Specialist Diploma in Nutrition & Health Education (2009/10)

CP0619 - PROJECT

Title: Health Benefits of the Sun and Yang Styles of Tai Chi - A Questionnaire Study

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CONTENTS

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The project team gratefully acknowledges the guidance given by our module project supervisor, Mr Maurice Ling from the School of Chemical and Life Sciences, Singapore Polytechnic and the help rendered by certified Tai Chi instructors of the People's Association of Singapore –in particular special thanks to two Sifus of the Sun and Yang styles of Tai Chi, Ms Gladys Tan and Ms Jennifer Chung for their invaluable support in this study.

Thanks also to the 50 dedicated practitioners of the Sun-Yang styles of Tai Chi who participated in this survey. Your spontaneous feedback in the survey deepened our understanding of the beneficial effects of the Sun-Yang styles of Tai Chi.

Finally, this study is dedicated to Tai Chi practitioners everywhere.

ABSTRACT

Tai Chi is gaining popularity as an intervention for reducing falls and improving general health. Practicing Tai Chi on regular basis has also been linked to stress reduction, lower blood pressure and helps to correct posture, balance, flexibility and mind alertness.

This main aim of this pilot study by questionnaire was to provide some insight on the benefits to Tai Chi practitioners (in particular the Sun and Yang styles) in 4 key areas of health concerns:

1. physical fitness, balance and fall prevention,
2. cardiorespiratory fitness,
3. resistance to common ailments, and
4. stress reduction.

The project team was also interested to know if Tai Chi could improve one's sleep pattern.

A survey was conducted at two community centres, three public parks and one private country club where these styles of Tai Chi were practised. 50 practitioners age ranging from 18 to 76 participated in this survey.

Results from the survey suggested strongly the experience of stress reduction, improved resilient to common ailments, increased strength, greater flexibility and coordination, improved balance, improved cardiorespiratory function and sleep enhancement among practitioners of the Sun-Yang style of Tai Chi.

Our survey results also suggested overwhelmingly that Tai-Chi did indeed benefit the participants in the areas of sleep and mental stability as well.

1. INTRODUCTION

According to Dr Don Ardell of Buffalo University, wellness is first and foremost a choice to assume responsibility for the quality of your life. It begins with a conscious decision to shape a healthy lifestyle. Wellness is a mind set, a predisposition to adopt a series of key principles in varied life areas that lead to high levels of well-being and life satisfaction.

Charles B. Corbin of Arizona State University defines *wellness* as "a multidimensional state of the existence of positive health in an individual as exemplified by quality of life and a sense of well-being." (Corbin et al., 2008)

Wellness is an active process of becoming aware of and making choices toward a more successful existence.

- Process means that improvement is always possible
- Aware means that we are continuously seeking more information about how we can improve.
- Choices mean that we consider a variety of options and select those in our best interest.
- Success is determined by each individual to be their collection of life accomplishments.

In recent years, more and more studies have been conducted to determine the benefits of complementary and alternative medicine and how they go hand in glove with conventional medicine.

Recent studies of rheumatic diseases by Marian Garfinkel showed that the use of yoga asanas (postures) positively affected study participants' well-being.

According to American Massage Therapy Association 2005 survey (*www.**amtamassage**.org)* 73% of respondents received massage for medical reasons said they would recommend this form of therapy to others.

Accounts of Tai Chi date back to Chen Wangting, a 16th century Royal Guard of the Chen village in Wenxian County, Henan Province. After retiring from the army, he was drawn to the teachings of Taoism, which led him to a simple life of farming, studying and teaching martial arts.

By combining a full range of perfect and natural movements with meditation concentration, Tai Chi strengthens the functioning of the central nervous system. It also effectively exercises the entire physiology and not just the musculature or the cardiorespiratory system. Chinese physicians have long prescribed Tai Chi as a physical therapy or "gymnastic medicine" in combination with herbs, acupuncture and acupressure to provide a holistic treatment for disease.

Tai Chi is becoming increasingly popular worldwide as a form of therapeutic exercise. An increasing number of studies (Wolf et al., 2003, Li et al., 2001) have been conducted into the benefits of Tai Chi and the biological mechanisms behind its success. Regular practice of Tai Chi improves posture,

circulation, respiration, metabolism, immunity, bone strength, muscular flexibility and neuro-muscular functioning, as well as accelerated healing of disease and injury.

There are the five major styles of Tai Chi, in which each named after the Chinese family that teaches it, namely,Chen style - 陈式, Yang style - 杨式, Sun style - 孙式,Wu Hao style of Wu Yu-hsiang - 武式 and Wu style of Wu Ch'uan-yü and Wu Chien-ch'uan - 吴式

Why specifically the Sun-Yang styles of Tai Chi for this study? The Sun-Yang styles of Tai Chi were chosen for this study because they are typically performed in a smooth, even-flowing tempo. They are also slow and gentle in their movements adopting a higher stance than other styles of Tai Chi, and are **more suitable to the physical condition of older adults and those who are interested in the holistic and therapeutic nature of the exercise.**

2. PROJECT FOCUS

To date, there has been minimal or no significant research on the benefits of Tai Chi done on the Singapore population.

