

CHAPTER IV

RESULTS

The main purpose of this exploratory sequential mixed methods study was to develop and test instrument for assessing mental health for Thai older adults. The first phase of this study is identifying domains of mental health for Thai older adults using qualitative approach. The qualitative data was collected from three sources: literature reviews, focus groups and in-depth interviews with older adults. Literature reviews were searched from database during 1961 to 2008. Focus group was conducted with 7 groups (aged 60 years to 79 years). In-depth interview was conducted with 32 older adults (aged 80 years and over). Participants including Buddhist, Muslim, and Catholic in the north-eastern region, the central region, the southern region, and Bangkok Metropolitan in Thailand were invited to interview.

The second phase II was developing a scale. Domains and statements from this qualitative information were used to develop the instrument.

The third phase was qualitative phase for testing psychometric properties of the instrument, It was conducted a survey with 1,266 Thai older adults (aged 60 years and over) including Buddhist, Muslim, and Catholic. The results of such three phase are presented as follows;

Phase I: Identifying domains of mental health for Thai older adults, Phase II: developing a scale and phase III: testing psychometric properties

4.1 Results of Phase I: Identifying Domains of Mental Health for Thai Older Adults

Identification of domains of metal health for Thai older adults was conducted by using literature reviews, focus groups and in-depth interviews. The results of this step were presented in three parts: 4.1.1. Results of literature reviews,

4.1.2. Results of participants from focus groups and in-depth interviews, and 4.1.3. Summarized themes and categories of mental health in Thai older adults.

4.1.1 Results of literature reviews.

Total 36 literatures were searched between 1961 to 2008 from Database, namely CINAHL, PsycINFO, Social Science Index and manual reference lists. The results showed 4 domains presented as follows:

a) Mental status

Mental status is a state of mental. There are four categories: 1) positive affect (e.g. joy, happy and peace), 2) negative affect (e.g. loss, anxiety, and loneliness), 3) affective balance, and 4) life satisfaction.

b) Mental capacity

Mental capacity is the capacity of psychological functioning, including competency of coping and adaptation with the normal stress of life, self-esteem, purpose in life, autonomy, perception of reality, optimism, and positive related with other.

c) Mental quality

Mental quality is the regularity of moral and virtue behaviors, including clam and peaceful, faith, kindness and altruism.

d) Social well-being

Social well-being is perception of older adults about well-being in society living such as social acceptance, social support, and social security.

The details illustrated as follows in table 4-1.

Table 4-1 Summary of dimensions and characteristics of mental health for older adults

Authors	Mental status	Mental capacity	Mental quality	Social well-being
Campbell, Coverse, & Rogers, 1976	Positive affect Negative affect Affective balance Life-satisfaction	Purpose in life Self-esteem/self-acceptance Coping and adaptation Autonomy Perception of reality Optimism Positive relation with other	Clam and peaceful Faith Transcendences Kindness Altruism	Social acceptance Social support Social security
Kammann, & Flett, 1983				
Bradburn, 1969	Positive affect Negative affect			
Lawton, 1983				
Nordenfelt, 1991	Positive affect			
Kahneman, Diener, & Schwarz, 1999		Purpose in life Life-satisfaction		
Kubboy, 1999				
Ryff, 1989		Purpose in life Self-esteem/self-acceptance Coping and adaptation Autonomy Perception of reality Optimism Positive relation with other	Clam and peaceful Faith Transcendences Kindness Altruism	Social support Social security
Johada, 1958		Life-satisfaction		

Table 4-1 Summary of dimensions and characteristics of mental health for older adults (cont.)

Authors	Mental status	Mental capacity	Mental quality	Social well-being
Keyes, Shmotkin, & Ryff, 2002	Positive affect Negative affect Affective balance Life-satisfaction	Purpose in life Self-esteem/self-acceptance Coping within stress Autonomy Perception of reality optimism Positive relation with other	Clam and peaceful Faith and spiritual belief Transcendence Kindness Gratitude	Social support Social acceptance Social security
Lampinen, Heikkinen, Kauppinen, & Heikkinen,			✓ ✓ ✓	
Ventegodt, Andersen, & Merrick, 2003			✓	
Lampinen, Heikkinen, Kauppinen, & Heikkinen, 2000	✓			
Keyes, Shmotkin, & Ryff, 2002		Purpose in life Self-esteem/self-acceptance Coping within stress Autonomy Perception of reality optimism Positive relation with other		✓ ✓ ✓
Ventegodt, Andersen, & Merrick, 2003			✓	
Namdej, 1996	✓			
Ingersoll, et al., 2004				
Thiamwong, 2008	✓		✓	

Table 4-1 Summary of characteristics of mental health as well-being for older adults (cont.)

Authors	Mental status	Mental capacity	Mental quality	Social well-being
Linn, 2000	Positive affect Negative affect Affective balance Life-satisfaction	Purpose in life Self-esteem/self-acceptance Coping with stress Autonomy Perception of reality Optimism Positive relation with other	Clam and peaceful Faith and spiritual belief Transcendence Kindness Altruism	Social acceptance Social support Social security
Saucier, 1994				
Mongkol, et al, 2001	Positive affect Negative affect	Purpose in life Self-esteem/self-acceptance Coping with stress Autonomy	Faith and spiritual belief Transcendence Kindness Altruism	Social support Social security
Lamond, Depp, Allison, Langer, Reichstadt, Moore, Golshan, Ganiats, & Jeste, 2008	Positive affect Negative affect			
Otakul, 2000	Positive affect Negative affect			Social acceptance Social support Social security
Curenggaoc, 1961	Affective balance Life-satisfaction			Social support Social security

4.1.2 Results of participants from focus group discussions and in-depth interviews

Characteristics of key informants

Key informants consisted of 50 females and 49 males. Seven focus groups were conducted with 67 older adults and the in-depth interviews were conducted with 32 older adults. The mean age of participants in the key informant group was 71.3 ± 8.5 years and ranged from 60 to 98 years. Most of them were Buddhists (80%), married (63.6%), living with spouse and children (51.1%), (37.3%), unemployed (51.5%), completed primary school education had sufficient income without saving (68.7%), and chronic illness (61.6%). Demographic characteristics of these samples are presented in Table 4-2as follow.

Table4-2 Characteristics of older adults for in-depth interviews and focus group discussions (n = 99)

Characteristics	Number	Percentage
Part of Thailand		
-North	20	20.2
-Northeast	33	33.3
-Central	18	18.2
-South	10	10.1
-Bangkok	18	18.2
Age (years)		
- 60-74	69	69.7
- 75-84	21	21.2
- 85-over	9	9.1
Mean 71.3,S.D 8.5		
Min = 60, Max = 98		
Sex		
- Female	50	50.5
- Male	49	49.5

Table 4-2 Characteristics of older adults for in-depth interviews and focus group discussions (n = 99) (cont.)

