2	1
q) <i>The elderly are too busy to take part in any activities</i>	5	4	3	2	1
r) <i>Family plays an important role in encouraging the elderly to be more active</i>	5	4	3	2	1
s) <i>Exercising in public is embarrassing</i>	5	4	3	2	1
t) <i>The elderly are not motivated and can't get started</i>	5	4	3	2	1
u) <i>The cost for participating in an outdoor activity for the elderly is expensive</i>	5	4	3	2	1

Q 26 In general, would you say your health is? (READ OUT 1-5 or 1-5)

Excellent	5
Very good	4
Good	3
Fair	2
Poor	1

Q 27 How often do you visit your doctor? (READ OUT 1-3 OR 3-1, REPEAT IF NECESSARY)

Once a fortnight or more	1
About once a month	2
About every three months or less	3
Other (please specify.....)	4

Q 28 Where did you mostly visit your doctor?(READ OUT 1-5 OR 5-1)

Private clinic	1
Private hospital	2
Public hospital	3
Community health centre	4
Other (Please specify.....)	5

Q 29 Now I would like to talk to you about physical activity advice from doctors. This is when you visit your doctors to receive health services. Do you think your doctors pay attention to your physical activity?

Yes	1
No	2
Not sure	3

Q 30 Have you ever been given any verbal advice on increasing physical activity from them?

Yes	1	Ask Q 31
No	2	} Go to Q 32
Not sure	3	

Q 31 How much verbal advice would you say you have received? (READ OUT 1-3 OR 3-1)

Quite a lot	3
A moderate amount	2
Only a little	1

Q32 Do you think verbal advice on increasing physical activity from health professionals will motivate / motivates you to be more physically active?

Yes	1
No	2
Not sure	3

Q 33 Have you got any supporting materials such as brochures or pamphlet on increasing physical activity from health professionals?

Yes	1	Ask Q 34
No	2	Go to Q 35

Q 34 How much did this information help you to understand about increasing your physical activity? (READ OUT 1-4 OR 4-1)

Not at all	1
Only a little	2
Moderately	3
Very much	4

Q 35 Have you ever been given any written prescription for increasing your physical activity from your doctors?

Yes	1	Go to Q 36
No	2	Go to Q 37

Q 36 How much did it help you to be more active?

Not at all	1
Only a little	2

<i>Moderately</i>	3
<i>Very much</i>	4

Q 37 Have you heard or seen any the messages about promoting physical activity for the elderly?

<i>Yes</i>	1	<i>Ask Q 38</i>
<i>No</i>	2	<i>Go to Q 40</i>

Q 38 Where did you hear or see it? (Could be more than one answer)

	<i>Yes</i>	<i>No</i>
<i>a) TV</i>	1	2
<i>b) Radio</i>	1	2
<i>c) Newspaper or magazine</i>	1	2
<i>d) Billboard posters</i>	1	2
<i>e) Leaflets</i>	1	2
<i>f) Friends</i>	1	2
<i>g) Family</i>	1	2
<i>h) Health organization</i>	1	2
<i>i) Health provider</i>	1	2
<i>j) Other</i>	1	2

(Please specify).....

Q 39 How concerned did it make you about your physical activity?(READ OUT 1-3)

<i>Not at all</i>	1
<i>A little</i>	2
<i>Moderately</i>	3
<i>A lot</i>	4

Q 40 Now I am going to read you a list of facilities for helping people to take part in physical activity in your community – could you please say whether you have or haven't got this facility in your community. If you don't know say so as well.

	Yes	No	Don't know
a) Open space or park	1	2	3
b) Tree-shaded streets with footpaths	1	2	3
c) Gyms	1	2	3
d) Swimming pool	1	2	3
e) Playground	1	2	3
f) Recreation centre	1	2	3
g) Senior citizen club	1	2	3
h) Other	1	2	
i) please specify).....			

Q41 Would any of the following facilities encourage you to do more physical activities? (READ OUT 1-8) You may answer more than one.

	Yes	No	Not sure
a) Open space or park	1	2	3
b) Tree-shaded streets with footpaths	1	2	3
c) Gyms	1	2	3
d) Swimming pool	1	2	3
e) Playground	1	2	3
f) Recreation centre	1	2	3
g) Senior citizen club	1	2	3
h) Other	1	2	
i) Please specify.....			

Q 42 Now I would like to ask you some questions about the things that can help people to be more active. If you'd like to increase your physical activity, what type of help from your doctor would you prefer most?

- Verbal advice 1
- Written advice 2
- Individual counselling 3
- None 4
- Other 5

Q 42a Please specify.....

Q43 If you'd like to increase your physical activity, what type of help from your family would you prefer most?

- A family member to take part in physical activity with 1
- A family member provide a transportation 2
- An encouragement from family 3
- None 4
- Other 5

Q 43a Please specify.....

Q44 What type of media advice would you prefer most in order to help you to increase your physical activity?

- Advice over radio 1
- Advice over TV 2
- A physical activity " guideline" for the elderly sent through the mail 3
- A column on newspaper or magazine 4
- None 5
- Other 6

Q44a Please specify.....

Q 45 If you'd like to increase your physical activity, what type of help from your community would you prefer most?

- | | |
|--|---|
| A group of people to take part in physical activity with | 1 |
| A coordinator to organise the activity for the elderly | 2 |
| A leader in group exercise | 3 |
| None | 4 |
| Other | 5 |

Q45a Please specify.....

Q 46 Finally, I'd like to get some background information to be sure we have spoken to a representative cross-sectional survey of the elderly. If you do not wish to answer any of these questions, please do not hesitate to say so. We will simply move onto the next question.

Could you tell me your year of birth, please?

(If respondent can't remember year of birth, ask about Thai year and age)

Q 47 What is your ethnic status?

- | | |
|---------|---|
| Thai | 1 |
| Chinese | 2 |
| Other | 3 |

Q 47a Please specify

Q 48 What was the highest level of education you completed?

- | | |
|-----------------------------------|---|
| No schooling | 1 |
| Some schooling | 2 |
| Finish primary school | 3 |
| Some secondary school | 4 |
| Finish secondary school | 5 |
| Some tertiary certificate/Diploma | 6 |
| Degree | 7 |
| Refused | 8 |
-

Q 49 What is your current marital status?

Married	1
Widowed	3
Divorced	4
Separated	5
Never married	6

Q 50 Please tell me your occupation (If no working ask for last occupation)?

.....
50a Occupational scale(Specify by researcher)

50b Record Gender by researcher	Male	1
	Female	2

51. We would like to follow-up some people in the future. Would you mind if I ring you again to ask you some further questions?

Yes	1
No	2

IF YES ASK HIS OR HER NAME AND ADDRESS

.....
Thank Respondent For His or Her Co- operation

Follow Up Data sheet

We would like to follow-up some people in the future.

Would you mind if I ring you again to ask you some further questions?

<i>Yes</i>	<i>1</i>
<i>No</i>	<i>2</i>

IF YES ASK FOR HIS OR HER NAME AND ADDRESS

First name

Sure name

Address

.....

Postcode

Phone

Thank Respondent For His or Her Co-operation

Appendix 11

ภาคผนวก 11

Interview Schedule for Active Living Survey

THE UNIVERSITY OF ADELAIDE- DEPARTMENT OF PUBLIC HEALTH

Active Living Study

ID No.

--	--	--

Date interview

คำนำ :

สวัสดิ์คะ คิฉัน เกษร ต่าเภาทอง จาก ภาควิชา สาธารณสุขศาสตร์ มหาวิทยาลัย Adelaide Australia นะคะ เมอร์โทรศัพท์ของคุณได้รับเลือกโดยการสุ่ม ต่าหรับการสำรวจเกี่ยวกับการใช้เวลาในกิจกรรมประจำวันของผู้สูงอายุ ไม่ทราบว่าเมอร์โทรศัพท์เมอร์ที่มีอยู่อยู่อาศัยที่มีอายุตั้งแต่ 60 ปีขึ้นไปกี่คนคะ?