This project thus aimed to do a pilot study and was conducted with the hypothesis that the therapeutic benefits generally associated with the practice of Tai Chi would be significantly manifested in these styles of Tai Chi.

Therapeutic benefits surveyed in this study were namely:

- Improvement in balance, strength, flexibility and physical coordination
- Improvement in cardiorespiratory function
- Improvement in resistance to common ailments
- Stress reduction
- Improvement in sleep

3. LITERATURE REVIEW

3.1 FALL PREVENTION & REDUCTION ON OLDER POPULATION

Approximately 30% of people over 65 years of age fall each year. 20% of those who fall will require medical attention and 10% will sustain a fracture, half of whom require hospitalisation to manage this (Gillespie et al., 2003). Fall-related injuries and fear of falling can further inhibit the daily activities of older people, while physical activity can promote their quality of life when performed safely (Schoenfelder & Rubenstein, 2004).

A systematic review of reports on the physical and psychological effects of Tai Chi on various chronic medical conditions was conducted by (Wang et al., 2004). A computerised search of 11 English and Chinese databases was done. In all 9 randomised controlled trials, 23 nonrandomised controlled studies and 15 observational studies were reviewed. It concluded that Tai Chi appears to have physiological and psychological benefits and also appears to be safe and effective in promoting balance control, flexibility, and cardiovascular fitness in older patients with chronic conditions.

The National Institute of Aging sponsored 2 studies on Tai Chi for older people. On one study conducted by Wolf et al. (1996) at the Emory University School of Medicine, they found that older people taking part in a 15 week Tai Chi program reduced their risk of falling by 47.5%. Regular Tai Chi practice can reduce falls in the elderly and those with balance disorders. A total of 200 participants (162 women and 38 men, mean age of 76.2years) were in the randomised, controlled clinical trial. The objective of the study was to evaluate the effects of 2 exercise approaches – Tai Chi and computerised balance training – on biomedical (strength, flexibility, cardiovascular endurance, body composition), functional, and psychosocial indicators of frailty and occurrence of falls. The results showed that Tai Chi had a favourable impact on defined biomedical and psychosocial indices, reduced falls, lowered blood pressure, and reduced fear of falling.

Scientists at the Oregon Research Institute also studied Tai Chi and fall reductions in older adults. Li et al. (2005) concluded that a 3-times-per week, 6-month Tai Chi program is effective in decreasing the number of falls, the risk for falling and the fear of falling; and it improves functional balance and physical performance in physically inactive persons. This was a randomised controlled trial involving 256 physically inactive, community-dwelling adults aged 70 to 92 (mean age, 77.47 years) who were recruited through a patient database in Portland, Oregon. Participants were randomised to participate in a 3 times-per-week Tai Chi group or a stretching control group for 6 months. The primary outcome measure was the number of falls; the secondary outcomes measures included functional balance (Berg balance Scale, Dynamic Gait Index, Functional Reach, and single-leg standing), physical performance (50-foot speed walk, Up & Go) and fear of falling assessed at baseline, 3 months, 6 months, and at a 6-month post-intervention. Compared with the stretching control group, the risk for multiple falls in the

Tai Chi group was 55% lower. The Tai Chi group also showed significant improvements ($p<.001$) in all measures of functional balance, physical performance, and reduced fear of falling.

3.2 STRESS MANAGEMENT & REDUCTION

Mack et al. (1980) in this aspect of study targeted African Americans in the United States who constantly lived with the stressor of negative socio-political, cultural, and religious attitudes associated with their skin colour. The choice of Tai Chi was based primarily on its meditative nature; meditation was believed to reduce anxiety, hypertension and blood pressure, fear and anger. The participants in pre-test interviews reported headaches, restlessness, hypertension, constipation, and ulcerated stomachs. In a 24-week program, they were instructed in Tai Chi and afterward completed post-test surveys of affect, sense of control, and physiological and psychological experiences. Participants noted a significant difference in their consciousness of somatic tension, awareness of stressful events and a sense of control through behavioural strategies that deal with tension. The researchers attributed the results to the relaxation response elicited by Tai Chi exercise which leads to decreased activity of the sympathetic nervous system and relaxes the skeletal muscles, decreases blood pressure, and respiration. Mack further stated that Tai Chi relieved somatic stress more quickly than deep meditation and provided the African-American with a "flexible response repertoire" to deal with both situation and generic stress.