Characteristics	Number	Percentage
Religion		
- Buddhist	80	80.8
- Catholic	10	10.1
- Muslim	9	9.1
Marital status		
- Single	6	6.1
- Married/partnered	63	63.6
- Divorced/Separated	1	1.0
- Widowed	29	29.3
Education		
- Literate	29	29.3
- Elementary education	37	37.3
- Secondary education	19	19.2
- Diploma/College	5	5.1
- Bachelor's degree	7	7.1
- Graduate study	2	2.0
Current employment status		
- Unemployed	51	51.5
- Freelance worker	3	3.0
- Merchant	6	6.1
- Agriculturalist	19	19.2
- Homemaker	20	20.2
Income sufficiency		
- Sufficient, without saving	68	68.7
- Insufficient, with debt	31	31.3

Table 4-2 Characteristics of older adults for indepth interviews and focus group discussions (n = 99) (cont.)

Characteristics	Number	Percentage
Living status		
- Living with spouse and children	50	51.0
- Living with adult children	25	25.0
- Living with spouse	21	21.0
- Living alone	3	3.0
Health status		
- Healthy	38	38.4
- Chronic illness	61	61.6

The results of data collections from participants conducted using focus groups and in-depth interviews showed four themes of mental health for older adults (see Table 8). The details of each theme were described with quotations from the research participants as follows:

1. Mental status

Mental status referred to the feelings of emotional well-being which is a balance among positive feelings, negative feelings, and life-satisfaction. In Thai context, most older adults call mental health as happiness.

1.1 Sukha was defined by the oldest people as positive feelings. *Sukha* refers to a feeling of peace, respect from other persons, optimism, joyfulness and sufficiency for living. For instance:

“Happiness is peacefulness in my mind.” (male Buddhist, aged 89).

“I cannot explain happiness, I think it is peace; quietness in my mind or freedom from noise, worries, fears and trouble.” (female Buddhist, aged 77).

“*Sabai*, I mean be comfortable, that is happiness.” (male and female Catholic, aged 81 and 85, respectively).

“Happiness is a feeling of many levels: *sabai* (be comfortable, *sa-ngop* (peace), and happiness.” (male Muslim, aged 65).

“Happiness is difficult to explain. When you asked, I thought feeling of *sukha* referred to freshness or joyfulness. Joyfulness happens after I have exercise; I am not worried or anxious about anything I was honored by my friends and my daughter.” (female Muslim, aged 69).

All of the older adults reported they were very happy when their children respected them. This was evidenced by the statement, “Children should respect the elderly. They expressed their respect with polite talk and good care.” (male, aged 90).

Half of the older adults agreed that if they were optimistic (had good mood and positive thinking), they would have happiness.

Moreover, eight in ten older people reported they were happy when they had cleared their debt. When I cleared my debt, I am very happy. In the past, my life suffered from debt. Today, I am not a rich man but I am happy because I have sufficiency for living or “*por me por kin* (self-sufficiency).”

1.2 Dukha was defined by older people as negative feelings. *Dukha* referred to a feeling of lack of physical strength and respect from other people. Examples are as follows:

“I am very worried and sad about *my illness*, which makes a burden for the family.” (male Buddhist, aged 81).

“If we have *kum-lung* (physical strength), we can perform activities for ourselves if not, I couldn’t.” (male and female Catholics, aged 97 and 68, respectively).

All of the oldest people agreed with the following statement. “Lack of physical strength or *kum-lung* is a great suffering or *Dukha*.” Moreover, they thought, “If I still have *kum-lung*, I do not have to depend on my child. This results in the reports of happiness in their mind.” (female Muslim, aged 74).

1.3 Satisfaction of life was defined by the older adults as summarization of emotional feeling. For instance:

All of the older people reported satisfaction of life. Some older people thought, “I am satisfied with all of my life.” Some said, “I think being human is my satisfaction.” Half of the older females reported being satisfied when their children have a successful life.”

Furthermore, affective balance dimension was a low discussion point in Thai older adults. Only Buddhist older persons thought about this category. They explained the affective balance with the doctrine of Buddhism as follows:

“When you feel Sukha, you must be aware of Dukha. My dad taught me” (male Buddhist, age 74).

“My life must face always Sukha and Dukha. If we are aware of these feelings, mental illness will not appear.” (male Buddhist, age 54).

2. Mental capacity

“Trying to maintain stability in good mental health” refers to regulating their cognition and capacity to maintain their life. This theme consists of three categories: 2.1 self-esteem, 2.2 coping and adaptation, and 2.3 mindful consciousnesses.

2.1 Self-esteem

Older adults defined self-esteem as confidence in the right to be happy and contribute to feeling worthy and deserving their experiences.

“My children graduated with bachelor’s degrees, so I am very happy and have high self-esteem.” (male Buddhist and female Catholic, aged 75 and 87, respectively).

“When I reconsider my life, I am proud that I can clear my debt. This reason brings my self-esteem.” (male Buddhist, male Muslim and female Catholic, aged 65, 89 and 77, respectively).

2.2 Coping and adaptation

Older people defined mental capacity as the ability to cope and adapt to stressful life events by cognitive function. Negative stressful events and chronic illness were considered as risks. All ten Thai older adults reported using three behavioral strategies, including avoiding problems, transcendence, and restricting one's mind.

2.2.1 Avoiding problems

Most older adults always had the opportunity to avoid stressful events by using techniques such as walking, planting a garden, and talking with other persons.

2.2.2 Transcendence

Half of older adults avoided stress by finding transcendence with other persons and religion. The details about transcendence are given below.

“In stressful conditions, I must have good feelings if I talk about someone” (male Buddhist, and female Catholic, aged 87, and 65, respectively).

“When I'm confused, I will talk to my sister-in-law. I trust her.” (female Muslim, aged 77).

“Church is the first place I go, when I have problems. This place brings peace in my mind.” (female Catholic, aged 75).

“I was trained in meditation; if I face a serious problem, I can reduce stress” (male Buddhist, aged 65).

2.2.3 Fact Accepting

Besides using avoiding techniques from stress, older adults were engaged in rethinking and fact accepting. Older adults called this, “*Ploi wang*.” The details about restricting one's mind or *ploi wang* are stated below

“Everybody must face problems, so I suggest the other persons to be indifferent. I am optimistic and restrict my mind, so I am happy” (male Catholic, aged 81). In order to cope with stress older adults used *tam jai* or restricting one's mind.

“From my experiences, I am very happy because I can *tam jai* or let it be.” (female Buddhist, aged 87).

“*Tam jai* (restricting one's mind) is similar to acceptance when facing a serious problem” (male Buddhist, aged 65).

“*Tam jai* is a new way of thinking which is suitable for my life. The new thinking occurred from my experiences. Being the oldest people, *tam jai* is a major cause that leads to happiness.” (male and female Buddhist, aged 90 and 85).

The word “*ploi wang*” means to restrict one’s mind, similar to *tam jai* or *let it be*. *Tam jai* is not accepted in the doctrine of Muslims. The oldest age people explained “If we take counsel of a person and say *tam jai*, it means you are not sincere.

2.3 Mindful consciousness

Older people defined mindfulness as the cognitive effort of a naturalistic state of mindfulness to make positive reappraisals under stress. All of the older adults explained that mindful consciousness was a significant strategy to control stress.

Some older adults reported that they found mindful consciousness by concentrating on something. For instance:

“...I must concentrate on planting my lawn to find mindful consciousness. This way can release stress because I forgot the problem that made me stressed...” (male Buddhist, aged 70).

“*Sati* or mindfulness is the basic function of mind to protect mind from stresses. Experiences of my life guide me to the way to discover *sati*.” (male Buddhist and female Muslim, aged 63 and 80, respectively).