ถ้าไม่มี : ขอบคุณและจบการสัมภาษณ์

ถ้ามีหนึ่งคน: ขอพูดกับ That sample

ถ้ามีมากกว่าหนึ่งคน : ขอพูดกับคนที่อายุมากที่สุด (หรือคนที่อายุน้อยที่สุด สลับกันไป)

เมื่อได้พูดกับ Sample: กล่าวซ้ำคำนำอีกครั้ง " สวัสดิ์คะ คิฉัน เกษร ต่าเภาทอง จาก ภาควิชา สาธารณสุขศาสตร์ มหาวิทยาลัย Adelaide, Australia นะคะ เมอร์โทรศัพท์ของคุณได้รับเลือกโดยการสุ่ม เพื่อการสำรวจเกี่ยวกับการใช้เวลาในกิจกรรมประจำวันของผู้สูงอายุ คิฉันใคร่ขอความร่วมมือในการพูดคุยทางโทรศัพท์กับคุณ ถ้าคุณให้ความร่วมมือในการพูดคุยกับคิฉัน ซึ่งคงใช้เวลาประมาณ 20 นาที การพูดคุยของคุณก็จะเป็นประโยชน์ต่อการส่งเสริมสุขภาพของผู้สูงอายุในอนาคตนะคะ โดยที่ข้อมูลทั้งหมดจากคุณจะไม่มีการนำไปเผยแพร่เป็นการส่วนตัวแต่อย่างใด เราเพียงต้องการฟังความคิดเห็นจากคุณ และนำข้อมูลไปจัดทำโครงการส่งเสริมสุขภาพสำหรับผู้สูงอายุ ไม่ทราบว่า คุณจะสะดวกที่จะพูดคุยกับคิฉันตอนนี้ไหมคะ → ถ้าไม่สะดวกตอนนี้โปรดหมายเวลา ▶ record

▶ ถ้าสะดวก → Keep going

ก่อนที่จะเริ่มคิฉันขอทวนเมอร์โทรศัพท์ของคุณอีกครั้ง " คิฉันกำลังติดต่อกับโทรศัพท์หมายเลข.....ใช้ไหมคะ" ถ้าผิด เบนคุณ แต่จบของการสนทนา
ถ้าถูก เริ่มการสัมภาษณ์

Q1 เริ่มแรกคิฉันขอถามคุณเกี่ยวกับกิจกรรมในชีวิตประจำวัน, คิฉันอยากให้คุณตอบว่าคุณได้มีกิจกรรมเหล่านี้บ่อยแค่ไหน ขอให้คิดย้อนหลังไป 2 เดือน ก่อนหน้าวันนี้ คือตั้งแต่เดือน.....ถึงปัจจุบัน

คำถามแรก คุณทำอาหารมือหลักด้วยตัวคุณเองบ่อยแค่ไหน ในช่วง 2 เดือนที่ผ่านมา (หมายถึง ต้องเป็นผู้จัด
หา, จัดเตรียม และ ปูง ด้วยตนเอง สำหรับอาหารมือหลัก เช่น อาหารเช้า, กลางวัน หรือ เย็น ไม่ใช่อาหารว่าง)

ไม่เคย	0
น้อยกว่า 1 ครั้ง ต่อสัปดาห์	1
1-2 ครั้ง ต่อ สัปดาห์	2
เกือบทุกวัน	3

Q 2 คุณล้างจาน ซาม และภาชนะที่ใช้ในการรับประทานอาหาร บ่อยแค่ไหน ในช่วง 2 เดือนที่ผ่านมา (หมายถึง ทำด้วยตัวเองทั้งหมด หรือ ช่วยผู้อื่นอย่างเท่าๆ กัน)

น้อยกว่า 1 ครั้ง ต่อ สัปดาห์	0
1-2 ครั้ง ต่อ สัปดาห์	1
เกือบทุกวัน	2
Start → ทุกวัน	3

Q 3 คุณซักเสื้อผ้าด้วยตัวคุณเอง บ่อยแค่ไหน ในช่วง 2 เดือนที่ผ่านมา (หมายถึง ซัก และตากเสื้อผ้าของคุณเอง ไม่ว่าจะซักด้วยมือ, ใช้เครื่องซักผ้า หรือ จัดส่งเสื้อผ้าไปยังร้านซักรีด)

ไม่เคย	0
ประมาณเดือนละครั้ง	1
ประมาณทุก 2 สัปดาห์	2
ทุกสัปดาห์ หรือ มากกว่า	3

Q 4 คุณทำงานบ้านที่เป็นงานเบาๆ บ่อยแค่ไหน ในช่วง 2 เดือนที่ผ่านมา (ได้แก่ ถูบ้าน, เช็ด, ถู, บัดฝุ่น และ จัดข้าวของ ให้เป็นระเบียบ)

ไม่เคย	0
ทุก 2 สัปดาห์ หรือ น้อยกว่านั้น	1
ประมาณ สัปดาห์ ละ ครั้ง	2
Start → หลายครั้ง ต่อ สัปดาห์	3

Q 5 คุณทำงานบ้านที่เป็นงานหนัก บ่อยแค่ไหน ในช่วง 2 เดือนที่ผ่านมา (ได้แก่ นำขยะไปทิ้ง, ทำความสะอาดพื้น, ถูฝุ่น, ล้างหน้าต่าง, เคลื่อนย้ายเก้าอี้)

ไม่เคย	0
ประมาณเดือนละครั้ง	1
ประมาณเดือนละ 2 ครั้ง	2
สัปดาห์ละ ครั้ง หรือ มากกว่า	3

Q 6 คุณทำงานอาสาสมัคร หรือ งานที่มีค่าตอบแทนเพียงแค่วัน? ในช่วง 2 เดือนที่ผ่านมา

ไม่ได้ทำ หรือนานๆครั้ง	0
หนึ่งวันต่อ สัปดาห์	1
สองถึงห้าวันต่อ สัปดาห์	2
Start → มากกว่าห้าวันต่อ สัปดาห์	3

Q 7 คุณดูแลสมาชิกในครอบครัว ป่วยแค่ไหน? (ได้แก่ คุณญาติที่เจ็บป่วย, เลี้ยงเด็ก, ดูแลคู่สมรส, ไปเยี่ยมเพื่อนหรือญาติที่ป่วย) ในช่วง 2 เดือนที่ผ่านมา

ไม่เคย	0
ประมาณเดือนละครั้ง	1
ประมาณเดือนละ 2 ครั้ง	2
สัปดาห์ละครั้ง หรือมากกว่า	3

Q 8 คุณไปจับจ่าย ข้าวของเครื่องใช้ในครัวเรือน ด้วยตัวคุณเอง ป่วยแค่ไหน? ในช่วง 2 เดือนที่ผ่านมา
(หมายถึง การจัดการ และ เดินทางไปซื้อ อาหาร, ผัก, ผลไม้ และ ของใช้ต่างๆ รวมทั้ง การไปจ่ายเงินค่าอุปโภค, บริโภคของครอบครัว)

ไม่เคย	0
ประมาณเดือนละครั้ง	1
ประมาณเดือนละ 2 ครั้ง	2
Start → สัปดาห์ละครั้ง หรือมากกว่า	3

Q 9 คุณไปจับจ่ายซื้อของใช้ส่วนตัว ด้วยตัวคุณเองป่วยแค่ไหน? ในช่วง 2 เดือนที่ผ่านมา

(หมายถึงต้องมีบทบาทสำคัญในการจัดการ และซื้อด้วยตัวเอง เช่น ซื้อเสื้อผ้า, เครื่องใช้ส่วนตัว, ของขวัญ)

ไม่เคย	0
3 เดือน ต่อ ครั้ง	1
ประมาณ เดือนละ ครั้ง	2
เดือนละ 2 ครั้ง หรือ มากกว่า	3

Q 10 คุณทำสวนที่เป็นงานเบาๆ ป่วยแค่ไหน? ในช่วง 2 เดือนที่ผ่านมา (เช่น หว่านเมล็ดพืช, รดน้ำต้นไม้, กวาดทางเดิน, จัดแต่งไม้ หรือ ใส่ต้นไม้ลงกระถาง)

ไม่เคย	0
ประมาณเดือนละ ครั้ง	1
ประมาณเดือนละ 2 ครั้ง	2
Start → ประมาณสัปดาห์ละ ครั้ง หรือ มากกว่า	3

Q 11 คุณทำสวนที่เป็นงานหนัก ปอยแคไหน? ในช่วง 2 เดือนที่ผ่านมา (เช่น ขุดดิน, เล็มกิ่งไม้, ตัดหญ้า)

ไม่เคย	0
ประมาณเดือนละ ครั้ง	1
ประมาณเดือนละ 2 ครั้ง	2
ประมาณสัปดาห์ละ ครั้ง หรือ มากกว่า	3

Q 12 คุณซ่อมแซมบ้าน หรือ ซ่อมรถ ปอยแคไหน? ในช่วง 2 เดือนที่ผ่านมา (เช่น ล้างท่อ หรือ รางระบายน้ำ, ทาสี, ซ่อมแซมสิ่งของเล็กน้อยภายในบ้าน, เปลี่ยนฟิวส์, ล้างรถ, ซ่อมรถ)

ไม่เคย	0
ประมาณ 3 เดือน ครั้ง	1
ประมาณ เดือนละ ครั้ง	2
Start → เดือนละ 2 ครั้ง หรือ มากกว่า	3

Q 13 คุณขับรถ หรือ เดินทางไปที่ต่างๆ ด้วยตัวคุณเอง ปอยแคไหน? ในช่วง 2 เดือนที่ผ่านมา (หมายถึง การจัดการเรื่องการเดินทาง เช่น ขับรถเอง, โดยสารรถยนต์ หรือ รถไฟ, เรียกรถแท็กซี่ ซึ่งไม่รวมการเดินทางที่ผู้อื่นจัดการให้)