In a convincing study by Hernandez-Reif et al. (2001), thirteen adolescents diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) were recruited from a remedial school for adolescents with developmental problems. Attention Deficit Hyperactivity Disorder is characterized by cognitive and behavioural deficits including inattention, impulsivity and hyperactivity levels inappropriate for age and gender (DSR-III-R, American Psychiatric Association, 1987). These adolescents engaged in Tai Chi postures for 30-minute sessions twice a week for 5 weeks. Each mid-afternoon session began with slow raising and lowering of the arms in synchrony with breathing exercises for 5 minutes. The adolescent were then taught to perform slow turning and twisting movements of the arms and legs, shifting body weight from one leg to the other, rotating from side to side and changing directions in a sequence of Tai Chi forms. After the 10 Tai Chi sessions the adolescents displayed less anxiety, improved conduct, less daydreaming behaviours, less inappropriate emotions, and less hyperactivity. These improved scores persisted over the 2 weeks follow up (no Tai Chi) period.

There have been many studies done on effects of tai chi on headaches and sleep. A UCLA study has found tai chi to be effective in reducing tension headaches. This study recommended tai chi as an exercise-based alternative to pain killers and thus help cut pain killer addiction among many of us.

To determine the effectiveness of Tai Chi on self-rated sleep quality and daytime sleepiness in older adults, Li et al. (2004) conducted a randomised controlled trial on 118 women and men aged 60 to 92.

The participants were randomised into a Tai Chi or low impact exercise group for 1-hour sessions, 3 times per week over 6 months. Primary outcome measures were 7 subscales of the Pittsburgh Sleep Quality Index (PSQI) and Epworth Sleepiness Scale (ESS). Tai Chi participants reported sleep onset latency of about 18 minutes less per night and sleep duration of about 48 minutes more per night than low impact exercise participants (Li et al., 2004).

Slater and Hunt (1997) in a small scale study indicated that even a period of brief Tai Chi training resulted in reduced nightmares among female undergraduates as compared to a control group.

3.3 IMMUNE FUNCTION

When subject to stress, the human immune system will decrease in function i.e. show immune suppression. Xusheng et al. (1990) investigated the effect of Tai Chi on humoral immunity in a group of healthy senior citizens in Shanghai. Blood samples were taken before and immediately after Tai Chi physical activity. The dependent measures were the percentage of ZC rosette-forming cells. The post-exercise percentage of ZC rosettes was elevated. The detection of ZC rosettes reflect the capacity of humoral immunity to some since it indicates a higher number of antibodies produced by B-cells – that is , an immune response that is important in defending the organism against pathogens and enhancing resistance to disease. According to the study, there was a correlation between Tai Chi practice and enhanced humoral immunity in older people.

4. DESIGN & METHODS

4.1 Survey Questionnaire

The questionnaire was designed based on the array of benefits identified in systematic reviews and clinical studies cited in the literature review. (See Appendix 1- Questionnaire)

It was designed for respondents to qualitatively rate their experience with regards to the following key areas of health concerns - namely the physical fitness & fall prevention, stress reduction, resistance to common ailments, cardiorespiratory fitness and sleep improvements.

4.2 Survey Coverage

As much as was feasible, the project team conducted a community survey that was as cross-sectional as was possible. The questionnaire survey was conducted at:

- People's Association Community Centres (Yio Chu Kang C.C.& Kim Seng C.C.)
- Public parks (Toa Payoh Public Park, Botanical Garden, MacRitchie Reservoir Park)
- Private country club (Temasek Club).

4.3 Subjects

Subjects were practitioners of the Sun and/or Yang styles of Tai Chi. In all 50 practitioners volunteered for this survey, age range from 18 to 76. Majority of practitioners (67%) belong to the above 50 years of age category. Female practitioners formed 68% of sample surveyed. Chinese formed 96% of the practitioners.

4.4 Sun-Yang Tai Chi Session

The Sun-Yang styles of Tai Chi exercise session typically consisted of 15 minutes of qigong warming-up and breathing exercises followed by 60 minutes of tai chi set movements, with short breaks in between.

The forms of the set movements (short form and/or long form) involved slow and continuous movements in all directions-forward/backward, side to side and diagonally. Sometimes the session is practised while listening to traditional instrumental music in order to maintain slow and continuous movements as well as to provide a soothing effect.

The exercise session was always completed with a cooling-down exercise involving exercises similar to the initial warm up exercises, stretching of arms and legs and qigong breathing exercise.

5. RESULTS & DISCUSSION

5.1 Demographic Data

5.1.1 Age Group- The results from the survey do indicate that the Sun-Yang styles of Tai Chi may be more appealing to the older adults or elderly. 67% of the participants were above 50 years old, 29% came from the 40-50 years age group, 2% came from 20-40 years age group and 2% came from the under 20 years age group.

5.1.2 Gender-The gentler nature of the Sun-Yang styles of Tai Chi may be more appealing to the fairer sex.-68% of participants were female and 32% male.

5.1.3 Employment- 60% of participants were employed, 18% seeking employment, 16% retired and a 6% gave no employment history. No plausible inference will be made here. The country is currently emerging from a global financial crisis.