Half of the older people discovered mindfulness with training programs. For instance:

“When I face a critical situation, I must breathe deeply that is my relaxing technique and I think I can learn something from situations especially in a positive way. I have learnt this technique since I was ordained.” (male Buddhist, aged 78 and female Catholic, aged 67).

“I suffer from many diseases such as hypertension, heart diseases, and renal failure. My doctor suggested mindful meditation or *Vipassana* meditation to me. I think that this way is maintain my life.” (male Catholic, 78 and female Buddhist, aged 67).

“I thought as I got old when I was stressed, I must control it. Meditation is right practice of concentration which can control and tolerate stress. I try to practice meditation but it difficult to control one’s mind.” male, aged 62).

All of the older people in three religions explained mindfulness as a part of their religion. Religious Behaviors and Practices were the major methods of mindful consciousness. For instance:

“I thought I have rapid mindful consciousness because I pray every day. The reason is my grandmother brings me to the church every week.” (female Catholic, aged 71).

“The principle of Muslim conduct is the way of Muslim practices. When Muslims are under stress, we can rapidly find mindful consciousness and rapidly meet peace of mind.” (male Muslims, aged 67, 75, and 79).

“...I abandoned religious practices long time ago. One day, I found I had breast cancer. I cried and suffered from this problem. Peace is sought after my illness. I started with giving food to a monk, praying, and using *tam jai*.” (female Buddhist, aged 62).

3. Mental quality

“Each person expresses the good life within morality and virtue,” which refers to regulating their moral and virtuous behaviors. This major theme is called “Doing good things or Making merit.” The subcategories consist of making merit, and having kindness, and being patient.

3.1 Making merit

Making merit is important to show good characteristics of human life as a dimension of religion. Making merit makes a peaceful mind. This study found that most of the older people in all three religions agree with making merit. For instance:

“...I pray once a day, and I believe that praying will help me to have peace in my mind, and to meet God in later life...” (female Catholic, 87)

“If I do good things, I will receive good things in return; I always make merit whenever I have a chance.” (female Muslim, aged 78).

“I feel calm when I make merit or “*Tham Boon* “means giving things without expecting to receive its back. I live with peace.” (aging female Buddhist, aged 70).

3.2 Having Kindness

“The state of being kind and performing an act of good will” refers to an attribution of someone who has the tendency to be kind and sympathetic, and an act of kindness is unselfish and charitably done. The details are illustrated as follows:

“I think about the success I have had in my life. After I retired, I still taught other persons to repair electronic equipment. I am proud and think that it is a sort of making merit such as giving alms, and observing religious practice.” (male Buddhist, aged 65).

“I have enough in my life, so I thought I have successful aging. Every day, I pray, donate, and educate about my religion. However, I still hope that I must go to Mecca. I plan to do so in the next two months.” (male Muslim, aged 77).

“I give money to and volunteer to support other dependent older persons. Society makes me proud and I think I have sufficiency in my life, so I give money to the charity such as making a donation to a foundation for children with cancer.” (male Catholic, aged 89).

3.3 Being patient

Thai older adults called being patient, “*Khanti*.” Patience is one of six perfections from the eightfold path in Buddhism. The Dalai Lama (2003) said that only factor that can give refuge or protection from the destructive effects of anger and hatred is the practice of tolerance and patience. Patience is motivated by our desire for inward, and outward peace and by faith in our ability to accept things as they are. The details are illustrated as follows:

“One time, I was alone in the airport, with no one to pick me up, no money and no phone. I could not call for the person who was supposed to pick me up. Seven hours passed, I hope that they would come. So, this is my patience, I thought” (male Catholic, aged 87).

“In my khanti, I set one time. There were drops of water coming from the roof. I thought about what the Buddha said, drop by drop, I must see the bucket would be full. At that time, I used this water situation in Khunti. My curiosity fulfills as a scientist, I put out a bottle, and drop goes in and would not fall outside. With Dhamma practice or Khunti, I can fill the bottle.” (female Buddhist, aged 87).

“I had an operation; the doctor must amputate my leg. One friend came to visit me, I told him “If you come to give me condolence for the loss of my leg, I already submitted to Allah with patience to reward me for its loss.” (male Muslim, aged 67).

4. Social well-being

Social dignity and support is well-being of community that older adults perceive about acceptance, security, and support in their life.

“I am very happy with the rest of my life because last week, I received the reward of healthy aging from the commissioner. I was presented in this project because my family nurse thought I had a sense of humor and I still walked, cooked, and took care of myself” female Buddhist, aged 98).

“I feel I belong to and I am accepted by my community. People in the community care about problems of the elderly; they set something in the park for older persons such as sidewalks and clear symbols of toilets.” (male Muslim, aged 79).

“People in this community respect older people. I receive polite speech from them. They arrange social value to older people; the youth join with older adults on Saturdays. ...I feel close to other people in my community.” (male Catholic and female Catholic, aged 72 and 68, respectively).

“My house is near a health center, I have security in my life although I am alone in my house. I rent the house. I can call my landlord.” (female Catholic, aged 67).

“I tell my son who lives in another province; I am not lonely because my neighbors and my members of the yoga club drop by my house every day. I can call

them if I have problems. Ten years ago, there were not any problems about robbery in this area (female Buddhist, aged 69).

4.1.3 Summarize themes and categories of mental health in Thai older adults

The information from literature review, focus group discussions and in-depth interviews in the previous sections were summarized to select the themes and categories of mental health suitable for Thai older adults. In this case, some categories appeared only in one section, so this information was not conclusive. The summarized themes were selected using information from all religions as follows:

Table 4-3 Summary of the themes and categories of mental health for older adults from literature review and participants

Themes	Categories	Results from literature review	Results from participants (focus groups and indepth interviews)
Mental status	positive affect	√	√ (Sukha)
	negative affect	√	√ (Dukha)
	affective balance	√	-
	life-satisfaction	√	√
Mental capacity	Purpose in life	√	-
	Self-esteem/Self-acceptance	√	√
	Coping and adaptation	√	√
	-Avoid problems		
	-Transcendence		
	-Fact accepting		
	Autonomy	√	-
	Perception of reality	√	√(Fact accepting)
	Positive relationship with other	√	-
	Mindful consciousness.	-	√

Table 4-3 Summary of the themes and categories of mental health for older adults from literature review and participants (cont.)

Themes	Categories	Results from literature review	Results from participants (focus groups and indepth interviews)
Mental quality	Calmness and peace	√	-
	Faith	√	-
	Transcendence	√	√
	Kindness	√	√(Meta-Kaduna)
	Altruism	√	
	Making merit	-	√
Social well-being	social acceptance	√	√
	social support	√	√
	Social security	√	√

The results presented above showed that the dimensions found in literature review and participants (focus groups and indepth interviews) were the same in the themes of social well-being; Thai older adults called community well-being. The theme of mental status was different between the reviewed literature and participants data in affect balance categories. Mental capacity was different in some dimensions such as purpose in life, and autonomy. Mindful consciousness emerged from participants and they identified three behaviors for reducing stress such as avoiding problems, transcendence, and fact-accepting. The theme of mental quality was same meaning from participants such as kindness and altruism and transcendence. Making merit emerged from participants. Moreover, calmness and peace was observed less from participants because they considered calmness and peace as mental status. The investigator selected the themes and dimensions based on same results from both literature review and participants in all sections. The summarized themes, dimensions, and description are presented in table 4-4 as follows.

