The Development of Thai Mental Health Indicator (TMHI): From Past to Present

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Abstract

Thailand has realised the importance and need of developing Thai mental health indicators to investigate the mental health of Thai people. In 2000, the Thai mental health indicator for the individual level was developed to study the country-wide mental health of Thai people and to examine the change of mental health or wellbeing of Thai people. The objective of this paper is to present the processes of developing a Thai mental health indicator from 2000 to the present. The mental health indicator is a worthy and useful instrument, especially to investigate the country-wide happiness of the Thai people in 2000 and 2005.

Methods

This paper will review both research projects on the Thai Mental Health Indicator (TMHI). The sample size of the first research project on TMHI covered the population from the north-east region, but the second covered populations from all regions. Both of the TMHI research projects were split into 3 phases: Phase I, to study the content validity; Phase II, to study the first construct validity; and Phase III, to study the second construct validity, reliability, concurrent validity, and normal value. In each development of the research instrument, meetings with mental health experts, including psychiatrists, psychiatric nurses, psychologists and social workers were carried out to discuss the research data in each phase. The data collectors were nurses,

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psychologists, and social workers who underwent training workshops until they could use the research tool skilfully. Research statistics were descriptive statistics, factor analysis, Cronbach's Alpha coefficient, and Kappa statistic.

Results

The 2000 Thai Mental Health Indicator (TMHI) had 2 versions: full (66 items) and short (15 items); with 4 domains including 1) mental state 2) mental capacity 3) mental quality 4) supporting factors); and with 20 sub-domains. The scores were divided into 3 groups: good, fair, and poor mental health. Adjusted in 2003, the Thai Mental Health Indicator (TMHI) had 2 versions: complete version (54 items) and short version (15 items) with the same 4 domains, but only 15 sub-domains. The scores were divided into 3 groups: good (118-162 points), fair (99-117 points), and poor mental health (98 points or below). The short version scores were also divided into 3 groups: good (33-45 points), fair (28-34 points), and poor mental health (27 points or below). The agreement study was found between the complete and short version TMHI with substantial results (kappa statistic 0.63, p-value <0.001).

Introduction

Thailand has developed a variety of instruments to measure the mental health of Thai people such as Thai Mental Health Indicator (Suwanee Kiewkingkeaw, 1987), the development of mental health indicator (Amphorn Otrakul, et al., 1997), WHO Quality of Life – BREF (THAI) Assessment (Suwat Mahatnirunkul et al, 1997), and the Norm Profile for the Thai Mental Health Questionnaire (Sucheera Phattharayuttawat et al, 1999). These instruments had some weak points such as they didn't cover the mental health definition in the context of Thai culture; data collection was from patients at hospital settings – not a national scale population. This tool has been developed since 2000 to measure mental health or wellbeing of all Thai people (happiness and mental health are the same subject in Thai culture). The aim of this paper is to present the processes of developing the Thai mental health indicators from 2000 to nowadays. Now this tool has been used nationwide.

Methods

This paper will review both research projects on the Thai Mental Health Indicator (TMHI). In 2000, the research on the Thai mental health indicator at the individual level was done first. The 1429 study-population was selected with the multi-stage sampling method from 11 provinces in North-east region of Thailand: Khonkean, Uponrajathani, Nakornrajasima, Kalasin, Leoi, Sakonakorn, Hnongkai, Roy-et, Buriram, Chaiyapum, and Amnajareon. In 2003, the development and testing of the new version of the Thai mental health indicators was carried out. The study-population was from all regions of Thailand: central, north, north-east, east, and south. The determination of the sample size was from the following formula:

N	$= \dfrac{Z^2 \alpha / 2\, P\,(1\text{-}P)}{d^2}$
Z2 α/2	= Confidence level at 95 % (1.96)
P	= prevalence of people with low mental health (28.4 %)
d	= Maximum permissible error
	= 10 % of 28.4 % (0.028)
N	= 996.39

Owing to the multi-stage stratified cluster sampling, the determination of the sample size in the 2000 research had to multiply the design effect by 2: 996 (sample size) x 2 was 1,992. So each region had to collect a total of 400 cases. But in the later research, the sample size was calculated from research items (157 items). Each item required 5-10 cases, so sample size was 1500 cases. However the determination of sample size of both research projects was similar.

*The inclusion criteria of the study population*
- age between 15 years-old to 60 years-old
- live in the village at least 1 year
- can communicate, not dumb or deaf
- cooperative

The exclusion criteria of study population
- cannot reply to all the items of the research questionnaire
- being severe ill
- being in a coma or unconscious

The study population was divided into 3 groups according to the area of district government, or *Or-bor-tor* in Thai. These groups included: 1) Or-bor-tor level 1-2 (rich economic status), 2) Or-bor-tor level 3 (middle economic status), and 3) Or-bor-tor level 1-2 (poor economic status) as show in below figure 1.