ไม่เคย	0
มากถึงเดือนละ ครั้ง	1
มากถึงเดือนละ 2 ครั้ง	2
สัปดาห์ละ ครั้ง หรือ มากกว่า	3

Q 14 คุณทำงานอดิเรก ปอยแคไหน? ในช่วง 2 เดือนที่ผ่านมา (หมายถึงงานที่ต้อง มีการเคลื่อนไหวร่างกาย และใช้ความคิด เช่น ถักนิตติ้ง, จัดดอกไม้, ประดิษฐ์สิ่งของ, เย็บผ้า, เล่นดนตรี, ทำอาหาร, ดูแลสัตว์เลี้ยง)

ไม่เคย	0
ประมาณเดือนละ ครั้ง	1
ประมาณสัปดาห์ละ ครั้ง	2
Start → มากกว่า สัปดาห์ละ ครั้ง	3

Q 15 คุณโทรศัพท์ไปหาเพื่อน หรือญาติ ปอยแคไหน? ในช่วง 2 เดือนที่ผ่านมา (หมายถึงคุณเป็นผู้โทรไป ไม่ใช่เป็นผู้รับโทรศัพท์)

ไม่ได้โทรเลย	0
โทร 3 ครั้ง ต่อ สัปดาห์	1
โทร 4 ถึง 10 ครั้ง ต่อ สัปดาห์	2
โทร มากกว่า 10 ครั้ง ต่อ สัปดาห์	3

Q 16 คุณออกไปคุยกับเพื่อนบ้านหรือคนในหมู่บ้านบ่อยแค่ไหน? ในช่วง 2 เดือนที่ผ่านมา

Start →	ไม่เคย	0
	ประมาณเดือนละครั้ง	1
	ประมาณเดือนละ 2 ครั้ง	2
	สัปดาห์ละ ครั้งหรือมากกว่า	3

Q 17 คุณร่วมกิจกรรมสังคม เช่น ไปชมรมต่างๆ, ไปสโมสร หรือศูนย์ต่างๆ ในชุมชนหรือไปเข้ารับการอบรมต่างๆ บ่อยแค่ไหน? ในช่วง 2 เดือนที่ผ่านมา

	ไม่เคย	0
	ประมาณ เดือนละ ครั้ง	1
	ประมาณ เดือนละ 2 ครั้ง	2
	สัปดาห์ละ ครั้งหรือมากกว่า	3

Q 18 คุณไปร่วมกิจกรรมทางศาสนา บ่อยแค่ไหน? (เช่นการไปวัด, การไปทำบุญ, การไปฟังเทศน์, การไปไหว้พระ) ? ในช่วง 2 เดือนที่ผ่านมา

Start →	ไม่เคย	0
	ประมาณ เดือนละ ครั้ง	1
	ประมาณ เดือนละ 2 ครั้ง	2
	สัปดาห์ละ ครั้งหรือมากกว่า	3

Q 19 คุณมีกิจกรรมนอกบ้าน บ่อยแค่ไหน? (เช่น ไปทานอาหารนอกบ้าน, ไปดูนิทรรศการหรืองานแสดงสินค้าต่าง, ไปทัศนจาร หรือไปทัศนศึกษา) ในช่วง 2 เดือนที่ผ่านมา

	ไม่เคย	0
	ประมาณเดือนละ ครั้ง	1
	ประมาณเดือนละ 2 ครั้ง	2
	สัปดาห์ละ ครั้ง หรือ มากกว่า	3

Q 20 คุณเดินประมาณ 15 นาที หรือ มากกว่านั้น บ่อยแค่ไหน? ในช่วง 2 เดือนที่ผ่านมา (หมายถึง เดินอย่างต่อเนื่องประมาณ 1.5 กิโลเมตร ซึ่งอาจมีหยุดพักระยะสั้นๆได้ และรวมถึงการเดินไปยังที่ต่างๆเพื่อจุดประสงค์ใดๆก็ตาม ถ้ามีระยะทางไกลประมาณ 1.5 กิโลเมตร หรือมากกว่า)

Start →	ประมาณเดือนละ ครั้ง หรือน้อยกว่า	0
	ประมาณเดือนละ 2 ครั้ง	1
	ประมาณสัปดาห์ละ ครั้ง	2
	เกือบทุกวัน	3

Q 21 คุณบริหารร่างกายที่บ้านบ่อยแค่ไหน? ในช่วง 2 เดือนที่ผ่านมา

- | | |
|---------------------------------|---|
| ไม่เคย | 0 |
| ประมาณเดือนละครั้ง | 1 |
| ประมาณเดือนละ 2 ครั้ง | 2 |
| ประมาณสัปดาห์ละครั้งหรือมากกว่า | 3 |

Q 22 คุณไปเข้ากลุ่มเพื่อออกกำลังกายบ่อยแค่ไหน? ในช่วง 2 เดือนที่ผ่านมา

- | | |
|---------------------------------|---|
| ไม่เคย | 0 |
| ประมาณเดือนละครั้ง | 1 |
| ประมาณเดือนละ 2 ครั้ง | 2 |
| ประมาณสัปดาห์ละครั้งหรือมากกว่า | 3 |

Start →

Q 23 ต่อไปนี้ฉันจะอ่านกิจกรรมการออกกำลังกายให้คุณฟัง อยากให้คุณช่วยบอก่ากิจกรรมไหนที่คุณชอบมากที่สุด

- | | |
|-----------------------|---|
| ว่ายน้ำ | 1 |
| การเดิน | 2 |
| การวิ่ง | 3 |
| ขี่จักรยาน | 4 |
| ออกกำลังกายด้วยตัวเอง | 5 |
| ออกกำลังกายในกลุ่ม | 6 |
| เต้นรำ | 7 |
| ไม่มีกิจกรรมใดที่ชอบ | 8 |
| อื่นๆ | 9 |

(23a) โปรดระบุ.....

Q 24 นอกจากกิจกรรมออกกำลังกายแล้ว อยากให้คุณบอกช่วยบอก่าคุณชอบทำอะไรที่เป็นกิจกรรมยามว่าง ซึ่งรวมทั้งกิจกรรมทางสังคมและงานอดิเรก?

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Q 25 ต่อไปนี้ดิฉันจะอ่านข้อความที่เป็นความคิดเห็นต่างๆไปเกี่ยวกับกิจกรรมในชีวิตประจำวัน เราอยากทราบว่า คุณมีความคิดเห็นอย่างไรต่อกิจกรรมเหล่านี้ คำตอบที่คุณให้ไม่มีถูกหรือผิด เราเพียงต้องการฟังความคิดเห็นของคุณ ดิฉันจะอ่านข้อความให้ฟังนะคะ แล้วให้คุณช่วยตอบว่า เห็นด้วย หรือไม่เห็นด้วย กับข้อความต่อไปนี้ ถ้าไม่แน่ใจก็ตอบว่าไม่แน่ใจนะคะ ไม่ต้องกังวลใจนะคะ ตอบได้ตามสบาย

(ถ้า sample ตอบว่า เห็นด้วย ให้ถามต่อไปว่า แค่เห็นด้วย หรือ เห็นด้วยอย่างมาก ถ้า sample ตอบว่าไม่ เห็นด้วย ให้ถามต่อไปว่า แค่ไม่เห็นด้วยหรือไม่เห็นด้วยอย่างมาก)