Table 4-4 Summary of themes, categories and description of mental health for older adults

Themes	Categories	Description
1. Mental status: The feeling of emotional well-being which is a balance among positive and negative feeling, and life-satisfaction	<i>1.1Sukha</i>	Positive feeling refers to a feeling of peace, respect from other persons, optimism, joyfulness and sufficiency for living.
	<i>1.2Dukha</i>	Negative feeling refers to a feeling of lacking of physical strength and respect from other people.
	1.3Life-satisfaction	Summarization of emotional feeling
2. Mental capacity: The ability to cope and adapt to stressful life events by cognitive function.	2.1 Self-esteem	Confidence in the right to be happy and contribute to feeling worthy and deserving their experiences.
	2.2. Coping and adaptation	The techniques to avoid stressful events. There are four methods: avoiding problems, transcendence, and fact accepting.
	2.3.Mindful consciousness	The cognitive effort to reach a naturalistic state of mindfulness to make positive reappraisals under stress.
3. Mental quality	3.1 Making merit	Making merit makes a peaceful mind involving three bases: giving, virtue, and mental development.
	3.2 Having Kindness	A state of being kind and sympathetic and an act of kindness is unselfish and charitably done.
	3.3.Being patient	Patience is motivated by our desire for inward, outward, peace and by faith in our ability to accept things as they are.

Table 4-4 Summary of themes, categories and description of mental health for older adults (cont.)

Themes	Categories	Description
4.Social well-being: Emotion and Cognition to evaluate social dignity and social support	4.1 social acceptance	Perceptions of people in community care about other people's problem and add value toward older adults.
	4.2 social security	Perception of people about sense of trust, sympathy, peacefulness in their community.
	4.3 social support system	Perception of people about the system supporting and giving preference to something in older life.

4.2 Results of Phase II: Developing an Instrument

4.2.1 Generating items and determining response format

The second step was generating items and determining response format. The results of data had been collected from literature review, focus group discussions and in-depth interviews were used to generate items following each theme, category, and subcategory from the data. The investigator generated 3 to 10 items for each category. The result consisted of 100 items, 4 themes and 12 categories as follows:

Theme 1: mental status consisted of 3 categories, 20 items were generated

Theme 2: mental capacity consisted of 4 categories, 30 items were generated

Theme 3: mental quality consisted of 3 categories, 30 items were generated

Theme 4: community support consisted of 2 categories, 20 items were generated

A Likert scale was used as item response formats of each item. A four-point Likert scale was used in each statement: Strongly agree = 4, Agree = 3, Disagree = 2, and strongly disagree = 1.

4.2.2 Check content validity and face validity

Content Validity

Validation was identified both in qualitative and quantitative procedures (Netemeyer, et al., 2003). In qualitative procedures, 13 experts were asked to review the first draft of the MHAT-T that consisted of 100 items. The experts verbalized and wrote comments that this version was too long and needed to be modified and decreased the items by approximately one half of the first draft. However, most of the experts agreed that these items still represented the phenomena.

After the investigator modified the MHAT-T following expert's suggestion, the second round of the MHAT-T was made and evaluated again by the experts. Each expert was asked to evaluate the content of the 46-items scale by rating each item on relevance with a 4-point scale (1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, and 4 = very relevant) and clarity using a 4-point scale (1 = not clear, 2 = somewhat clear, 3 = quite clear, and 4 = very clear). The second draft of the MHAT-T consisted of 46 items for 4 themes and 12 categories.

The experts were asked to identify relevant items and clear items by rating with a four-point score. As a result of this second evaluation, the experts commented that 4 items should be dropped; two items (item f6 and item f7) were revised, and two items (item m21 and item m46) involved semantic meaning. Scores were examined by the content validity index. The CVI was 0.99, consisting of 4 themes, for 42 items, 12 categories.

Face validity

The 15 older persons recruited in this section determined clarity and adequacy of items. All of the older adults were selected by criteria: 1) being Buddhist, Muslim, or Catholic in the northern, northeastern, central, and southern regions, and the Bangkok Metropolitan Area in Thailand, 2) Selected by health professionals at PCUs varied by sex, education, income, occupation, and living arrangement.

The result found that some older persons commented on the problems of dialect. For instance, southern older adults said "I don't understand the wording joyfulness which is not used in the southern region." Similarly, Muslim older adults responded "Muslims must say "*Restrict one's mind, Let it be or Ploi Wang*" with other persons because the doctrine of Islam described that you don't say this word because it

shows that you will not associate any more to other persons.” For example, some older persons said “wording of lonely had many levels of feelings; the different meaning in the wordings such as lonely, sorrowful, and solitary should be made aware.

In summary, the third draft of instrument consisted of 42 items with a 4-point scale of response format as shown in Table 4-5.

Table 4-5 Item Statement of the MHAT-T in each theme and category (42 items)

Themes and category	Item no.	Item statement
Theme 1: Mental status		
1.1 Sukha	m1	You feel peace in your mind.
	m2	You feel very happy because you still have physical strength and you can still work.
	m3	You feel very happy when your children or your kinship relations speak kindly with you.
	m4	You feel happy that you have enough money to get by.
	m5	Your children or kinship relations accept you.
	m6	You feel very happy when your children graduate or work.
	m7	You feel happy to be a part of group.
	m8	You feel joyful
	m9	You are optimistic
1.2. Dukha	m10	You life is suffering
	m11	Illness causes you distress
	m12	You have stress all the time
	m13	You feel tired or frustrated in life
	m14	You feel lonely
	m15	You feel sad that you cannot return favor on children/wife/husband
	m16	You are tired of caring for children/grandchildren

**Table 4-5 Item statement of the MHAT-T in each theme and category (42 items)
(cont.)**

Themes and category	Item no.	Item statement
1.3. Life satisfaction	m17	You have life satisfaction
Theme 2: Mental capacity		
2.1. Self-esteem	m18	You have self-esteem
	m19	You have high esteem in your family
	m20	You are useful for your community
	m21	You are self-sufficient
2.2. Coping and adaptation	m22	You have many ways to release your stress (e.g., exercising, joining an activity group, and meditating)
	m23	A critical situation in your life is just an experience or a test of God.
	m24	You are certain that you can deal with critical situation
2.3. Mindful consciousness	m41	You are mindfully conscious before doing things
	m42	You think about the advantages and disadvantages, before making decisions
	m43	You learn from the past and apply it to daily life
	m44	The teaching of religion is the spiritual bound of your mind
	m45	You think religious practices can lead to peace in mind
Theme 3: Mental quality		
3.1. Transcendence	m46	When facing difficulties, you believe that you have trust in your mind

**Table 4-5 Item statement of the MHAT-T in each theme and category (42 items)
(cont.)**

Themes and category	Item no.	Item statement
3.2. Having kindness and being altruistic	m36	You felt pity for people, sympathize with those suffering
	m37	Although you cannot help others with the sources of property, you express your sympathy.
	m38	You worry when you cannot help others
3.3. Being patient	m39	You do not give up on the difficulties of life
	m40	The bad things in life are overcome with tolerance and patience
Theme 3: Social well-being		
3.1. Social acceptance	f8	Your community has a positive attitude toward you
	f9	Your neighbors and community are friendly to you
	f10	Your community honors and respects you
3.2. Social support	f4	Your neighbors and your community will help you when you request
	f6	Primary health care units or hospital are near your home
	f3	Your family lives in harmony
3.3. Social security	f1	You feel secure when you live with your family
	f2	If you are sick, your family will take excellent care of you
	f5	You feel stable and secure in the community.
	f7	When you use the health service, you feel welcomed

4.2.3 Pretest

Characteristics of key informants in pretest study

The third draft of the instrument (42-items) was pretested to assess psychometric properties of reliability, and score distribution before survey administration. The third draft of 42 items was pretested with 40 older adults living in Chachoengsao Province among Buddhists, Muslims, and Catholics. Self-administration was used with literate older persons while the interview methods were used with those who were illiterate.