5.1.4 Period of Tai Chi practice- From the survey, 50% of the participants have been practicing Tai Chi between 1-3years, 28% have practised for less than a year and 22% of respondents have practiced for more than 4 years. General understanding from the Tai Chi community is that if one is learning Tai Chi for general health and therapeutic benefits, learning the short-form Tai Chi sets (i.e. 8-movements, 18-movements, 24 movements) which take about 1 to 3 years, should suffice. For practitioners who aspire to be Tai Chi instructors may advance into the long-form Tai Chi (i.e. 44-movements, 88-movements or 105 movements) and weapon training.

5.1.5 Frequency of Practice-Generally 1to2 sessions per week personal practice of Tai Chi-outside of training session with Tai Chi instructor- is adequate for some forms of health benefits to be experienced.

5.2 Physiological and Psychological Benefits

The results from this survey support research findings that Tai Chi practice provides numerous physical and psychological health benefits and contributes to the well-being of those who participate regularly.

5.2.1 Physical Fitness & Fall Prevention

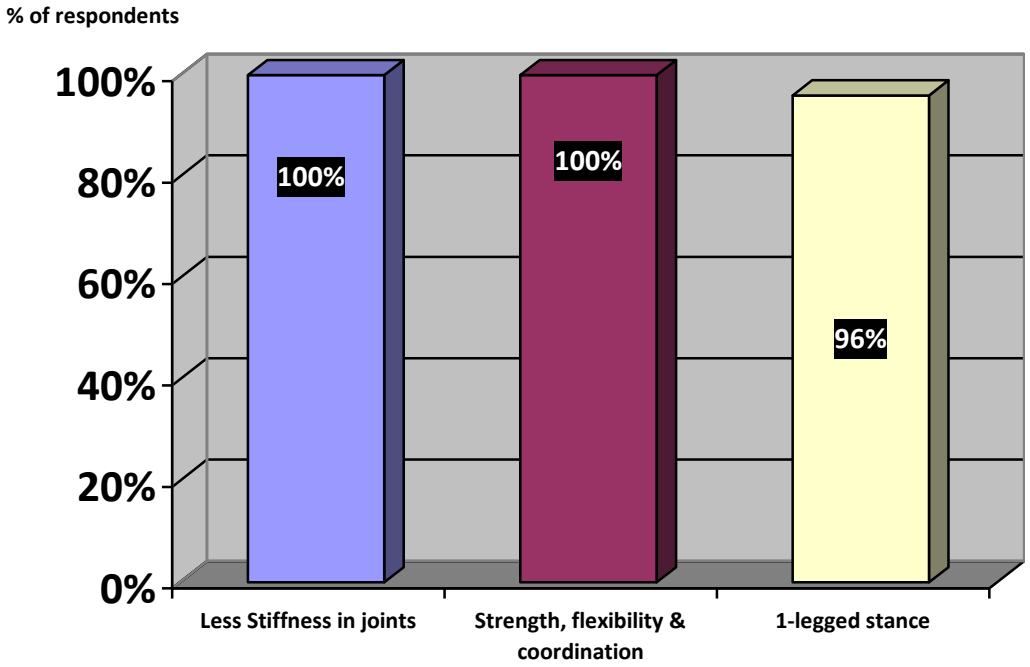

Figure 1 : Physical Fitness, Balance & Coordination

Our survey strongly suggest that Tai Chi practice leads to decreased joint stiffness, increased strength, greater flexibility, improved balance, reduced fear of falling. Some of the risk factors of falling - such as imbalance, muscular weakness and lack of flexibility are potentially modifiable can be changed to reduce the incidence of falls and falls related injuries and thereby improve the functional independence of older adults.

Strength, balance, flexibility and improved coordination occur because Tai Chi movements incorporate all the muscles, tendons and ligaments of the body appropriately, and they strengthen in natural balance with one another. They give the support to one another as they were designed by nature to do. Because you are working your body as it was meant to be worked – completely, thoroughly and fluidly – the body relearns how to move without injury and remembers how to move with graceful, coordinated strength (Parry, 2005). The gentle stretching of muscles, tendons and ligaments also aids

in the provision of nutrients to the surrounding cartilage. From the biomechanics inherent in Tai Chi movements, this exercise modality is clearly a multi-factorial exercise.

A meta-analysis of randomised clinical trials for the prevention of falls in older adults also revealed that a multi-factorial exercise programme were the most effective interventions in reducing the risk of falling (Chang et al., 2004). Arising from this systematic review, the implication is quite clear that a fall prevention programme with multiple risk-factor approaches should be incorporated into nursing interventions for older people to optimize their functional independence and quality of life (Choi et al. 2005).

Many other studies (Garfinkel et al., 2003, Li et al., 2005) have demonstrated the effectiveness of Tai Chi in maintaining physical functioning and reducing falls among older adults. Currently, the mechanisms underlying tai chi have not been well established. However, Tai Chi practice do increase flexibility and improve lower body strength, two components that have been associated with successful exercise programs for long-term low back pain. (Hayden et al., 2005). Other studies (Arlene et al. 2007, Amanda et al., 2009) have consistently shown tai chi to have positive effects on pain, physical function and quality of life.