	เห็นด้วยอย่างมาก	เห็นด้วย	ไม่แน่ใจ	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างมาก
a) การดำรงชีวิตอย่างกระฉับกระเฉง มีชีวิตชีวา และมีการออกกำลังกาย มีความสำคัญอย่างมากต่อผู้สูงอายุ	5	4	3	2	1
b) ผู้สูงอายุควรจะพักผ่อนมากกว่าทำกิจกรรม	5	4	3	2	1
c) กิจกรรมการออกกำลังกายในผู้สูงอายุดูเหมือนจะมีอันตรายมากกว่าประโยชน์	5	4	3	2	1
d) คุณรู้สึกว่าเป็นการเสียเวลาเมื่อออกกำลังกาย	5	4	3	2	1
e) คุณรู้สึกสดชื่น มีชีวิตชีวาเมื่อออกกำลังกาย	5	4	3	2	1
g) คุณรู้สึกสนุกกับการมีกิจกรรมต่างๆในชีวิตประจำวัน	5	4	3	2	1
g) คุณรู้สึกกังวลเมื่อออกไปมีกิจกรรมนอกบ้านหรือออกไปเพื่อออกกำลังกาย	5	4	3	2	1
h) การออกกำลังกายช่วยแก้ไขปัญหาทางอารมณ์ได้	5	4	3	2	1
i) คนหนุ่มสาวเท่านั้นที่จะ เป็นผู้ที่มีกระฉับกระเฉง มีชีวิตชีวา และมีการออกกำลังกาย	5	4	3	2	1
j) การออกกำลังกายเป็นกิจกรรมที่มากเกินไปสำหรับผู้สูงอายุ	5	4	3	2	1
k) การเป็นผู้ที่มีกระฉับกระเฉง มีชีวิตชีวา และมีการออกกำลังกาย ทำให้สุขภาพมีการเปลี่ยนแปลงไปในทางที่ดีขึ้น	5	4	3	2	1
l) การเป็นคนกระฉับกระเฉง มีชีวิตชีวา และมีการออกกำลังกาย ให้ประโยชน์น้อยกว่าจะรู้สึกได้	5	4	3	2	1
m) การออกกำลังกายเป็นประจำช่วยป้องกันการหกล้มในผู้สูงอายุได้	5	4	3	2	1
n) การที่ผู้สูงอายุขาดการออกกำลังกายเนื่องจากการขาดข้อมูลความรู้, ความเข้าใจเกี่ยวกับการออกกำลังกาย	5	4	3	2	1
o) ความรู้สึกปลอดภัยในชุมชนมีส่วนช่วยให้ประชาชนออกจากบ้านเพื่อไปร่วมกิจกรรมและมีการออกกำลังกายมากขึ้น	5	4	3	2	1
p) การมีเพื่อนมีส่วนช่วยให้ผู้สูงอายุมีส่วนร่วมในกิจกรรมต่างๆ ได้ง่ายขึ้น	5	4	3	2	1
q) ผู้สูงอายุที่มีการศึกษามากเกินกว่าจะไปร่วมกิจกรรมต่างๆได้	5	4	3	2	1
r) ครอบครัวมีบทบาทสำคัญในการสนับสนุนให้ผู้สูงอายุมีกิจกรรมมากขึ้น	5	4	3	2	1

๑) การออกกำลังกายในที่สาธารณะทำให้ผู้สูงอายุรู้สึกกระตือรือร้น	5	4	3	2	1
๒) ผู้สูงอายุขาดการออกกำลังกายทำให้ไม่สามารถเริ่มต้นออกกำลังกายได้	5	4	3	2	1
๓) การเข้าร่วมกิจกรรมต่างๆของผู้สูงอายุมีค่าใช้จ่ายสูง	5	4	3	2	1

Q. 26 คำถามข้อต่อไปนี้จะดี โดยทั่วไปแล้วคุณคิดว่าสุขภาพของคุณเป็นอย่างไร?

ดีเยี่ยม	5
ดีมาก	4
ดี	3
ปานกลาง	2
ไม่ดี	1

Q 27 คุณไปพบแพทย์บ่อยแค่ไหน?

ทุก 2 สัปดาห์ หรือบ่อยกว่านั้น	1
ประมาณเดือนละครั้ง	2
ประมาณ 3 เดือนครั้ง	3
อื่นๆ	4
โปรดระบุ.....	

Q 27a

Q 28 ส่วนใหญ่คุณไปพบแพทย์ที่ไหน?

คลินิกเอกชน	1
โรงพยาบาลเอกชน	2
โรงพยาบาลของรัฐ	3
ศูนย์อนามัย	4
อื่นๆ	5
โปรดระบุ.....	

Q 28a

Q29 เวลาที่คุณไปพบแพทย์เพื่อรับการตรวจรักษา คุณคิดว่าแพทย์ให้ความสนใจเกี่ยวกับกิจกรรมการออกกำลังกายของคุณหรือไม่?

สนใจ	1
ไม่สนใจ	2
ไม่แน่ใจ	3

Q 30 คุณเคยได้รับคำแนะนำด้วยวาจาจากแพทย์เกี่ยวกับการเพิ่มกิจกรรมการออกกำลังกาย บ้างหรือไม่?

เคย	1	} ไปคำถามที่ 31 ไปคำถามที่ 32
ไม่เคย	2	
ไม่แน่ใจ	3	

Q 31 ที่คุณตอบว่าเคยได้รับคำแนะนำด้วยวาจาจากแพทย์ เกี่ยวกับการเพิ่มกิจกรรมการออกกำลังกายนั้น คุณคิดว่าคุณได้รับคำแนะนำมากน้อยเพียงใด?

มาก	3
ปานกลาง	2
เล็กน้อย	1

Q 32 คุณคิดว่าคำแนะนำด้วยวาจาจากแพทย์ที่เกี่ยวกับการออกกำลังกาย จะมีส่วนช่วยกระตุ้นให้คุณมีกิจกรรมการออกกำลังกายมากขึ้นหรือไม่?

ไม่มีส่วนช่วย	1
มีส่วนช่วย	2
ไม่แน่ใจ	3

Q 33 คุณเคยได้รับเอกสาร ที่เป็นคำแนะนำ เกี่ยวกับการเพิ่มกิจกรรมการออกกำลังกาย เช่น แผ่นพับ หรือ คู่มือต่างๆ จากบุคลากรทางการแพทย์บ้างไหมคะ?

เคย	1	ไปคำถามที่ 34
ไม่เคย	2	ไปคำถามที่ 35

Q 34 คุณคิดว่าเอกสารคำแนะนำที่คุณได้รับช่วยให้คุณมีความเข้าใจเกี่ยวกับการเพิ่มกิจกรรมการออกกำลังกาย มากน้อยแค่ไหน?

ไม่ช่วยให้เข้าใจเลย	1
ช่วยให้เข้าใจบ้างเล็กน้อย	2
ช่วยให้เข้าใจปานกลาง	3
ช่วยให้เข้าใจอย่างมาก	4

Q 35 คุณเคยได้รับคำแนะนำจากแพทย์เป็นลายลักษณ์อักษรที่เกี่ยวกับการเพิ่มการออกกำลังกายบ้างหรือไม่?

เคย	1	ไปคำถามที่ 36
ไม่เคย	2	ไปคำถามที่ 37

Q 36 คุณคิดว่าคำแนะนำจากแพทย์เป็นลายลักษณ์อักษรที่เกี่ยวกับการเพิ่มการออกกำลังกายมีส่วนช่วยให้คุณมีการออกกำลังกายเพิ่มขึ้นอย่างน้อยแค่ไหน?

- | | |
|------------------------|---|
| ไม่มีส่วนช่วยเลย | 1 |
| มีส่วนช่วยบ้างเล็กน้อย | 2 |
| มีส่วนช่วยปานกลาง | 3 |
| มีส่วนช่วยมาก | 4 |

Q 37 คุณเคยได้ยินหรือได้เห็นข้อความเกี่ยวกับการส่งเสริมการออกกำลังกายสำหรับผู้สูงอายุบ้างหรือไม่?

- | | | |
|--------|---|---------------|
| เคย | 1 | ไปคำถามที่ 38 |
| ไม่เคย | 2 | ไปคำถามที่ 40 |

Q 38 คุณเคยได้ยินหรือได้เห็นข้อความเกี่ยวกับการส่งเสริมการออกกำลังกายสำหรับผู้สูงอายุจากที่ไหน?

- | | | |
|----------------------------|-----|--------|
| | 1 | 2 |
| a) ทีวี | ใช่ | ไม่ใช่ |
| b) วิทยุ | ใช่ | ไม่ใช่ |
| c) หนังสือพิมพ์หรือนิตยสาร | ใช่ | ไม่ใช่ |
| d) ป้ายประกาศ | ใช่ | ไม่ใช่ |
| e) แผ่นพับ | ใช่ | ไม่ใช่ |
| f) เพื่อน | ใช่ | ไม่ใช่ |
| g) ครอบครัว | ใช่ | ไม่ใช่ |
| h) องค์กรทางสุขภาพ | ใช่ | ไม่ใช่ |
| i) มูลนิธิทางสุขภาพ | ใช่ | ไม่ใช่ |
| j) อื่นๆ | ใช่ | ไม่ใช่ |
| k) โปรดระบุ..... | | |

Q 39 คุณคิดว่าข้อความที่คุณได้ฟังหรือได้เห็นเกี่ยวกับการส่งเสริมการออกกำลังกายสำหรับผู้สูงอายุ มีส่วนทำให้คุณรู้สึกสนใจและอยากปฏิบัติเกี่ยวกับเรื่องเหล่านี้มากน้อยเพียงใด?

- | | |
|-----------------------------|---|
| ไม่รู้สึกสนใจอยากปฏิบัติเลย | 1 |
| สนใจอยากปฏิบัติเล็กน้อย | 2 |
| สนใจอยากปฏิบัติปานกลาง | 3 |
| สนใจอยากปฏิบัติมาก | 4 |

Q 40 ต่อไปนี้ดิฉันอยากให้คุณช่วยบอกว่าคุณมีสิ่งต่างๆเหล่านี้ในชุมชนหรือละแวกบ้านของคุณหรือไม่? ถ้าคุณ
ไม่ทราบก็ตอบว่าไม่ทราบนะคะ

	1	2	3
a) พื้นที่ว่างหรือสวนสาธารณะ	มี	ไม่มี	ไม่ทราบ
b) ถนนที่มีทางเดินเท้าและมีร่มเงา	มี	ไม่มี	ไม่ทราบ
c) อาคารสำหรับออกกำลังกาย	มี	ไม่มี	ไม่ทราบ
d) สระว่ายน้ำ	มี	ไม่มี	ไม่ทราบ
e) สนามเด็กเล่น	มี	ไม่มี	ไม่ทราบ
g) ศูนย์สันทนาการ	มี	ไม่มี	ไม่ทราบ
g) สโมสรหรือชมรมผู้สูงอายุ	มี	ไม่มี	ไม่ทราบ
h) อื่นๆ	มี	ไม่มี	
i) โปรดระบุ.....			