Characteristics of 40 older persons comprised 62.5 % females and 37.5 % males. The mean age of older persons was 69.22 (S.D = 6.71) years and age ranged from 60 to 89 years. Most of them were Buddhist (50.0 %), married (57.5 %), homemakers (32.5 %), sufficient without saving (57.1 %), had completed primary school education (75.0 %), had chronic illness (62.5 %), and social activities (80.0%), as shown in Table 4-6.

Table 4-6 Characteristics of older adults in the third draft questionnaire (n = 40)

Characteristics	Number	Percentage
Age (years)		
- 60-74	31	77.5
- 75-84	8	19.6
- 85-over	1	2.9
Mean 69.22, S.D 6.71		
Min = 60		
Max = 89		
Sex		
- Female	25	62.5
- Male	15	37.5
Religion		
- Buddhist	20	50.0
- Catholic	5	12.5
- Muslim	15	37.5

**Table 4-6 Characteristics of older adults in the third draft questionnaire (n = 40)
(cont.)**

Characteristics	Number	Percentage
Marital status		
- Single	2	5.0
- Married/partnered	23	57.5
- Divorced/Separated	1	2.5
- Widowed	14	35.0
Education		
- Illiterate	5	12.5
- Elementary education	30	75.0
-Secondary education	3	7.5
- Bachelor's degree	1	2.5
-Graduate study	1	2.5
Current employment status		
-Unemployed	10	25.0
-Freelance worker	4	10.0
-Merchant	3	7.5
-Agriculturalist	10	25.0
-Homemaker	13	32.5
Current employment status		
-Unemployed	10	25.0
-Freelance worker	4	10.0
-Merchant	3	7.5
-Agriculturalist	10	25.0
-Homemaker	13	32.5
Income sufficient		
-Sufficient without saving	23	57.5
-Insufficient with debt	17	42.5
Health status		
-Healthy	15	37.5
-Chronic illness	25	62.5

**Table 4-6 Characteristics of older adults in the third draft questionnaire (n = 40)
(cont.)**

Characteristics	Number	Percentage
Social activities		
-Club activities	32	80.0
-No social activities	5	12.5
-Volunteer	3	7.5

4.2.4 Testing Internal Consistency

The internal consistency or homogeneity described both reliability of instrument and correlation of subscales. Cronbach’s alpha coefficients were used to estimate the internal consistency reliability of the 42 items of the MHAT-T. The internal consistency reliabilities and item-total correlation coefficients were calculated for the unique scales of the constructs. Item analysis was analyzed to determine the retaining items using two criteria: a minimum Cronbach’s alpha reliability of 0.7 and item-total correlation of 0.30 (Nunnally & Berstein; 1994). The item-total correlations and Cronbach’s alpha coefficient of test reliability are shown in Table 4-7.

**Table 4-7 Item-total correlations and Cronbach’s alpha coefficients of pretest
(N = 40)**

Scale	Pretest study	
	Item-total correlation	Cronbach’s alpha coefficient
Mental status: Items 1-17	0.158 - 0.335	0.645
		If deleted m 2,m7 ITC = 0.219-0.319 Cronbach’s alpha = 0.631
		If deleted m 10- m 17, ITC = 0.375-0.669 Cronbach’s alpha = 0.836

Table 4-7 Item-total correlations and Cronbach's alpha coefficients of pretest (N = 40) (cont.)

Scale	Pretest study	
	Item-total correlation	Cronbach's alpha coefficient
Mental capacity: items 18-25	0.425 – 0.579	0.771
Mental quality: item 36 – 47	0.379-0.611	0.850
Social well-being : Items f1,f2,f3,f4,f5,f8,f9,f10	0.527 – 0.661	0.859

The pretesting found that Cronbach's alpha reliability showed acceptable reliability for three domains: 0.799 for 18to 31 items of mental capacity, 0.861 for 36 to 47 items of mental quality, and 0.867 for ten items of social well-being. For only one domain, Cronbach's alpha reliability was low (0.645) for 17 items of mental status,

For Item-total correlation, the results showed the correlations ranged from 0.158 to 0.644. Using the above criteria (≥ 0.30), 20 items were deleted: item m 2, m7 ($r = 0.631$) and all of items (m1-m17).

Ryff and colleagues (2006) reported that dimensions of mental health were the best separated construct because mental health, both psychological well-being and mental maladjustment were mirrored in biology. A barrier of constructs occurred when the category of construct did not focus on reflection of scale. Then variables should be concluded from the direction items (DeVellis, 2003), and the one item format insured less misinterpretation than the differential item format in self-administration (Waltz, Strickland, & Lenz, 2005). In the real situation, some older adults who completed the instrument by themselves got confused with negative items. Therefore, seven items (item 10to 17: negative aspects of mental status) were deleted.

After deleting all items, Cronbach's alpha reliability in four themes exhibited good reliability: mental status (0.836), mental capacity (0.771), mental quality (0.850) and social well-being (0.859). Then the fourth draft consisted of four

domains and 32 items. The fourth draft of the instrument (32 items) is shown in Table 4-8.

Table 4-8 Item statement of the MHAT-T in each theme and category (32 items)

Themes and category	Item no.	Item statement
Theme 1: Mental status		
1.1 Sukha	m1	You feel peace in your mind
	m3	You feel very happy when your children or your kinship relations speak kindly with you
	m5	Your children or kinship relations accept you
	m4	You feel happy if you have physical strength
	m6	You feel very happy when your children graduate or work
	m8	You feel joyful
	m9	You are optimistic
1.2 Satisfaction of life	m18	You have life satisfaction
Theme 2: Mental		
Capacity		
Self-esteem	m19	You have high esteem in your family
	m20	You are useful for your community
Coping and adaptation	m22	You have many ways to release your stress (e.g., exercising, joining an activity group, and meditating)
	m23	A critical situation in your life is just an experience or a test of God
	m24	You are certain that you can deal with critical situations
	m25	You accept the problems that cannot be solved

Table 4-8 Item statement of the MHAT-T in each theme and category (32 items)
(cont.)