Figure 1: The sampling method in the second and the third phases of research
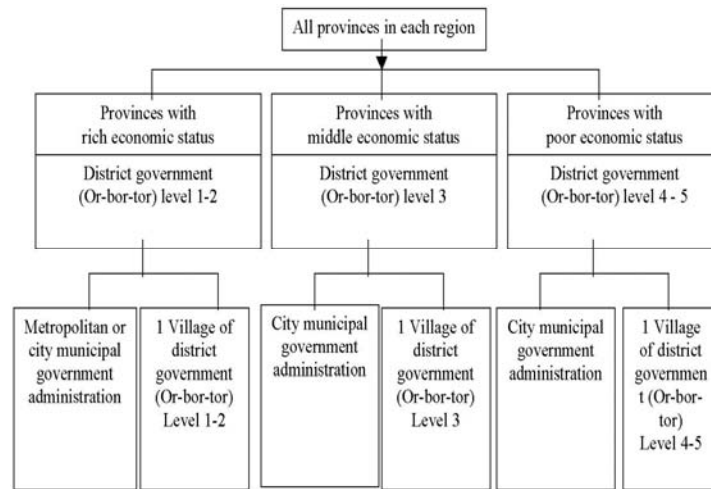
Note: The economic status was classified into 5 levels of district government according to the total yearly income of each district government that obtained from customs duty, tax, service charge etc. These levels included:
- *Or-bor-tor level 1 has total yearly income more than 20 millions (baht)*
- *Or-bor-tor level 2 has total yearly income 12-20 millions (baht)*
- *Or-bor-tor level 3 has total yearly income 6-12 millions (baht)*
- *Or-bor-tor level 4 has total yearly income 3-6 millions (baht)*
- *Or-bor-tor level 5 has total yearly income not more than 3 millions (baht)*

The development of research tools in 3 phases

The research instruments were developed by the same principles both times with 3 phases as described in what follows.

Phase I

In the first (2000) research project on the Thai Mental Health Indicator (TMHI), a research instrument was developed by reviewing all related documents and research from both Thailand and other countries. The first instrument used 157 items to collect data in phase II and III and analyse factors (factor analysis) to study the construct validity. In this stage, the amount of items was reduced to 66. In the 2nd (2003) research project on TMHI, the instrument with 66 items was developed again by reviewing additionally all related documents and research from both Thailand and other countries at a mental health experts meeting. In this stage, the instrument had 80 items with 21 sub-domains grouped under four main domains: 1) mental state, 2) mental capacity, 3) mental quality, and 4) supporting factors.

Phase II

TMHI (2003) included 80 items, and was based on a study of the first construct validity with a 2,024 study-population who lived in the areas of metropolitan municipal government administration, city municipal government administration, and Or-bor-tor level 1-5 from 15 provinces in 5 regions. From data analysis and a mental health experts meeting held to discuss the results, the TMHI remained the same domains and sub-domains, but adjusted some questions and reduced the number of items from 80 to 73.

Phase III

The third phase studied the second construct validity and the norm of the instrument with 73 items from phase II. The data were collected with the same determination of sample size, but in new areas of 15 provinces. After analysing data, a mental health experts meeting was held to discuss the results. In this stage, the instrument was divided into 2 forms; the complete form included 54 items and the short form 15 items. After that, the normal value of both instruments was studied by separating people according

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to the value obtained, to be above average, average, and under average; the instruments were then studied for reliability.

Data collectors were nurses, psychologists and social workers who underwent a training workshop and could use the research tool skillfully. Research statistics were descriptive, median and percentile to study the norm values, factor analysis to study the construct validity, Cronbach's Alpha coefficient to study the reliability, correlation coefficient to study the concurrent validity, and Kappa statistic to study the agreement between the complete and brief Thai mental health indicator.

Results of the development of Thai Mental Health Indicator

1. The paper, Thai Mental Health Indicator – TMHI – version (2003), was developed under the following definition of mental health: "a good mental health or well-being results from mastering the competency of daily problem-solving, the potential to develop owner-self into a better quality of life, which covered intrapsychic goodness under changeful society and environment". From the above definition, Thai Mental Health Indicator – TMHI – new version (2003) was classified into the same four domains as TMHI-2000 version, but reduced the 20 sub-domains of TMHI-2000 versions to 15 sub-domains as show in Figure 2.

Figure 2: Domains and sub-domains of Thai Mental Health Indicator (TMHI-54)
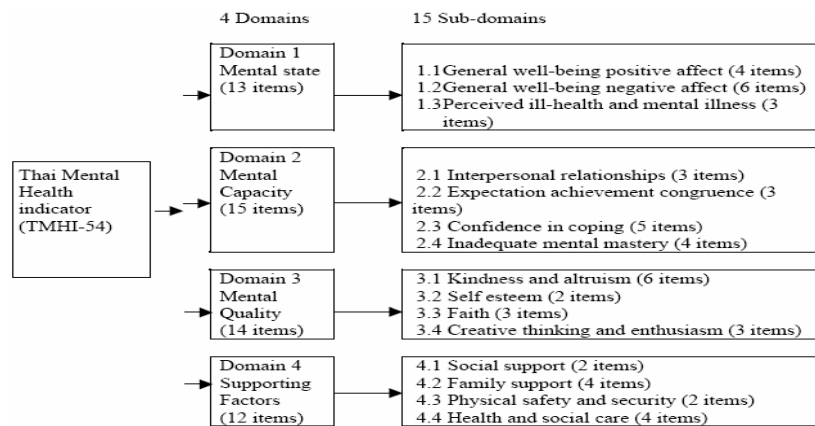
2. The changes made between the sub-domains in 2000 and 2003 can be compared in table1.