5.2.2 Resistance to Common Ailments

In regard to resistance to common sickness, at least 94% of participants surveyed reflected that they got sick less often, and when they did, 92% recovered faster.

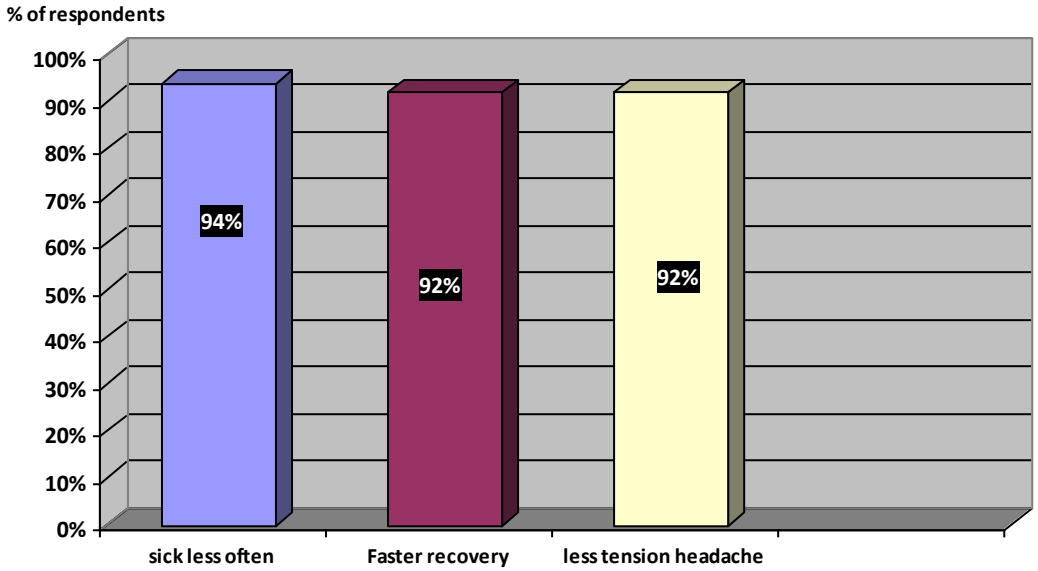

Figure 2: Resistance to common ailments

Regular practice of Tai Chi strengthens the immune system. The *slow, non-tensile movements of Tai Chi are enormously helpful in stimulating the lymphatic system* of the body. The lymphatic function is a major component of the immune system working silently every second to help rid the body of all the toxins and bacterial, viral and fungal infections that can make us unwell (Parry, 2005).

Note, however, that although the body has a means of transporting waste matter and toxins into the lymphatic system, *the lymph fluid that performs this function does not have a pump (as the blood has the heart) to circulate the fluid*. Instead, it relies heavily on the movement of the body to circulate the fluid around the system.

5.2.3 CardiorespiratoryFitness

Respondents were asked if they experienced improvement in breathlessness at work or other activities and if they found an increase in stamina to work for longer hours.

Nearly 96% of the respondents agreed to all the effects mentioned and this augurs well for Tai Chi as a workplace-wellness program, not just improvement in activities of daily living. Only about 4% of the respondents did not experience any significant improvements.