Themes and category	Item no.	Item statement	
Mindfulness consciousness	m41	You are mindfully conscious before doing things	
	m42	You think about the advantages and disadvantages, before making decisions	
	m43	You learn from the past and apply it to daily life	
Theme 3: mental quality Having kindness and altruism	m36	You felt pity for people, sympathize with those suffering	
	m37	Although you cannot help others with the sources of property, you express your sympathy in .	
	m38	You worry when you cannot help others	
	Being Patient	m39	You do not give up on the difficulties of life
		m40	The bad things in life you are overcome with tolerance and patience.
Making merit	m44	The teaching of the religion is the spiritual bound of your mind	
	m45	You think religious practices lead to peace in mind.	
Theme 4: Social well-being			
	f1	You feel secure when you live with your family	
	f2	If you are sick, your family will take excellent care of you	
	f3	Your family lives in harmony.	
	f4	Your family speaks politely to you	

Table 4-8 Item statement of the MHAT-T in each theme and category (32 items) (cont.)

Themes and category	Item no.	Item statement
	f5	You feel stable and secure in their community
	f8	Your community has good attitudes toward you
	f9	Your neighbors and community are friendly to you
	f10	Your community honors and respects you

4.3 Results of Phase III: Testing psychometric properties

The second phase was separated into two parts: pretest and survey administration. The purpose of the pilot study was to examine the instrument before survey. The results in this phase are presented as follows: 1) Characteristics of samples, 2) Item analysis, 3) Testing construct validity, 4) Testing reliability and 5) The norm value of the MHAT-T.

4.3.1 Characteristics of the Samples

The survey administration was conducted with 1,266 older persons to test reliability and validity of the initial instrument.

No data was missing in this result. The total 1,266 older persons comprised 60.3% females and 39.7 % males. The mean age of older adults was 68.9 (S.D=6.67) years and age ranged from 60 to 97 years. Most of them were Buddhists (76.5 %), married (58.1 %), agriculturalists (29.0 %), sufficient without savings (57.3 %), had completed primary school (63.9 %), and had chronic illness (63.3%), as shown in Table 4-9

Table 4-9 Characteristics of older adults in cross-sectional survey (n = 1,266)

Characteristics	Number	Percentage
Part of Thailand		
-North	251	19.8
-Northeast	409	32.3
-Central	290	23.0
-South	187	14.7
-Bangkok	129	10.2
Sex		
- Female	764	60.3
- Male	502	39.7
Mode 2, S.D 0.48		
Age (years)		
- 60-74	997	78.8
- 75-84	243	19.2
- 85-94	24	1.9
-95 and over	2	0.2
Mean = 68.9, S.D = 6.674		
Min = 60		
Max = 97		
Religion		
- Buddhist	969	76.5
- Catholic	80	6.3
- Muslim	217	17.1
Marital status		
- Single	47	3.7
- Married/partnered	736	58.1
- Married/separated	39	3.1
- Divorced/separated	19	1.5
- Widowed	425	33.6
Activities		
-Participate with club	1,058	83.6
-Nonparticipation in club	208	16.4

**Table4-9 Characteristics of older adults in cross-sectional survey (n =1 ,266)
(cont.)**

Characteristics	Number	Percentage
Education		
- Literate	335	26.5
- Elementary education	809	63.9
- Secondary education	55	4.3
- Diploma/College	10	0.8
- Bachelor's degree	23	1.8
-Graduate study	34	2.7
Current employment status		
-Unemployed	318	25.1
-Freelance worker	114	9.0
-Merchant	104	8.2
-Agriculturalist	367	29.0
-Homemaker	363	28.7
Income sufficient		
-Sufficient without saving	721	57.0
-Insufficient with debt	545	43.0
Health status		
-Healthy	464	36.7
-Illness	802	63.3

4.3.2 Item analysis

For a new instrument, univariate and multivariate characteristics of each item should be conducted before conducting factor analysis (Dixon, 2001). The investigator should determine items for these characteristics, so this study was conducted by using bivariate and univariate descriptive statistics.

Univariate descriptive statistic describes basic characteristics of distribution, central tendency, skewness and kurtosis. Two components of normality are skewness and kurtosis. Skewness represents symmetry of distribution and kurtosis

represents distribution peak. The skewness and kurtosis values are zero which indicated that distribution was normal (Tabachnick & Fidell, 1996).

For 32 items of this instrument, means ranged from 2.66 to 3.54. Determining normality distribution, most of items exhibited low skewness ranging from -0.28 to -1.01, kurtosis ranged from -1.00 to 1.00, and the mode and median of items were 3.0. Thus, these items presented normal distribution. The details are presented in Table 4-10.

Table 4-10 Descriptive Statistics of item (32 items, n = 1,266)

Item	Mean	Median	Mode	SD	Skewness	Kurtosis
m1	3.00	3.00	3.00	0.632	-0.357	-1.000
m3	3.24	3.00	3.00	0.629	-0.353	-1.000
m4	3.05	3.00	3.00	0.654	-0.281	-0.281
m5	3.80	3.00	3.00	0.739	-0.353	0.761
m6	3.21	3.00	3.00	0.645	-0.367	-0.650
m8	3.28	3.00	3.00	0.691	-0.654	0.112
m9	2.87	3.00	3.00	0.739	-0.620	0.524
m18	2.97	3.00	3.00	0.621	-0.376	0.792
m19	3.03	3.00	3.00	0.597	-0.501	1.557
m20	3.36	4.00	4.00	0.802	1.132	0.599
m22	3.17	3.00	3.00	0.812	0.797	0.133
m23	3.35	4.00	4.00	0.840	1.169	0.541
m24	3.35	4.00	4.00	0.766	1.030	0.533
m25	3.47	4.00	4.00	0.726	1.274	0.909
m36	2.91	3.00	3.00	0.689	-0.310	0.122
m37	2.66	3.00	3.00	0.661	-0.377	0.144
m38	3.05	3.00	3.00	0.725	-0.709	0.824
m39	3.12	3.00	3.00	0.637	-0.548	1.141
m40	3.24	3.00	3.00	0.630	-0.577	0.795
m41	3.40	4.00	4.00	0.755	1.199	0.986
m42	3.46	4.00	4.00	0.784	1.372	1.069
m43	2.99	3.00	3.00	0.631	-0.541	1.224
m44	3.14	3.00	3.00	0.599	-0.223	0.320
m45	2.98	3.00	3.00	0.562	-0.352	1.349
f1	2.78	3.00	3.00	0.741	-0.552	0.311
f2	2.76	3.00	3.00	0.696	-0.631	0.589
f3	2.73	3.00	3.00	0.650	-0.446	0.380
F4	2.94	3.00	3.00	0.665	-0.420	0.551
f5	2.87	3.00	3.00	0.617	-0.544	1.099
f8	3.06	3.00	3.00	0.599	-0.379	1.906
f9	3.41	3.50	4.00	0.652	-0.867	0.491
f10	3.42	4.00	4.00	0.652	-1.016	0.785

Min = 2.66, Max = 3.54

Then, bivariate descriptive statistic was conducted. Regarding item to item correlation; each variable should be correlated with at least one other variable between 0.30 to 0.70 (Nunnally & Berstein, 1994; Striener & Norman, 1995). The results in this study found acceptable correlation in each item without the need to delete any items. Thus, all 32 items remained for further analysis.

4.3.3 Testing Validity

4.3.3.1 Testing construct validity by factor analysis

EFA was established to determine construct validity. Using exploratory factor analysis, factor extraction was performed depending on several criteria including: 1) interpretability with each factor representing a meaningful underlying dimension, 2) factor loading cutoff point was .40, and 3) eigen values were greater than one.