Table 1: Comparison between the TMHI 2000 and THMI 2003

Thai Mental Health Indicator(TMHI)	2000	2003	Change
Complete version	20 Subdomains	15 Subdomains	The Sub-domains that were disappeared: 1. Body image and appearance 2. Activities of daily living 3. Recreation
			5. Physical environment Sub-domain that was combined :
			1. Altruism was combined to the sub-
			domain of kindness

3. The value of reliability (Cronbach's alpha coefficient) in domain 1 (mental state) was 0.83, domain 2 (mental capacity) 0.81, domain 3 (mental quality) 0.86, and domain 4 (supporting factors) 0.83 as shown below in table 2.

Table 2: The data of descriptive statistic and reliability value of domain 1, 2, 3, and 4 of Thai Mental Health Indicator (TMHI) -Complete version (n = 2,401)

Factor	Number of item		S.D.	Potential range	Obtained range	Cronbach's alpha coefficient
Domain						
Mental state	13	29.83	4.70	0-39	5-39	.83
Mental Capacity	15	28.0	4.97	0-45	8-45	.81
Mental Quality	14	27.75	5.12	0-42	0-42	.86
Supporting Factors	12	22.89	4.59	0-36	0-36	.83

4. The norm values of Thai Mental Health Indicator were calculated for both TMHI-54 and TMHI-15 (full TMHI and short TMHI). The median of Thai Mental Health Indicator – TMHI-54 was 109, the points at 25th and 75th percentile were 99 and 117 points respectively and could be classified into 3 groups of mental health as shown by the following:

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Thai Mental Health Indicator – TMHI-54

118 – 162 = better mental health
99 – 117 = normal mental health
98 points or below = lower mental health

Thai Mental Health Indicator (TMHI) -short form

35 – 45 = better mental health
28 – 34 = normal mental health
27 points or below = lower mental health

For more detail see the following table 3.

Table 3: The norm values of Thai Mental Health Indicator – TMHI-54 and TMHI-15 (full TMHI and short TMHI) (n = 2,390)

Statistic	TMHI-54	TMHI-15
Mean	108.30	31.02
Standard deviation	14.46	4.75
Median	109.00	31.00
25th percentile	99	28
75th percentile	117	34
Maximum	161	45
Minimum	39	9
Potential rang	0-162	0-45
Obtained range	39-161	9-45
Range	122	36

5. In the study of agreement between TMHI-54 (Full TMHI) and TMHI-15 (short TMHI), the kappa statistic was equal to 0.63 with statistical significance ($p < 0.001$) and 95 % CI = 0.60-0.66 as seen in the following table 4.

Table 4: The value of agreement study between TMHI-54 and TMHI-15

Pairs	Kappa statistic	95% CI
TMHI-54 and TMHI-15	0.63	0.60 – 0.66

Discussion

The development of the Thai mental health indicator has been done successively since 2000. The first instrument was separated into 2 forms: complete form (66 items) and short form (15). In the first effort, the study-population was only in the north-east region of Thailand and did not cover all regions. The study was done again in 2003 with a study-population from all 5 regions of Thailand. This instrument was more complete because it was constructed under the context of Thai society, especially in the domain of mental quality that emphasised kindness and altruism. This domain is in accordance with the Buddhist principle that stresses the importance of having good mental health and feelings of happiness due to having a normal mind, or keeping one's own mind normal when contacted with stimuli. Keeping one's own mind normal when facing a problem is in accordance with the domain of supporting factors and with the Prathampidok that the other happiness is the one derived from the external.

In this study, the normal value (normative model), in conjunction with data analysis at the 25th and 75th percentile, is used to determine the level of mental health. Because the distribution of scores is non-normal distribution, the scores are divided into 3 standard groups: good, fair, and poor mental health. The normative model is used due to not having instruments or psychiatrists to diagnose exactly whose mental health is normal or abnormal. The scores of the study population were used as a norm.

Conclusion

Thailand initated the THMI in 2000 and completed the research instrument by 2003. In the survey of the mental health of Thai people with TMHI-15 in 2001, it was found that 28.4 percent of Thai people had poor mental health. 71.6 percent registered good and fair mental health. Meanwhile, the survey in 2003 found that 31.9 percent of Thai people had poor mental health. In 2007, the Department of Mental Health at the Ministry of Public Health has surveyed the mental health of Thai people again, and the data is currently being analysed.

The TMHI has been developed to be a reliable instrument for assessing the mental health of the Thai population under the context of Thai society and culture. It has been used to investigate the country-wide happiness of Thai people in 2001, 2005, and now. The results of the three surveys could be compared to show the trend of happiness of Thai people and could determine the policy of further promotion and prevention of mental health for Thai people.

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