Q 41 จากสิ่งต่างๆเหล่านี้ คุณคิดว่ารายการไหนจะมี / มีส่วนช่วยให้คุณมีกิจกรรมทางกายมากขึ้น?

	1	2	3
a) พื้นที่ว่างหรือสวนสาธารณะ	มีส่วนช่วย	ไม่มี	ไม่แน่ใจ
b) ถนนที่มีทางเดินเท้าและมีร่มเงา	มีส่วนช่วย	ไม่มี	ไม่แน่ใจ
c) อาคารสำหรับออกกำลังกาย	มีส่วนช่วย	ไม่มี	ไม่แน่ใจ
d) สระว่ายน้ำ	มีส่วนช่วย	ไม่มี	ไม่แน่ใจ
e) สนามเด็กเล่น	มีส่วนช่วย	ไม่มี	ไม่แน่ใจ
g) ศูนย์สันทนาการ	มีส่วนช่วย	ไม่มี	ไม่แน่ใจ
g) สโมสรหรือชมรมผู้สูงอายุ	มีส่วนช่วย	ไม่มี	ไม่แน่ใจ
h) อื่นๆ			
i) โปรดระบุ.....			

Q42 ต่อไปนี้ดิฉันจะขอถามเกี่ยวกับสิ่งต่างๆที่คิดว่าจะมีส่วนช่วยให้คุณมีกิจกรรมการออกกำลังกายเพิ่มมากขึ้น
ประเด็นแรกเกี่ยวกับความช่วยเหลือจากแพทย์ คุณคิดว่าข้อใดจะมีส่วนช่วยให้คุณมีกิจกรรมการออกกำลังกาย
ได้มากที่สุดคะ? ถ้าคุณคิดว่าไม่มีข้อใดตรงกับความคิดเห็นของคุณ คุณก็สามารถระบุเป็นอย่างอื่นได้นะคะ
ดิฉันจะอ่านข้อเลือกให้ฟังนะคะ

คำแนะนำด้วยวาจาจากแพทย์	1
คำแนะนำเป็นลายลักษณ์อักษรจากแพทย์	2
การให้คำปรึกษาเป็นรายบุคคล	3
ไม่ต้องการความช่วยเหลือใดๆจากแพทย์	4
ต้องการความช่วยเหลืออย่างอื่น	5

Q 42 a โปรดระบุ.....

Q 43 คุณคิดว่าข้อใดที่คุณต้องการจากครอบครัวมากที่สุด? ที่เกี่ยวกับการสนับสนุนการเพิ่มกิจกรรมการออกกำลังกายนะคะ

- | | |
|--|---|
| สมาชิกในครอบครัวมีส่วนร่วมในกิจกรรมของคุณ | 1 |
| สมาชิกในครอบครัวให้การสนับสนุนเรื่องการเดินทาง | 2 |
| สมาชิกในครอบครัวให้การสนับสนุนและเป็นกำลังใจ | 3 |
| ไม่ต้องการการสนับสนุนใดๆจากครอบครัว | 4 |
| ต้องการการสนับสนุนอย่างอื่น | 5 |

Q43 a โปรดระบุ.....

Q 44 ต่อไปนี้เป็นข้อมูลหรือข่าวสารจากสื่อต่างๆ คุณคิดว่าต้องการข้อมูลจากประเภทใดมากที่สุดคะ? ที่จะมีส่วนช่วยให้คุณมีกิจกรรมการออกกำลังกายเพิ่มขึ้น

- | | |
|---|---|
| คำแนะนำทางวิทยุ | 1 |
| คำแนะนำทางโทรทัศน์ | 2 |
| คู่มือการออกกำลังกายสำหรับผู้สูงอายุส่งให้ทางไปรษณีย์ | 3 |
| ข้อมูลข่าวสารทางหนังสือพิมพ์ หรือนิตยสาร | 4 |
| ไม่ต้องการข้อมูลใด | 5 |
| ต้องการข้อมูลประเภทอื่นๆ | 6 |

Q 44a โปรดระบุ.....

Q 45 ข้อต่อไปนะคะ คุณคิดว่าคุณต้องการสิ่งใดมากที่สุดจากชุมชนของคุณเพื่อช่วยให้คุณสามารถมีกิจกรรมการออกกำลังกายได้?

- | | |
|---|---|
| ต้องการให้มีกลุ่มออกกำลังกายในชุมชน | 1 |
| ต้องการให้มีผู้ประสานงานการจัดกิจกรรมสำหรับผู้สูงอายุ | 2 |
| ต้องการให้มีผู้นำกลุ่มออกกำลังกาย | 3 |
| ไม่ต้องการสิ่งใดจากชุมชน | 4 |
| ต้องการสิ่งอื่น | 5 |

Q45 a โปรดระบุ.....

Q 46 ส่วนสุดท้ายแล้วนะคะ ดิฉันขอทราบข้อมูลส่วนตัวของคุณ ไม่ทราบจะสะดวกใจให้ข้อมูลได้ไหมคะ ถ้าคุณไม่สะดวกใจจะตอบ เราก็สามารถข้ามไปยังข้อต่อไปได้นะคะ

คุณเกิดปี พ.ศ. ๖๖๖๖.....

(ถ้าผู้ให้สัมภาษณ์ จำ พ.ศ. เกิด ไม่ได้ ให้ถาม อายุและ ปีเกิดที่เป็นปีไทย)

Q 47 คุณเชื้อชาติอะไรคะ?

- | | |
|-------|---|
| ไทย | 1 |
| จีน | 2 |
| อื่นๆ | 3 |

Q 47 a โปรดระบุ.....

Q 48 คุณจบการศึกษาสูงสุดระดับไหนคะ?

- | | |
|--|---|
| ไม่ได้เรียน | 1 |
| เรียนบ้างแต่ไม่จบประถมศึกษา | 2 |
| จบประถมศึกษา | 3 |
| เรียนมัธยมศึกษาแต่ไม่จบ | 4 |
| จบมัธยมศึกษา | 5 |
| เรียนระดับประกาศนียบัตรแต่ไม่ถึงปริญญา | 6 |
| เรียนถึงระดับปริญญา | 7 |
| ปฏิเสธที่จะตอบ | 8 |
-

Q 49 สถานะภาพการสมรสของคุณเป็นอย่างไรคะ?

- | | |
|------------|---|
| คู่ | 1 |
| หม้าย | 2 |
| หย่า | 3 |
| แยกกันอยู่ | 4 |
| โสด | 5 |
-

Q 50 คุณประกอบอาชีพอะไรคะ ? (ถ้าปัจจุบันไม่ได้ทำงาน ให้ถามถึงอาชีพสุดท้ายที่ทำ)

.....
Q 50 a Occupational Scale (Recorded by researcher).....

- | | | |
|--|--------|---|
| Q 50 b Gender (Recorded by researcher) | Male | 1 |
| | Female | 2 |
-

Q 51 ถ้าเราต้องการติดต่อคุณอีกในโอกาสต่อไป คุณจะยินดีให้เราติดต่อคุณไหมคะ?

- | | | |
|----------|---|------------------------------|
| ยินดี | 1 | (ใช้ follow up data sheet) |
| ไม่สะดวก | 2 | |

Thank Respondent for His or Her Co- operation

Appendix 12: Summary of questions related to themes of telephone interviews

Themes of telephone interviews	Questions	Number of questions
1. Physical activity	Q 1-24	24
2. Attitude towards active living	Q 25	1 (21 items)
3. Social and environmental determinants	Q 27-45	19
4. Perceived health and demographic	Q 26, Q 46-50	6

Appendix 13: Invitation letter



DEPARTMENT OF GENERAL PRACTICE
FACULTY OF HEALTH SCIENCES

Kaysorn Sumpowthong

PHYSICAL ADDRESS:
LEVEL 3 ELEANOR HARRALD BLD
ROYAL ADELAIDE HOSPITAL

POSTAL ADDRESS:
ADELAIDE UNIVERSITY SA 5005
AUSTRALIA

TELEPHONE +61 (08) 8303 6266
FACSIMILE +61 (08) 8303 3511

Kaysorn.sumpowthong@adelaide.edu.au

18 April 2002

Dear

You are invited to attend a community consultation meeting on promoting physical activity of the elderly through the hospital. The aim of this meeting is to discuss ways to promote physical activity and gain feedback on the proposed model of promoting physical activity in the hospital.

