

# **The Confirmatory Factor Analysis of Factors Affecting Professional Competency in Community Health Practitioners of North-Eastern Thailand**

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## **ABSTRACT**

This cross-sectional analytical study was aimed to study the competency level community health practitioners and analyzed to confirm factors affecting the competency in community health practitioners in North-Eastern Thailand. The stratified random sampling was used to select 450 people from 20 provinces in North-Eastern Thailand. The result of research found that the level of competence in public health practitioners overall was at the average =  $3.48 \pm 0.68$ , divided into 44.00 % professional level, 42.44% practitioner level, 8.89% learner level. The results of the confirmation factor analysis showed that experience was described by age and working period with Factor loading = 0.990, 0.959 Competency was described by Managerial competency, Common competency, Specific competency, and Core competency with Factor loading = 0.939, 0.938, 0.899, 0.815, respectively, and Competency, Experience and Characteristic component explained to each other by factor loading = 0.993, 0.482, 0.380 respectively. The development of the competency of public health professionals must be performed for all competencies because all competencies were related and affected each other in a complementary direction.

## **Keywords:**

competency, health practitioner, health profession

## **Introduction**

Thailand's health system in terms of personnel who provides health services in many professions such as doctors, dentists, nurses, pharmacists, physiotherapists, community health practitioners, etc., each of whom has laws on their own professions, but in the profession of community health there are no professional standards. Most of the community health practitioners are working in sub-district health promoting hospital approximately 9,762, district health offices 878, hospitals of all levels, and all types of local administrative organizations. The health service will comply with the notification of the Ministry of Health to allow it to operate under other professional standards. Until the Community Health Profession Act, B.E.2556 (A.D.2013) was enacted on November 27, 2013. The Council of Community-Public Health was established to improve the quality and standard of working community health professionals to the same standards for the benefit of the population health, to determine, control professional standards and prevent unlawful exploitation of persons without knowledge that would cause harm and damage to the health of individuals and communities. (Royal Thai Government Gazette. 2013) The Law requires that anyone who engages in the community health profession or acts in any way expresses to others that they have the right to engage in the community health profession by obtaining a license from the Council of Community-Public Health. Practitioners are required to demonstrate their ability to perform professionally and professionally in community health with good professional ethics. (Council of Community-Public Health. 2018)

Competency refers to behavioral attributes that demonstrate their ability to perform their duties effectively and effectively or to exceed defined criteria or goals, which consists of knowledge, operational skills, and performance. The Personal features competency has an element: knowledge, skills, and abilities are the basis for a person to perform their work, and the composition of knowledge, skills, competencies, and other attributes are expressed in a relationship and rationally. (Byatzis, R. E. 1982) The practice of the community health profession must demonstrate professional expertise for the confidence of society. The study of competency model of community health practitioners, divided into 3 competency groups, 40 competencies were as follows 1) Core Competency (5) 2) Functional Competency Divided into 2.1) Common Competency (13) 2.2) Specific Competency (13) and 3) Managerial Competency (9). (Khunluek, K..2019)

This study was there for aimed to study the competency level of community health professionals and to confirm the factors affecting competency in community health practitioners: North-Eastern Thailand. In order for the practitioners and related organizations to be adopted as guidelines for

improving the competency of community health practitioners: high-competence community health practitioners provide health services based on professional standards this will bring healthy for the people.

## Methods

### 2.1 Recruitment of Subjects

This study was a cross-sectional analytical survey administered to community health practitioners working in North-Eastern Thailand. The required sample size was estimated using a formula for unknown population numbers. The samples were 450 people: selected by randomized according to stratified random sampling spread across a study of 20 provinces in North-Eastern Thailand.(Wayne W., D. (1995) &Ngamjarus C., Chongsuvivatwong V.(2014))

The inclusion criteria for participants was that they worked in sub-district health promoting hospitals, district health offices, hospitals of all levels, and all types of local administrative organizations in North-Eastern Thailand. Data were collected between May 1, 2020, and August 30, 2020.