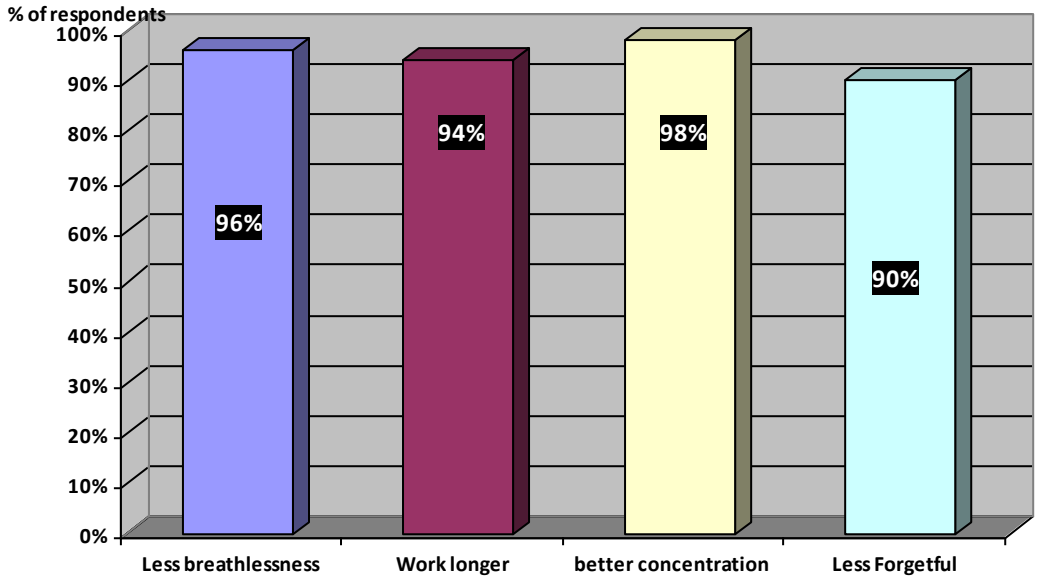

Figure 3 : Cardiorespiratory Fitness

Based on other findings (Greenspan et al., 2007), Tai Chi participants reported significant improvements in the physical dimension and cardiovascular functions and borderline significant improvements in the body care.

5.2.4 Stress Reduction

In this area, participants were asked whether practicing Tai-Chi aided their concentration, reduced their anxiety and made them less forgetful. Near 95% of the respondents agreed that they experienced having better alertness and concentration in their activities of daily living.

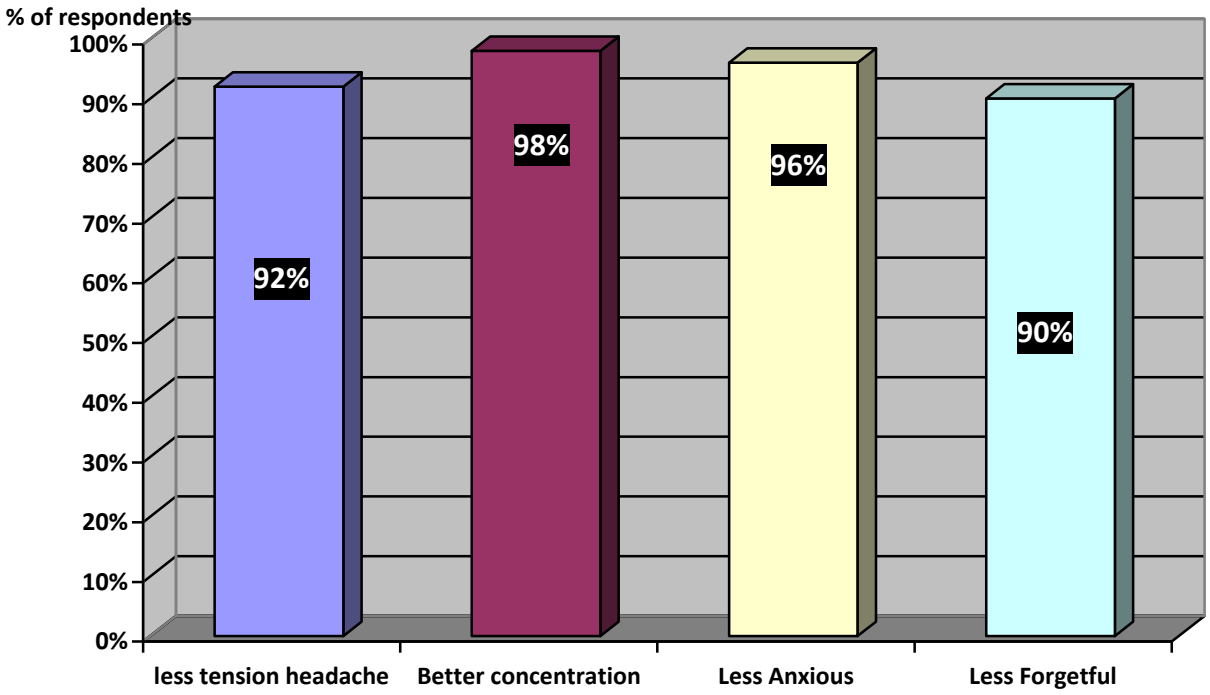

Figure 4 : Stress Reduction

Why is Tai Chi so effective in reducing stress? The philosophy of Tai Chi urges one to 'let go' constantly. This is important. *If we remain full to the brim with our own egotistical thoughts and desires, all our prejudices and second-hand opinions, there will never be room for anything new or positive to enter our lives*. Ancient tai chi masters would say, you must come empty in order to know the fullness. Practice emptying your cup. At best as you can, do the following:

- Empty thoughts
- Empty expectations
- Empty anxiety
- Empty comparison
- Empty competition

Another way of understanding tai chi's unique stress-busting properties is through the workings of the autonomous nervous system. The system has 2 distinct modes of operation. The first is the **sympathetic mode**, where the functions of the body related to the "fight-or-flight" survival instinct are on high alert.

Fortunately, there is a second mode of functioning for the nervous system called the **parasympathetic mode or the resting phase**. *This kicks in at times of calm, when we are relaxed and feel safe and secure. It nourishes and replenishes our cells and allows us to rest and to sleep*. Tai Chi enables us to switch into that gentle nurturing resting phase relatively easily, and can exert an exceptionally positive effect in terms of health.