The meeting will be held on:

Date: 25 April 2002

Time: 1.30 pm.

Venue: Faculty of Nursing (Level 7), Thammasat University, Rangsit Campus.

Others attending will include doctors, nurses, health educators, social workers, public relation officers and representative from the senior citizens club.

The meeting has been organised following the collection and analysis of data in Thailand as part of Kaysorn's PhD thesis. I have enclosed a summary of results from current studies as background reading for the meeting so that the meeting time can be used effectively.

Please let me know by 21 April if you are able to attend by contacting me on

Should you be unable to attend, perhaps you could encourage an associate to come or else send your comments to me via

Fax:

Phone:

Address:

Email:

I look forward to working with you at the meeting

Sincerely

Kaysorn Sumpowthong



DEPARTMENT OF GENERAL PRACTICE

Appendix 13

ภาคผนวก 13



DEPARTMENT OF GENERAL PRACTICE
FACULTY OF HEALTH SCIENCES

Kaysom Sumpowthong
PhD candidate

PHYSICAL ADDRESS:
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วันที่ 18 เมษายน 2546

เรื่อง เชิญร่วมประชุม

เรียน

ด้วยดิฉันผู้ช่วยศาสตราจารย์เกษร สำเภาทอง อาจารย์คณะพยาบาลศาสตร์ มหาวิทยาลัยธรรมศาสตร์ ขอเรียนเชิญท่านเข้าร่วมประชุมแสดงความคิดเห็นต่อรูปแบบและแนวทางการส่งเสริมกิจกรรมทางกายของผู้สูงอายุ โดยมีวัตถุประสงค์การประชุมเพื่อรวบรวมข้อคิดเห็นจากผู้ที่มีส่วนเกี่ยวข้องนำไปเป็นประโยชน์ในการพัฒนารูปแบบและแนวทางการดำเนินงานดังกล่าวให้มีความเหมาะสมและสามารถนำไปปฏิบัติได้จริง

การประชุมมีรายละเอียดดังนี้

วันที่ 25 เมษายน 2546

เวลา 13.30 น.

สถานที่ ห้องประชุมคณะพยาบาลศาสตร์ ชั้น 7

ผู้เข้าร่วมประชุมประกอบด้วย แพทย์ พยาบาล นักสังคมสงเคราะห์ นักสุขภาพ และนักประชาสัมพันธ์ ตลอดจนตัวแทนจากชมรมผู้สูงอายุ และผู้สนใจ

การประชุมครั้งนี้เป็นส่วนหนึ่งของการศึกษาวิจัยในหลักสูตรปริญญาเอกสาขาการส่งเสริมสุขภาพ ณ The University of Adelaide ประเทศ ออสเตรเลีย ของ ผู้ช่วยศาสตราจารย์เกษร สำเภาทอง ซึ่งมีรายละเอียดเกี่ยวกับผลงานวิจัยและข้อมูลประกอบการประชุมดังเอกสารที่แนบมา

ในกรณีที่ท่านไม่สามารถเข้าร่วมประชุมได้ ขอความกรุณาส่งตัวแทนและ/หรือส่งเอกสารแสดงความคิดเห็นของท่านมายัง ผู้ช่วยศาสตราจารย์เกษร สำเภาทอง คณะพยาบาลศาสตร์ มหาวิทยาลัยธรรมศาสตร์ ต. คลองหนึ่ง อ. คลองหลวง จ. ปทุมธานี 10210 หรือ ติดต่อ ที่

จึงเรียนมาเพื่อทราบและโปรดเข้าร่วมประชุมด้วยจะเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์เกษร สำเภาทอง)

Appendix 14: Protocol for the community consultation

Promoting physical activity among the elderly: Community consultation

Tuesday 25 April 2002, 1.30 pm.

Faculty of Nursing (Level 7)

Thammasat University, Rangsit Campus

Patum Tani

Aim

The aim of the meeting is to discuss ways to increase physical activity among the elderly.

Rationale

Increasing age normally increases physical limitations, disabilities and chronic diseases. Physical activity is acknowledged as the way to improve and maintain good health, in particular for the elderly people. Promoting physical activity among the elderly is one of the most important health policies at both international and national levels. Increasing physical activity among the elderly can decrease disabilities and promote healthy ageing which lead to improve a quality of life and well being of older adults.

Background

In accordance with most countries, physical activity of the elderly in Bangkok is low. A random telephone survey of over 143 older adults in north east of Bangkok in

August 2000 showed that more than 80% of the participants did not engage in important activities such as social and fitness activities during the past two months prior to the survey. In addition, almost a half of them felt worried to go out and about and thought that 'Being active is just for the young'.

In this same survey, the participants reported that their most preferred physical activity were walking, gardening and caring for pets. They also mentioned that they wanted verbal advice from health professionals, media advice on TV, and encouragement from their family concerning physical activity. Supportive environments such as recreational centres and open spaces or parks, activity information, and having friends were found to be associated with engaging in physical activity among the elderly.

The survey confirmed the findings from previous focus groups held at a community health centre and a general hospital in Bangkok in February 2000 that health problems, unfavourable attitudes, low self-efficacy, lack of support from family, friends and health professionals, unsafe environments and lack of supportive environment were barriers to active living. The participants also suggested that an appropriate program, which was free of charge, required little effort and was held in convenient places, would help them to engage more in physical activity. Furthermore, TV programs regarding healthy ageing would be appreciated, especially if the presenter on the program was an older person.

Promoting physical activity among the elderly has been an important policy of the Health Development Plan of 1997-2001 and 2002-2006 at both national and

provincial levels. In Bangkok, the Department of Health Promotion provides programs for promoting physical activity through a senior citizen club (SZC). There are 135 senior citizen clubs supported by the Bangkok Metropolitan Administrative (BMA). Previous discussion with the C.E.O. of the Department of Health Promotion highlighted that they are concerned about the programs particularly in relation to the coverage in the large area of Bangkok as well as the accessibility.

Promoting physical activity at the national level is organised by the Division of Exercise for Health under the management of the Bureau of Health Promotion, supervised by the Ministry of Public Health. Programs and services for promoting physical activity at the national level seems to be insufficient, in particular, interventions aimed at increasing physical activity at the community level rather than in clinical settings are required. In addition, as expressed by the participants of the focus groups, promoting active living through mass media campaigns had some limitations in terms of an inappropriate presenter and insufficient information about active living and promoting health for the elderly.

Questions to be discussed

- What do you do to promote physical activity among the elderly in the hospital?
- What do you think about the PAC model and its components?
- What are enabling factors and barriers to implementing the PAC model?
- What do you have to prepare for implementing the PAC model?
- How can we promote health professionals be interested in the PAC model regarding physical activity to the elderly?
- Who should be in charge of the PAC model?

- How can evaluate the PAC model?
- Who should be involved in implementing the PAC model?

Appendix 14

ภาคผนวก 14 การประชุมปรึกษาเรื่อง การส่งเสริมกิจกรรมทางกายสำหรับผู้สูงอายุ

วันที่ 26 เมษายน 2545 เวลา 13.30 น.

สถานที่ ห้องประชุมคณะพยาบาลศาสตร์ ชั้น 7

วัตถุประสงค์

เพื่อปรึกษาหาแนวทางและรับฟังข้อเสนอแนะต่อรูปแบบการส่งเสริมกิจกรรมทางกายสำหรับผู้สูงอายุทั้งในระดับสถานบริการสุขภาพ และระดับชุมชน

เหตุผลและความจำเป็น

ประชากรผู้สูงอายุในประเทศไทยมีจำนวนเพิ่มมากขึ้นอย่างรวดเร็ว ไม่แตกต่างจากประเทศอื่นๆ ในแถบตะวันตก โดยทั่วไปแล้วผู้สูงอายุมักประสบกับปัญหาสุขภาพ เช่น มีความพิการหรือข้อจำกัดทางกายจากการเสื่อม และโรคเรื้อรังต่างๆ การเพิ่มกิจกรรมทางกาย หรือการออกกำลังกายได้รับการยอมรับว่าเป็นวิธีที่ได้ผลในการส่งเสริมและพัฒนาภาวะสุขภาพของประชาชนทุกวัยให้ดีขึ้นโดยเฉพาะอย่างยิ่งผู้สูงอายุ ตลอดจนช่วยคงความสามารถทางกาย และป้องกันความพิการ

การส่งเสริมการมีกิจกรรมทางกายหรือการออกกำลังกายในผู้สูงอายุเป็นนโยบายทางด้านสุขภาพที่สำคัญของประเทศไทยและในระดับนานาชาติ อย่างไรก็ตามการดำเนินงานด้านนี้ในประเทศไทยยังขาดข้อมูลพื้นฐานที่เกี่ยวข้องและรูปแบบการดำเนินงานที่ชัดเจน