### 2.2 Research Instruments

The variables in this study were characteristic, ) Practitioner's opinions on the competencies of the community health profession, divided into 3 competency groups, 40 competencies were as follows 1) Core Competency 2) Functional Competency Divided into 2.1) Common Competency 2.2) Specific Competency and 3) Managerial Competency. Person attributes (Trait & Self-Concept) and Motive of the community health profession (Motives).

**Table 1:** Variable groups and variables (elements)

Variable groups	Variables
(a) Characteristics (6 variables)	1) Sex 2) Age 3) Education 4) Profession 5) Workplace 6) Working period
(b) Practitioner's opinions on the competencies of community health profession (40 variables)	<b>1) Core Competency:</b> Core 1: Achievement Motivation Core 2: Service Mind-SERV Core 3: Expertise Core 4: Integrity Core 5: Teamwork

Variable groups	Variables
	<b>2) Common Competency:</b> CC 1: Analytical thinking CC 2: Caring & Developing others CC 3: Pro-activeness CC 4: Consulting CC 5: Conceptual thinking CC 6: Adaptive to change CC 7: Information seeking CC 8: Cultural sensitivity CC 9: Interpersonal understanding CC 10: Organizational awareness CC 11: Concern for order CC 12: Leadership CC 13: Communication & Influencing
	<b>3) Specific Competency: knowledge &amp; skills</b> SC1: Health promotion SC2: Prevention and control of disease and health hazards SC3: Epidemiology SC 4: Initial disease assessment and treatment SC 5: Health care and rehabilitation SC 6: Occupational health SC 7: Environmental health SC 8: Community health SC 9: Public Health Administration SC 10: Health Informatics SC 11: Health laws and other relevant laws SC 12: Health education SC 13: Community health professional ethics
	<b>4) Managerial Competency:</b> MC1: Visioning MC 2: Planning and Following MC3: Problem solving and decision making MC 4: Project manager MC 5: Self-control MC 6: Network building MC 7: Computer literacy MC 8: English literacy MC 9: Research

Variable groups	Variables
(c) Person attributes (Trait & Self-Concept) (12 variables)	<b>1) Trait:</b> T1: Love and pride in the profession T2: Work with determination and persistence T3: Responsibility T4: Work with knowledge and reflective thinking <b>2) Self-Concept:</b> SEC1: The community health profession is identity and different from other professions. SEC 2: The satisfaction of being a community health practitioner. SEC 3: To practice in community health profession under professional ethics. SEC 4: In the view of others, you are a person who has the knowledge, abilities and skills to practice community health profession according to professional standards. SEC 5: To be a good person with virtue and behave according to their own religion SEC 6: The community health practitioner considered as a person of great value to other people in society SEC 7: The family members are satisfied. And proud as a community health practitioner SEC 8: As a community health practitioner, you have confidence and confidence in building relationships with others in society as well.
(d) Motive of the community health profession (Motives) (6 variables)	<b>Motive:</b> M1: The community health professions can provide you with a good career for self-living. M2: The community health professions can build stability in your life. M3: The community health professions can be considered important to the health service system of Thailand. M4: The community health profession is a profession that is highly regarded by Thai society. M5: The community health profession gives authority over others following professional roles. M6: The community health profession can bring you the success you expect.

The study used separate questionnaires to assess (a) characteristics (6 variables) with checklist questionnaires, (b) practitioners' opinion on the competencies of community health profession (40 variables), (c) person attributes (Trait & Self-Concept) (12 variables), (d) motive of the community

health profession (Motives) (6 variables) with rating scale questionnaires, total 64 variables. An initial screening questionnaire was also applied to identify subjects for inclusion in the competency level of community health practitioners and the factors affecting competency in community health practitioners.

A questionnaire dealing with data was developed by the researcher, three experts commented on the draft questionnaire, and revisions were made to improve its validity with IOC index values ranging from 0.67 – 1.00, this was pretested with 30 samples in Kuchinarai district Kalasin province and calculated Cronbach's alpha coefficient. The overall value is 0.98, which is considered to be acceptable and the result is given in Table 2. Singhareart, R. (2015).