Reduced sympathetic activity, or enhanced parasympathetic activity has been considered a potential underlying mechanism (Hsu et al., 1985). Jin (1989) in his study reported that cortisol levels dropped compared to pre-testing. Mood improved significantly during Tai Chi, and remained positive one hour after practice. Participants also reported less tension, anger, fatigue, depression, confusion, and state anxiety.

It is believed that the effects of Tai Chi on the inner state extends beyond the release of the endorphins hormones which produce a gentle 'high' that lifts the spirit in a unique way. Once you have learned the form and are practicing regularly, you will begin to approach a very special place – the highly relaxed 'alpha state' of brain waves – a condition which results in the clearing of one's mind and promotes a sense of calm and heightened awareness (Parry, 2005). If repeated regularly can lead to numerous positive changes in overall attitude and outlook in life. For example:

- You begin to notice an increase in creative energy with ideas coming more easily.
- Solutions to problems may present themselves more readily, perhaps because you can relax more and see alternatives.
- You might also find that you are endowed with a greater sense of self-esteem and a little more optimism than before.

Other studies also seemed to indicate positive effects shown for a variety of psychological indicators such as depression, anxiety, relaxation, concentration, and self-efficacy (Jin et al., 1989, Jin et al., 1992, La Forge et al., 1997, Wang et al., 2004).

In a nutshell, Tai Chi can help one let go of excess baggage, make space inside for evolution and change to take place.

5.2.5 Sources of Referrals to Tai Chi

Of the respondents polled, 58% indicated that Tai Chi was mainly introduced by friends.

Interestingly, 42% of the participants who rated "Others" stated that they were recommended to take up Tai Chi to improve their health at the annual Active Aging Carnivals organised by the Council of Third Age, Singapore.

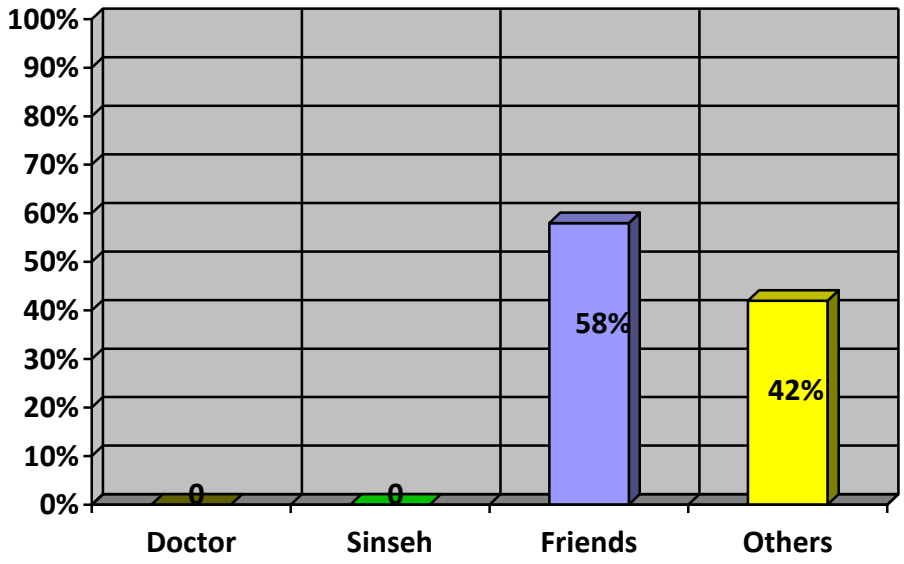

Figure 5 : Sources of Referrals to Tai Chi

5.2.6 Quality of Sleep

From the survey, we gather that there is a positive trend towards the sleeping patterns of our participants. A near 98% of them did not need any oral medication or alcohol consumption to improve their sleep. 36% of respondents were having fruitful sleep throughout the night and 34% of them slept soundly till the next morning. A minority of about 6% of the respondents polled had difficulty falling asleep.

6. FOLLOW UP SUGGESTIONS AFTER SURVEY

It was suggested in a systematic review by Wu (2003) that future studies focus on identifying the optimal duration or frequency of Tai Chi programs, and also identifying the forms (short- or long-) and movements for health conditions for which Tai Chi can be therapeutic..Singapore Sports Council in1996 developed the 18- movement "Singapore Keep Fit Tai Chi" for Singaporeans to practise a healthy lifestyle. Thus far, there have been no significant studies conducted on the efficacy of this Tai Chi program for fitness and health.

Another possible area of application is in the area of special education in Singapore. Hernandez-Reif et al. (2001) had already shown that specially designed Tai Chi sessions can help adults with Attention Deficit Hyperactivity Disorder (ADHD) improve their conduct, display less anxiety, less daydreaming, less inappropriate emotions and less hyperactivity in class.

Tai Chi is practiced in many styles. A comparative study of the various styles of Tai Chi in terms of health benefits (and/or risks) could also be undertaken.