สถานการณ์ปัจจุบัน

ผลจากการสัมภาษณ์ทางโทรศัพท์ของผู้สูงอายุจำนวน 143 คนในเขตชานเมืองกรุงเทพฯ ในเดือนสิงหาคม 2543 พบว่าผู้สูงอายุมากกว่า 80% ไม่ได้มีส่วนร่วมในกิจกรรมสำคัญๆเลยในช่วง 2 เดือนก่อนมีการสัมภาษณ์ เช่น การเดินอย่างต่อเนื่องเป็นเวลาตั้งแต่ 15 นาทีขึ้นไป, การบริหารร่างกายด้วยตัวเอง, การออกกำลังกายในกลุ่ม และ กิจกรรมทางสังคม เช่น ไปร่วมกิจกรรมชมรมต่างๆ หรือพบปะผู้อื่น นอกจากนี้การสำรวจยังพบว่าผู้สูงอายุมากกว่า 50% รู้สึกกังวลกับการออกไปมีกิจกรรมเช่นการเดินนอกบ้าน และ การเดินทาง ผู้สูงอายุส่วนหนึ่งคิดว่าการมีกิจกรรมทางกายมาก (Active) เป็นเรื่องของหนุ่มสาวเท่านั้น

ผลจากงานสำรวจเดียวกันนี้ยังพบว่ากิจกรรมการออกกำลังกายที่ผู้สูงอายุชอบคือการเดิน รองลงมาคือการปลูกต้นไม้ รดน้ำต้นไม้ และการดูแลสัตว์เลี้ยง ผู้สูงอายุระบุว่า ต้องการคำแนะนำจากบุคลากรทางแพทย์ในเรื่องการออกกำลังกาย, ต้องการให้มีการเผยแพร่ความรู้เกี่ยวกับการออกกำลังกายสำหรับผู้สูงอายุ ทางทีวี และต้องการให้ครอบครัวให้การสนับสนุนในเรื่องเหล่านี้ การมีเพื่อน, การได้รับข้อมูลข่าวสาร และการมีศูนย์นันทนาการ ตลอดจน การมีส่วนร่วมสาธารณะ หรือที่ว่างในชุมชน มีความสัมพันธ์กับการมีกิจกรรมทางกายของผู้สูงอายุ

ผลจากการสำรวจครั้งนี้มีความสอดคล้องกับการผลการประชุมกลุ่มผู้สูงอายุจำนวน 4 กลุ่มที่ศูนย์สาธารณสุข และ ที่โรงพยาบาลทั่วไป ในเขต กทม ใน เดือน กุมภาพันธ์ 2543 ที่พบว่าอุปสรรคในการมีกิจกรรมของผู้สูงอายุคือ ปัญหาสุขภาพ, การมีทัศน

บุคคลไม่เหมาะสม, ความรู้สึกขาดความเชื่อมั่นในความสามารถของตนเอง, ขาดการสนับสนุนจากครอบครัวและบุคลากรทางแพทย์ ตลอดจนปัญหาเรื่องสภาพแวดล้อมที่ไม่เอื้ออำนวยต่อการมีกิจกรรม ผู้สูงอายุที่เข้าร่วมประชุมกลุ่มได้เสนอแนะให้มีการส่งเสริมการมีกิจกรรมสำหรับผู้สูงอายุโดยเน้นที่การจัดกิจกรรมที่เหมาะสม เช่น ไม่เสียค่าใช้จ่าย, และสะดวกต่อการเข้าร่วมกิจกรรม ควรมีการณรงค์และประชาสัมพันธ์ทางทีวีให้ผู้สูงอายุเป็นแบบในการนำเสนอ

การส่งเสริมการมีกิจกรรมสำหรับผู้สูงอายุเป็นสาระสำคัญของนโยบายการส่งเสริมสุขภาพผู้สูงอายุของแผนพัฒนาฉบับที่ 8 (2540-2544) และ 9 (2545-2549) ตลอดจนเป็นแผนพัฒนาผู้สูงอายุในแผนผู้สูงอายุแห่งชาติฉบับที่ 2 (2545-2564) การส่งเสริมสุขภาพผู้สูงอายุในเขตกรุงเทพมหานครดำเนินกิจกรรมโดยกองส่งเสริมสุขภาพ สำนักอนามัย กรุงเทพมหานคร โดยจัดกิจกรรมผ่านชมรมผู้สูงอายุ ซึ่งในปัจจุบันมีจำนวน 135 ชมรม ภายใต้ความรับผิดชอบของ โรงพยาบาล และศูนย์บริการ สาธารณสุขในสังกัดกรุงเทพมหานคร นอกจากนี้โรงพยาบาลในสังกัดทบวงมหาวิทยาลัย กระทรวงกลาโหมและกระทรวงมหาดไทยยังได้ร่วมกันให้บริการแก่ผู้สูงอายุในเขตกรุงเทพมหานครด้วยเช่นกัน อย่างไรก็ตามข้อจำกัดของการดำเนินงานอยู่ที่ความครอบคลุมและประสิทธิภาพของกิจกรรม

การส่งเสริมการมีกิจกรรมทางกายของผู้สูงอายุในระดับประเทศ ดำเนินการโดยส่วนออกกำลังกายเพื่อสุขภาพ สำนักส่งเสริมสุขภาพ กรมอนามัย กระทรวงสาธารณสุข การบริการด้านนี้โดยกระทรวงสาธารณสุขมีความคล้ายคลึงกับการดำเนินงานของกรุงเทพมหานคร คือเน้นที่การการจัดตั้งชมรมผู้สูงอายุขึ้นในชุมชนและจัดกิจกรรมต่างๆผ่านชมรมผู้สูงอายุ ข้อจำกัดของการดำเนินงานที่ปรากฏชัดเจนคือความครอบคลุมและประสิทธิภาพของกิจกรรม นอกจากนี้ และเป็นที่ยอมรับโดยทั่วไปว่า สิ่งแวดล้อมที่เหมาะสมมีส่วนช่วยเอื้อให้ประชาชนมีพฤติกรรมสุขภาพที่เหมาะสมได้ ดังนั้นการประสานความร่วมมือระหว่างหน่วยงานที่เกี่ยวข้องเพื่อให้มีการปรับปรุงสิ่งแวดล้อมให้เอื้อต่อการมีกิจกรรมของผู้สูงอายุจึงเป็นสิ่งจำเป็น และยังไม่มียุทธศาสตร์การดำเนินงานที่ชัดเจนในประเทศไทย

การประชุมปรึกษาครั้งนี้เป็นการนำเสนอรูปแบบการส่งเสริมกิจกรรมทางกายสำหรับผู้สูงอายุทั้งในระดับสถานบริการสุขภาพและระดับชุมชน โดยผู้วิจัยได้พัฒนารูปแบบดังกล่าวจากทฤษฎีความรู้ว่าข้อมูลจากทั้งในประเทศและต่างประเทศ ผสมกับข้อคิดเห็นจากผู้สูงอายุโดยตรง ข้อคิดเห็นที่ได้จากการประชุมปรึกษาครั้งนี้จะนำไปใช้ในการพัฒนาปรับปรุงรูปแบบการส่งเสริมกิจกรรมทางกายสำหรับผู้สูงอายุให้มีความเหมาะสมและสามารถนำไปใช้ได้จริงในบริบทของสังคมไทย

Questions to be discussed

1. ในปัจจุบันนี้มีการดำเนินงานด้านการส่งเสริมกิจกรรมทางกายสำหรับผู้สูงอายุในโรงพยาบาลอย่างไรบ้าง?
2. คุณคิดอย่างไรเกี่ยวกับรูปแบบการส่งเสริมกิจกรรมทางกาย (PAC) สำหรับผู้สูงอายุในโรงพยาบาล?

3. สภาพการดำเนินงานปัจจุบันมีอะไรเป็นอุปสรรค และอะไรเป็นปัจจัยเอื้อ ต่อ PAC บ้าง?
4. ทำอย่างไรจึงจะมีการดำเนินงาน PAC ในโรงพยาบาล?
5. ทำอย่างไรบุคลากรทางสุขภาพจึงจะให้ความสนใจการส่งเสริมกิจกรรมทางกายสำหรับผู้สูงอายุโดยเฉพาะอย่างยิ่ง PAC?
6. คุณมีความคิดเห็นอย่างไรต่อ Key strategies ใน Model นี้?
7. ถ้าจะมีการดำเนินงาน PAC คุณคิดว่าเราควรมีการฝึกอบรมบุคลากรในเรื่องใดบ้าง?
8. หน่วยงานใดในโรงพยาบาลควรเป็นหน่วยงานที่รับผิดชอบในเรื่องนี้?
9. ใครควรเป็นผู้รับผิดชอบดำเนินการในเรื่องนี้? แพทย์ พยาบาล นักศึกษา นักสังคมสงเคราะห์
10. ชมรมผู้สูงอายุในโรงพยาบาลจะมีส่วนร่วมใน PAC ได้อย่างไร?