**Table 2:** Coefficient of validity of the variables (elements)

Valuables	Number of Valuables	Cronbach's alpha coefficient	Skewness	Kurtosis
1. Competency (40)				
1.1 Core C.	5	0.94	-.484	.256
1.2 Common C.	13	0.97	-.561	.167
1.3 Specific C.	13	0.97	-.302	.137
1.4 Managerial C.	9	0.94	-.399	.489
2. Person attributes (12)				
2.1 Trait	4	0.91	-.510	-.188
2.2 Self-Concept	8	0.92	-.473	-.263
3. Motives (6)	6	0.85	-.232	-.056
4. Overview		0.98	-	-

### 2.3 Data Analysis

After data collection, the data were validated, coded, and analyzed using the statistical application package STATA version 10.0. descriptive statistics were used to examine the characteristics of community health practitioners and competency level of community health practitioners, person attributes (Trait & Self-Concept), motives of the community health profession (Motives). The confirmatory factors analysis of factors affecting competency in community health practitioners was analyzed using Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) with a significance level of 0.05. (Siljaru, T. 2014)

### 2.4 Research Ethics

Ethical Certification of Research from the Human Research Ethics Committee NakhonRatchasimaRajabhat University, Reference No. HE 063-2523. (Human Research Ethics Committee. 2020)

## 3. Results

### 3.1 The Characteristics of the study sample.

A total of 62.67% of the respondents were females. The average age was  $37.93 \pm 9.79$  years; 72.89% had finished a bachelor's degree; 79.11% graduated in professional community health. 71.11% worked in sub-district health promoting hospital and the average working period was  $15.24 \pm 10.35$  years.

### 3.2 The Competency level of community health practitioners in Northeastern Thailand.

Overall the average competency level was  $3.48 \pm 0.68$ : 44.00% professional level, 42.44%

practitioner level, learner level, 8.89%. The average competency: core competency  $3.65 \pm 0.77$ , common competency  $3.60 \pm 0.82$  managerial competency  $3.39 \pm 0.70$  and specific competency performance  $3.36 \pm 0.73$  respectively, and the result are given in Table 3.

**Table 3:** The average competency level of community health practitioners.

Competency:	Mean, n =450	S.D.	Competency level
1. Core Competency	<b>3.65</b>	<b>0.77</b>	Professional
2. Common Competency	<b>3.60</b>	<b>0.82</b>	Professional
3. Specific Competency	<b>3.36</b>	<b>0.73</b>	Practitioner
4. Managerial Competency	<b>3.39</b>	<b>0.70</b>	Practitioner
5. Overall	<b>3.48</b>	<b>0.68</b>	Practitioner

### 3.3 The Person attributes (Trait & Self-Concept) and motive of the community health profession (Motives)

The average person attributes: trait was  $4.20 \pm 0.63$ , self-concept  $4.18 \pm 0.57$ . The average motive was  $3.91 \pm 0.64$  and the result are given in Table 4.

**Table 4:** The Person attributes and motive of the community health professionals.

Attributes & Motives	Mean	S.D.	Person attributes
1. Trait	4.20	<b>0.63</b>	good
2. Self-Concept	4.18	0.57	good
3. Motives	3.91	<b>0.64</b>	good

### 3.4 Exploratory Factor Analysis: EFA

The exploratory factor analysis (EFA) to identify competency components of community health practitioners by Bartlett's Test of Sphericity:  $\chi^2 = 30467.19$ , KMO (Kaiser-Meyer-Olkin) = 0.963. Exploratory Factor Analysis (EFA) results were excluded from those variables with a factor correlation group less than  $\pm 0.50$  that were unsuitable for analysis. The Excluded variables were V1 (Sex), V3 (Education), V4 (Profession) V5 (Workplace), and M5 (The community health profession gives authority over others following professional roles. And based on the results of the EFA analysis, the new components were grouped into 4 groups 59 variables: Competency (38 variables), Person attribute (17 variables), 21st Century Skills (2 variables), and Experience (2 variables), and the result are given in Table 5 & 6.