To determine the appropriateness of factor analysis, the correlation matrix for all items, Bartlett test of sphericity, the Kaiser-Meyer-Olkin (KMO), and measure of sampling adequacy (MSA) were examined.

The correlation matrix for all 30 items revealed low to moderate correlations ($r = .085$ to $.627$). It indicated that these items share some common factors. Therefore, eliminating the items in this step wasn't needed. The results of the measure of sampling adequacy (MSA) in the Anti-image correlation matrix ranged from .852 to .960, and met the criterion of .70. Therefore, data matrix of this study was suitable for factor analysis. The Bartlett test of sphericity was significant ($\chi^2 = 17131.539$, $p < .001$), revealing that variables had multivariate normal distribution, and the correlation matrix was suitable for factor analysis. Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) value in this study was .925; the high value represented appropriateness to conduct factor analysis.

Scree plot showed a noticeable difference in slope after the five components. A principal components analysis (PCA) with promax rotation was carried out. Item loadings were suppressed if they were less than 0.4. From the result of factor analysis, the final draft of the MHAT-T was composed of 5 factors, 32 items and explained a total of 55.8% of variance. The five factors are named as follows: Factor 1 "Family attachment," Factor 2 "Mental quality," Factor 3 "Mental status,"

Factor 4 “Social well-being” and Factor 5 “Mental capacity” The details as shown in Table 4-11.

Factor 1 (Family attachment) contained six items (items m5, m6, m3, f2, f3, f1), accounting for 32.76% of variance with an eigen value of 10.48. Factor loadings on the first factor ranged from 0.54 to 0.77.

Three items (m3, m5, and m6) were drawn from a theme of mental status as *sukha*: item m3 “You feel happy, when your child speaks politely with you.” Item m5: “you are very happy, when your child respects you.” And item m6: “You feel happy, if your child graduated or works.” Other items (f1, f2, and f3) are drawn from the theme of social well-being. Item f1 “You feel secure when you live in family.” item f2 “If you are sick, family will take excellent care of you.” and item f3 “Your family has harmony.”

Of interest in the finding, most items focused on family, thus factor 1 could be interpreted as family attachment. Family attachment can be defined as feelings and a show of love in one’s own family, including having respect, harmony, warm contact, security and caring in the family.

Factor 2 (Mental quality) consisted of eight items (items m44, m38, m45, m42, m40, m43, m41, m39), accounting for 7.70% of variance with an eigen value of 2.46. Factor loadings on this factor ranged from 0.64 to 0.73.

Five items come across from the theme of mental quality: item 38 “You worry when you cannot help others”, item 39 “You do not give up on the difficulties of life”, item 40 “The bad things in your life are overcome with tolerance and patience.”, item 44 “The teaching of the religion is the spiritual bond of your mind”, and item 45 “You think religious practices can lead to peace in mind.”

Three items come across from the theme of mental capacity: item 41 “You are mindfully conscious before doing things”, item 42 “You think about the advantages and disadvantages, before making decision”, and item 43 “You learn from the past and apply it to daily life.”

Of interest in the finding, most items focused more on mental quality than mental capacity, thus factor 2 could be interpreted as mental quality. Mental quality is defined as the ability of give up on the difficulties of life among

tolerance, patience, the spiritual bond of your mind, the religious practices that lead to peace of mind, consciousness, making decisions, and learning applied to daily life.

Factor 3 (Mental status) consisted of seven items (items m18, m20, m19, m8, m9, m4, m1) with factors loading range from 0.50 to 0.74. It accounted for 5.58% of variance with an eigen value of 1.78. Although factor loading of m1 was 0.56 in factor 1, older adults perceive that peace in mind is a feeling. Thus, the investigator selected m1 in factor 2 having a loading of 0.50.

Seven items come across from the theme of mental status: item m1 “you feel peace in your mind”, item 4 “You feel happy that you have enough money to get by”, item 8 “You feel joyful”, item 9 “You are optimistic”, item 18 “You have life-satisfaction”, item 19 “You have high esteem in your family”, and item 20 “You feel happy and useful for your community.”

Of interest in the finding, most items focused on general well-being and positive effect, thus factor 3 could be interpreted as mental status. Mental status can be defined as feeling peace of mind, joyful, optimistic, self-esteem, life satisfaction, and happy.

Factor 4 (Social well-being) consisted of five items (items f10, f8, f9, f4, f5), accounting for 4.99% of variance with an eigen value of 1.59 and factors loading ranging from 0.67 to 0.76.

Six items were drawn from the theme of social dignity and support; item f4: “Your neighbors and your community will help you when you request”, item f5: “You feel stable and secure in your community”, item f8, “Community adds social-value to older people”, item f9, “neighborhood and community are friendly to you”, and item f 10: “Social dignity and respect for you.”

Of interest in the finding, most items focused on mental capacity, thus factor 4 could be interpreted as social well-being. Social well-being is defined as feeling friendly, stable, secure, and society adds the value of dignity and respect for older adults, including help when requested.

Finally, **Factor 5, (Mental capacity)** consisted of six items (items m22, m24, m25, m23, m36, m37), accounting for 3.79% of variance with an eigen value of 1.21 and factor loading ranging from 0.47 to 0.80.

Four items were drawn from the theme of mental capacity; item m24: “You are certain that you can deal with critical situations”, item m 25: “You accept the problems that cannot be solved”, item 22: “You have many ways to release your stress (e.g., exercising, joining an activity group, and meditating”, and item 23: “a critical situation in your life is just an experience or a test of God.”

Two items come across the theme of mental quality; item 36: “You feel pity with people, sympathize with those suffering”, and item 37: “Although you cannot help others with the sources of property, you express your sympathy.”

Of interest in the finding, most items were more concerned with mental capacity than mental quality, thus factor 5 could be interpreted as mental capacity. Mental capacity is defined as the ability to manage stress, coping and adaptive process, and sympathy.

Table 4-11 Factor Loading and Percent of Variance of each Factor of the MHAT-T (n = 1,266)

Items	Statement	Factor Loading	Percent of variance
Factor 1:	Family attachment	.548 - .772	32.769
	<i>Eigenvalue = 9.855</i>		
m5	Your children or kinship accept you	.772	
m6	You feel very happy when your children graduate or work	.738	
m3	You feel very happy when your children or your kinship relations speak kindly with you	.737	
F2	If you are sick, your family will take excellent care of you	.736	
F3	Your family lives in harmony	.729	
F1	You feel secure when you live with your family	.681	

Table 4-11 Factor Loading and Percent of Variance of each Factor of the MHAT-T (n = 1,266) (cont.)