Appendix 15: Conference abstracts



*Australian Association of Gerontology SA/NT Division
Metropolitan Domiciliary Care Services
GeriAction SA Branch*

2001 Conjoint Scientific Meeting and Dinner

Ageing - Things ain't what they used to be!

Thursday 21st June, 2001

Hahndorf Resort
145a Main Street
HAHANDORF South Australia

2001 Conjoint Scientific Meeting and Dinner

Physical and Social Activity Assessment: The Development of an Instrument Across Cultures

Kaysorn Sumpowthong and Deborah Turnbull
University of Adelaide

It is widely accepted that physical and social activities are important and related to health and quality of life. The Adelaide Activities Profile (AAP) (Clark & Bond 1995) has been used to provide a clear picture of lifestyle activity of the elderly in Australia. However, using the AAP across cultures requires more than simple translation because one needs to meet the cultural sensitivity and true meaning in the translated language. This study demonstrates a way to modify the AAP so that it can be used in the Thai culture. A 21-item scale of the AAP was modified into the Thai language by using a 4-step cross-cultural adaptation technique: (1) translation, (2) pilot-testing, (3) back-translation and (4) committee review (Guillemin et al 1993).

Four focus groups (22 participants), individual interviews (23 respondents) and telephone interviews (n=143) were conducted in Thailand to obtain data to ascertain content, face and construct validity of the modified AAP. Subsequent analyses included a factor analysis (for construct validity) and a Cronbach's alpha (for internal consistency). The results of this study indicated that the above techniques were appropriate to produce an equivalent instrument applied to a different culture. The significance of the study is not only to provide an appropriate scale for assessing activities across culture but also to contribute to the investigation of cross-cultural differences regarding physical and social activities.

KEYWORDS: physical and social activities, the elderly, culture, instruments



Public Health Odyssey

Popular Culture, Science
& Politics

Program and Abstracts

23-26 September 2001
Hilton Hotel,
259 Pitt St
Sydney



33rd Public Health Association of Australia
Annual Conference

Poster Abstracts - Tuesday 25 September 4.30 pm - 5.30 pm

20. Poster Abstract: Interrelationships between risk factors for chronic diseases

Presenter

& Author:

Dr Kuldeep Bhatia, Health Monitoring and Development Unit, Australian Institute of Health and Welfare

A variety of behavioural, physiological, biochemical, immunological, environmental and genetic risk factors are implicated in the initiation and maintenance of chronic diseases. Prominent among these are tobacco use, physical inactivity, overweight and obesity, high blood pressure, high blood cholesterol and diabetes. Many of these risk factors may be defined as intermediaries or proximal in that their causal relationship with chronic diseases is reasonably close. On the other hand, several risk factors exist or operate distally with their role in chronic disease onset and maintenance less well understood and often followed by an intermediary risk factor. The clustering of some of the risk factors in individuals or populations more often suggests that there may be a common basis to several of these risk factors. A model outlining interrelationships between various risk factors for chronic diseases will be presented.

21. Poster Abstract: The development of a standard data collection form for Victorian breastfeeding clinics

Presenter:

Authors:

Ms Ruth Bergman, Effective Discharge Strategy, Royal Women's Hospital, La Trobe University
Ruth Bergman, Lisa Amir and Lyn Watson

Objectives:

1. To identify breastfeeding clinics in Victoria
2. To design a standard collection form for descriptive data on mothers and babies attending breastfeeding clinics.

Background:

Since 1994, breastfeeding support services have been established by maternity hospitals. This was in response to a perceived gap in service delivery for women going home with new babies following a decrease in length of stay in hospital. It is believed these clinics fulfil an important support and educational role, however currently it is not known how many clinics are in existence in Victoria, nor the model of service provided.

Research Method:

1. Survey of all Victorian maternity hospitals during September 2000.
2. Formation of a collaborative steering group to design a minimum data set.

Results:

The baseline survey, with a 93% response rate (76/82) from those working in post discharge breastfeeding services and maternity managers, indicated a strong interest.

1. The model of service provision offered was predominantly telephone counselling and clinic services (47%).
2. In general, the various services collect socio demographic data. Few services ask women about income and educational attainment.
3. Following a breastfeeding consultation, the most common method of recording information is in the medical record. Few services use a computer and those that do favour the Excel and Access programs.

Conclusion:

Currently 62% of hospitals use a registration form, however 82% of respondents believe there is a need for a standardised registration form.

On the strength of this overwhelming support, a steering group was formed to work together in developing a standard registration form for Victorian breastfeeding clinics.

The collaborative steering group has piloted the first draft of the registration form and is currently piloting the second draft.

22. Poster Abstract: Physical and social activity assessment: The development of an instrument across cultures

Presenter:

Authors:

Kaysorn Sumpowthong, Department of Public Health, Adelaide University
Kaysorn Sumpowthong and Deborah Turnbull

It is widely accepted that physical and social activities are important and related to health and quality of life. The Adelaide Activities Profile (AAP) (Clark & Bond 1995) has been used to provide a clear picture of lifestyle activity of the elderly in Australia. However, using the AAP across cultures requires more than simple translation because one needs to meet the cultural sensitivity and true meaning in the translated language. This study demonstrates a way to modify the AAP so that it can be used in the Thai culture. A 21-item scale of the AAP was modified into the Thai language by using a 4-step cross-cultural adaptation technique: (1) translation, (2) pilot-testing, (3) back-translation and (4) committee review (Guillemin et al 1993). Four focus groups (22 participants), individual interviews (23 respondents) and telephone interviews (n=143) were conducted in Thailand to obtain data to ascertain content, face and construct validity of the modified AAP. Subsequent analyses included a factor analysis (for construct validity) and a Cronbach's alpha (for internal consistency). The results of this study indicated that the above techniques were appropriate to produce an equivalent instrument applied to a different culture. The significance of the study is not only to provide an appropriate scale for assessing activities across culture but also to contribute to the investigation of cross-cultural differences regarding physical and social activities.



6th Global Conference on Ageing

Perth, Western Australia



COUNCIL ON THE AGEING 

Ref: 1316

26 July 2002

Mrs Kaysorn Sumpowthong
PhD Student

Dear Mrs Sumpowthong

Thank you for submitting an abstract for the International Federation on Ageing 6th Global Conference - Maturity Matters being held from the 27 - 30 October 2002, at the Burswood International Convention Centre.

We are pleased to confirm that your abstract has been accepted as an oral presentation. Please ensure all of the details below are correct.

Title:	INVESTIGATING ACTIVE LIVING OF THAI ELDERLY USING MODIFIED INSTRUMENT ACROSS CULTURES
Paper Status:	Accepted
Presentation Type:	Oral Presentation
Authors:	Ass pro Deborah Turnbull Mrs Kaysorn Sumpowthong (Presenter)

IF YOU WOULD LIKE TO DECLINE THE INVITATION TO PRESENT, PLEASE FORWARD YOUR WITHDRAWAL TO CONGRESS WEST IN WRITING BEFORE THE 9TH AUGUST 2002.

The abstract you submitted will be re-produced in the delegate handbook which will be distributed at the conference. If you wish to modify the document, change the author details or title of the presentation please do so before 9th August 2002 and e-mail it to ifa@congresswest.com.au

The Organising Committee wishes to emphasise that the condition of acceptance of your abstract is that the presenting author or co-author must register to attend the Conference. Please note that your oral presentation at the conference does not imply any financial reimbursement of fares, accommodation, registration fees or out of pocket expenses.

Formal session details and individual times will be communicated to you in the first week of September 2002.

Yours sincerely

Congress West
Conference Secretariat



Investigating active living of Thai elderly using modified instrument across cultures

Kaysorn Sumpowthong^{1*}, Deborah Turnbull², Phillip Ryan

¹PhD candidate, Department of Public Health, Ass. Pro. Deborah Turnbull, Department of General Practice & Department of Psychology, Faculty of Health Sciences and Ass Pro. Phillip Ryan, Department of Public Health, the University of Adelaide.

Abstract

The World Health Organization indicated that the overall trend towards physical inactivity is worse in very densely populated cities. This study aimed to investigate physical activity levels of Thai elderly living in the city of Bangkok by using an existing instrument (Adelaide Activities Profile) which was modified across cultures and to explore determinants of active living. A cross-sectional survey using telephone interviews was employed (response rate=71%). Participants (n=143) were randomly selected from residential telephone listings. The participants were asked how often they performed 19 physical activities during the last two months and about determinants of active living including personal, attitudinal, social and environmental factors. It was found that up to 61% of the elderly did not perform any activities during the past two months. Males were more active than females on social and fitness activities. The elderly who perceived their health as good or excellent were more active than those who perceived their health as poor. In addition, respondents seemed to have favorable attitudes towards physical activity. However, social and environmental determinants were significantly related to physical activity level, especially having friends and supportive environments. The significance of the study not only lies in its reflection of physical activity of the elderly Thais and its determinants but also in its potential to influence the development of policy and strategy.