**Table 5:** KMO and Bartlett's Test analysis results

Statistics			The result of consideration
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.963	Consistent
Bartlett's Test of Sphericity	Approx. Chi-Square	30467.190	Consistent
	df	2016	Consistent
	Sig.	0.000	Consistent

New components from Exploratory Factor Analysis: EFA:

- Competency (38 v.): Core Competency (5 v.), Common Competency (13 v.), Specific Competency (13 v.), Managerial Competency (7 v.)
- Person Attribute (17 v.): Trait (12 v.), Motives (5 v.)
- 21<sup>st</sup> Century Skills (2 v.): from-Managerial Competency (2 v.): English Literacy, Research
- Experience (2 v.): from-Characteristics (2 v.): age, working period
- The Components were ejected 1) Sex 2) Education 3) Profession 4) Workplace 5) M5: The practice of community health profession gives power over the others.

**Table 6:** Exploratory Factor Analysis (EFA) results

Competency		Person Attribute		21st Century S.		Experience	
V*	F.C.**	V*	F.C.**	V*	F.C.* *	V*	F.C.**
Core1	0.765	T1	0.734	MC8	0.607	Age	0.747
Core2	0.753	T2	0.742	MC9	0.587	Workpla ce	0.753
Core3	0.757	T3	0.731				
Core4	0.735	T4	0.694				
Core5	0.724	SEC1	0.681				
CC1	0.821	SEC2	0.770				
CC2	0.813	SEC3	0.769				
CC3	0.800	SEC4	0.695				
CC4	0.797	SEC5	0.703				
CC5	0.819	SEC6	0.771				
CC6	0.789	SEC7	0.732				
CC7	0.818	SEC8	0.737				
CC8	0.765	M1	0.633				
CC9	0.775	M2	0.667				
CC10	0.822	M3	0.717				
CC11	0.807	M4	0.619				
CC12	0.819	M6	0.584				

Competency		Person Attribute		21st Century S.		Experience	
V*	F.C.**	V*	F.C.**	V*	F.C.* *	V*	F.C.**
CC13	0.815						
SC1	0.809						
SC2	0.806						
SC3	0.804						
SC4	0.735						
SC5	0.743						
SC6	0.731						
SC7	0.745						
SC8	0.795						
SC9	0.771						
SC10	0.778						
SC11	0.692						
SC12	0.802						
SC13	0.736						
MC1	0.820						
MC2	0.815						
MC3	0.845						
MC4	0.830						
MC5	0.761						
MC6	0.820						
MC7	0.630						

V\*.: Variable, F.C.\*\*: Factor correlation

### 3.5 Confirmatory Factor Analysis: CFA

All 59 variables had a factor correlation group than 0.50, and all components can explain the 62.21 percentage variation in the competency of community health practitioners, and the result are given in Table 7.