Items	Statement	Factor Loading	Percent of variance
Factor 2	Mental quality	.640-.730	7.703
	Eigenvalue = 2.468		
m44	The teaching of religion is the spiritual bond of your mind	.730	
m38	You worry when you cannot help others	.720	
m45	You think religious practices can lead to the peace in mind	.703	
m42	You think about advantages and disadvantages before making decisions	.680	
m40	The bad things in life are overcome with tolerance and patience.	.678	
m43	You learn from the past and apply it to daily life	.660	
m41	You are mindfully conscious before doing things	.660	
m39	You do not give up on the difficulties of life	.640	
Factor 3	Mental status	.504 - .742	5.581
	Eigenvalue = 1.786		
m18	You have life satisfaction	.742	
m20	You feel happy and useful for your community	.683	
m19	You have high esteem in your family	.681	
m8	You feel joyful	.631	
m9	You are optimistic	.651	
m4	You feel self-sufficient	.565	
m1	You feel peace in your mind	.504	

**Table 4-11 Factor Loading and Percent of Variance of each Factor of the MHAT-T
(n = 1,266) (cont.)**

Items	Statement	Factor Loading	Percent of variance
Factor 4	Social well-being	.674 - .761	4.995
	<i>Eigenvalue = 1.598</i>		
F10	Your community honors and respect you	.761	
F9	Your neighbors and community are friendly to you	.758	
F8	Your community has good attitudes toward you	.759	
F5	You feel stable and secure in their community	.719	
F4	When you need, your neighborhood and your community will help you	.674	
Factor 5:	Mental capacity	.471 - .800	3.797
	<i>Eigenvalue = 1.215</i>		
m22	You have many ways to release your stress (e.g., exercising, joining an activity group, and meditating)	.690	
m24	You are certain that you can deal with critical situations	.800	
m25	You accept the problems that cannot be solved	.753	
m23	A critical situation in your life is just an experience or a test of God	.693	
m36	You felt pity on people, sympathize with those suffering.	.605	
m37	Although you cannot help others with the sources of property, you express your sympathy.	.471	

4.3.3.2 Testing construct validity by contrast groups approach

To estimate construct related evidence of validity, independent t-test used to determine differences in validity across older adults in community (n = 1,266) and older adults with depression diagnosed by the doctor (n = 43). The independent t-test was used for testing construct validity in the contrast group because the data was evidence of normal distribution. By comparing between scores of both groups, it was found that older adults with depression had significantly lower scores of mental health than older adults in community, with the following factors: family attachment, mental capacity, mental status, and social well-being at 0.01 level (P<0.001) whereas one factor (mental quality) was not different (p=0.148) as shown in Table 4-12

Table 4-12 Mental health among older adults with contrast groups

Factors	Descriptive statistics		Independent t-test: statistics		
	Mean	SD	t	df	P-value
Family attachment			3.451	43	< 0.001
<i>Community</i> ⁽¹⁾	22.51	3.50			
<i>ICD-10</i> ⁽²⁾	20.54	5.39			
Mental quality			1.473	43	Non-significant
<i>Community</i> ⁽¹⁾	16.53	2.77			
<i>ICD-10</i> ⁽²⁾	16.33	4.39			
Mental status			3.959	43	< 0.001
<i>Community</i> ⁽¹⁾					
<i>ICD-10</i> ⁽²⁾					
	18.18	2.66			
	16.00	5.42			

Table 4-12 Mental health among older adults with contrast groups (cont)

Factors	Descriptive statistics		Independent t-test: statistics		
	Mean	SD	<i>t</i>	df	P-value
Social well-being			3.720	43	< 0.001
<i>Community</i> ⁽¹⁾	15.37	2.37			
<i>ICD-10</i> ⁽²⁾	13.42	4.23			
Mental capacity			3.144	43	< 0.001
<i>Community</i> ⁽¹⁾	25.40	3.55			
<i>ICD-10</i> ⁽²⁾	23.57	6.25			

Non-significant

- (1) older adults in community
 (2) older adults with depression

4.3.4 Testing Reliability

4.3.4.1 Testing internal consistency reliability

The internal consistency on the total of MHAT-T was 0.915, which was high for the new instrument. All of the subscale reported sufficient correlation; factor 1: Family attachment ($r = 1.000$), factor 2: Mental quality ($r = 1.000$), factor 3: Mental status ($r = 0.544$), factor 4: Social well-being ($r = 0.965$), and factor 5: Mental capacity ($r = 1.000$).

Moreover, all items revealed sufficient item-total correlation ranging from 0.544 to 1.000. The details of internal consistency reliability of the resulting factors, is shown in Table 4-13.

Table 4-13 Item-total correlation and Cronbach's Alpha Coefficient

Scale	No. of Items	Item-total correlation	Cronbach's Alpha Coefficient
Family attachment	7	.587 - .759	.877
Mental quality	6	.513 - .685	.763
Mental status	6	.596 - .707	.822
Social well-being	5	.631 - .721	.801
Mental capacity	8	.606 - .681	.848
Total	32	.521 - .710	0.833

4.3.4.2 Testing test-retest reliability

The second method testing the reliability of the MHAT-T was evaluated with test-retest reliability. The method was tested by the same persons with the same instrument within two weeks using Pearson Moment Correlation coefficients between test and retest. A subgroup of 40 samples performed retest within two weeks.

The results of the two-week test-retest reliability revealed Pearson's coefficient ranged from 0.544 to 1.00: factor 1: Family attachment ($r = 1.000$), factor 2: Mental capacity ($r = 1.00$), factor 3: Mental status ($r = 0.544$), factor 4: Social dignity and support ($r = 0.965$), and factor 5: Mental quality ($r = 1.000$). Five factors had high reliability ($r \geq .70$). Only one factor had a moderate reliability. The total items of the MHAT-T demonstrated a high reliability ($r \geq .70$) indicating stability over a short time period. Correlation coefficients of test- and retest are presented in Table 4-14.

Table 4-14 Correlation coefficients of test- and retest

Domains	Test-Retest	P-value
Family attachment	1.000	< 0.001
Mental quality	1.000	< 0.001
Mental status	0.544	< 0.001
Social well-being	0.965	< 0.001
Mental capacity	1.000	< 0.001
Total	0.945	< 0.001

4.3.5 The norm values of the Mental Health Assessment Tool for Thai Older Adult (MHAT-T)

The final version of the MHAT-T) consisted of 32 items with a 4-point Likert scale: Strongly agree, Agree, Disagree, and Strongly disagree. The following scores were used to reflect responses to such scale statement: 4=Strongly agree, 3=Agree, 2=Disagree, and 1=Strongly disagree. The possible range score of the MHAT-T ranged from 32 to 128.

The median of MHAT-T was 98, the points at 25th and 75th percentile were 92 and 106 points, respectively and could be classified into three groups of mental health for Thai older adults as shown below.

MHAT-T

107 - 127 = better mental health

92 - 106 = normal mental health

91 points or below = lower mental health

The details are presented in Table 4-15



Table 4-15 The norm values of the MHAT-T (32-items)

Statistic	MHAT-T (32-items)
Mean	98.00
Standard deviation	11.67
Median	98.00
25 th percentile	92
75 th percentile	106
Minimum	56
Maximum	127
Potential range	32 - 128
Obtained range	56 - 127
Rang	71

4.3.6. Summary of the domains and items of the MHAT-T.

The final version of the MHAT-T consisted of 5 domains: 1) family attachment, 2) mental quality, 3) mental status, 4) social well-being, and 5) mental capacity.

Factor 1: family attachment contained 6 six domains, Factor 2: mental quality consisted of 8 items, Factor 3: mental status consisted of 7 items, Factor 4: social well-being consisted of 5 items, and Factor 5: mental capacity consisted of 6 items.

Figure 4.1 Summary of Domains and Items of the MHAT-T