7. CONCLUSION

The practice of the Sun & Yang styles of Tai Chi appears to have physiological and psychosocial benefits and also appear to be safe and effective in promoting balance control, flexibility, activity tolerance and cardiorespiratory function in the practitioners surveyed.

In view of the above findings and literature review, the implications of this style of Tai Chi for health and well-being are:

- It has great potential for health promotion and rehabilitation.
- It may benefit older people for fall prevention because Tai chi movements incorporate elements of strengthening, balance, postural alignment and concentration
- It can be incorporated into anyone's daily stress-management routine very easily because it does not require any special preparation, clothing or location
- It may be among the best modes of physical activity for diverse populations since they are low impact, low cost and easy to learn
- It offers the potential to save thousands of dollars per year in health care savings

The findings presented in this study were based on interviews of 50 practitioners of Sun-Yang style of Tai Chi.

Because of the small sample size, the findings may not be comprehensively conclusive. The findings may be relevant but to have a more significant impact and accuracy, a larger sample size may be warranted

8. HEALTH ADVISORY

Although Tai Chi may help to improve overall health, it must be categorically stated that it is not a substitute for conventional medical care.

APPENDIX

Survey on TAI CHI

QUESTIONAIRE

Dear Participants,

This practicum survey is conducted by student(s) in our Specialist Diploma in Nutrition & Health Education program.

The purpose of this survey is for us to better understand the efficacy of Tai Chi as a fitness and health modality.

Please take a few minutes to answer all the questions in the questionnaire.

We would like to assure you that all pertinent details will be kept confidential and will not be used for any other purpose beyond this study.

Thank you for agreeing to participate in this questionnaire survey.

Maurice Ling
Practicum Supervisor
School of Chemical and Life Sciences
Singapore Polytechnic
Tel no:

PLEASE ANSWER EVERY QUESTION IN THE SURVEY

Q1. Age

□ < 20 years □ 20 – 40 years □ 40 - 50 years □ > 50 years

Q2. Gender

□ Male □ Female

Q3. Race: □ Chinese □ Malay □ Indian □ Others

Q4. Current Employment: _____

Q5. How long have you been practising Tai chi? _____ years _____ mths

Q6. Frequency of Tai Chi practice _____ times per week.

Q7. What style of Tai Chi are you currently practising?

Chen _____

Yang _____

Sun _____

Others_____

Q8. To me, Tai Chi is:

Affordable	□ Agree	□ Disagree	□ Not sure
Easily available	□ Agree	□ Disagree	□ Not sure
Safe for most people	□ Agree	□ Disagree	□ Not sure
It is slow and gentle	□ Agree	□ Disagree	□ Not sure

It is low impact □ Agree □ Disagree □ Not sure

Can be practised with family □ Agree □ Disagree □ Not sure

Relaxes, refreshes and energises □ Agree □ Disagree □ Not sure

No need of special preparation or equipment

□ Agree □ Disagree □ Not sure

Can be practised almost anywhere i.e. park, home, on vacation

□ Agree □ Disagree □ Not sure

Q9. Do you have any major health concern? Yes____ No____

If yes, please state _____

Q10. How were you introduced to Tai Chi?

Doctor/Hospital _____

Chinese sinseh _____

Friends _____

Others _____

Q11. In your opinion, has Tai Chi any effect on the following aspects of your life?

a. <u>Physical Fitness & Fall Prevention</u>

- Less stiffness in the joints Yes_____ No_____
- Strength, flexibility & coordination has improved Yes _____ No_____
- Improved balance and reduced fear of falling Yes _____ No_____
- Are you able to hold a one-legged stance
  (eyes open) for 5 seconds Yes _____
  No_____

- When was the last time you had a fall?
  - 1 week ago
  - Less than 1 month ago
  - More than 1 month, less than 6 months
  - More than 6 months ago
  - More than 12 months ago

  What happened? _____ _

b. Resistance to Common Ailments

- Sick less often (e.g. cold or flu) Yes____ No____
- Faster recovery when sick Yes____ No____
- Less tension headache Yes____ No____

c. Cardiovascular Fitness

- Less breathless at work, doing house chores or outings Yes_____ No____
- Able to do work (office or home) longer

  Yes_____ No____

d. Stress Reduction

- Better concentration Yes____ No____
- Less anxious Yes____ No____
- Less forgetful Yes____ No____

Q9. Have you experienced any negative side-effects from regular practice of Tai Chi?

Yes_____ No_____

If Yes, _____

_____

Q10. The following questions are about your sleep habits.

a) Do you take medication at bedtime to help you sleep? Yes_____ No_____

b) Do you take alcohol at bedtime to help you sleep?

Yes_____ No_____

c) Do you have trouble falling asleep? Yes_____ No _____

d) Overall, how would you describe your typical night's sleep

____ Very sound/restful

____ Sound / Restful

____ Average quality

_____Restless

_____Very restless

Thank you for your participation

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