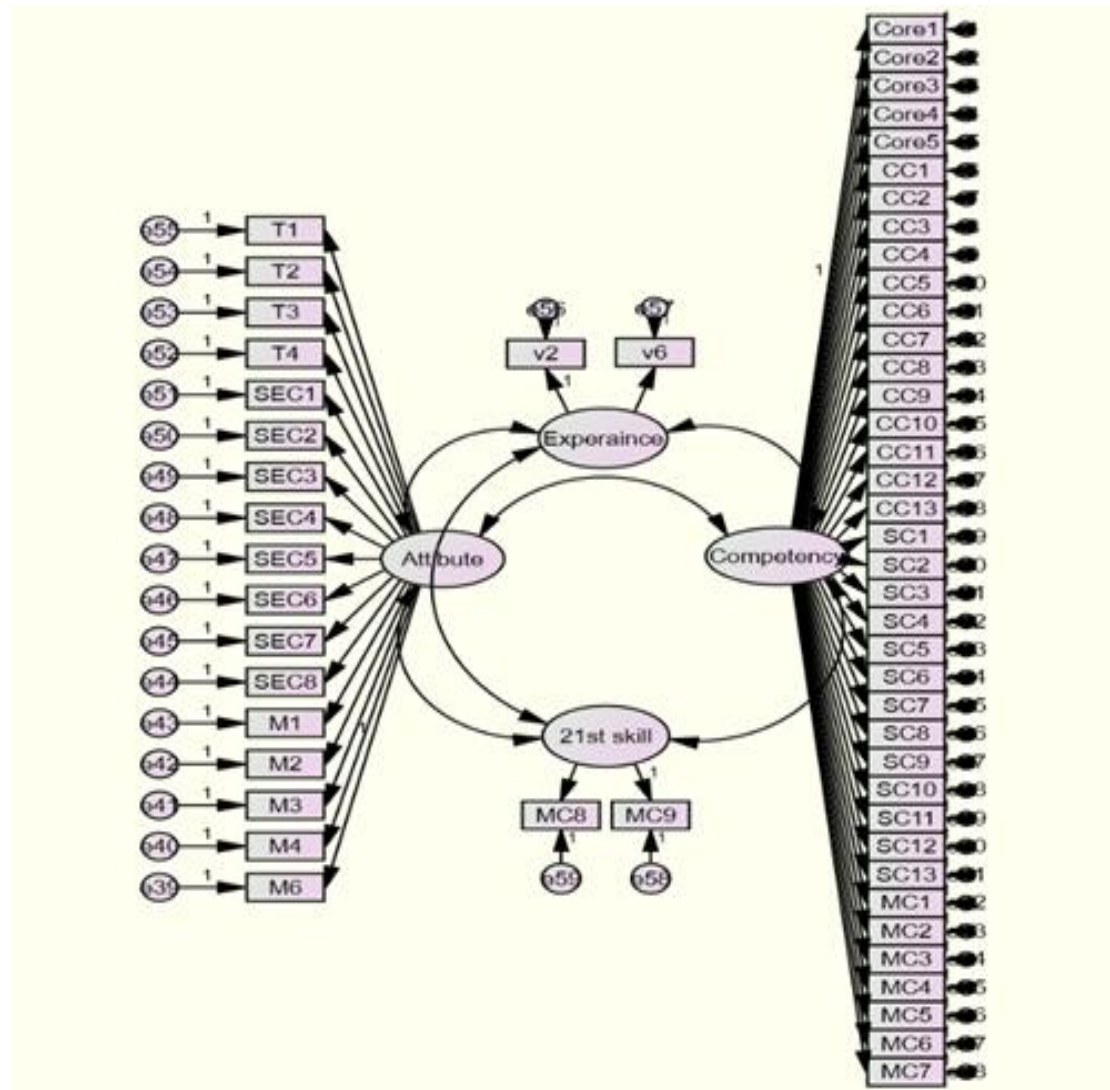
**Table 7.** CFA: Factor Correlation, Eigen Value, percentage of Variance

Component	Number of variables	Factor Correlation	Eigen Value	% of Variance
Competency	38	0.845–0.530	29.051	45.392
Attribute	17	0.769-0.619	6.490	10.140
21 <sup>st</sup> Century Skill	2	0.607-0.587	2.191	3.424
Experience	2	0.753-0.747	2.080	3.250
Total	59			62.207

The confirmatory factor analysis (CFA) showed evaluating the Data-Model Fit 1<sup>st</sup> was inconsistent (Table 4) and to consider the M.I. value of the covariance's table in the Modification Indices category, it was suggested to improve the model for consistency with M.I. 4.03 - 252.85 and several pairs of improvement recommendations. The components were therefore modified by combining consistent and theoretically appropriate variables. And the composition and model were adjusted until they are consistent and the result is given in Table 8-9 & Figures 1&2.

**Table 8:** Evaluating the Data-Model Fit 1<sup>st</sup> results

Evaluating the Data-Model Fit	criterion	Statistics	The result of consideration
1. Chi-square	$P > 0.05$	<b>8427.83</b>	Consistent
2. CMIN (Chi-square/df)	$< 3$	<b>5.16</b>	Inconsistent
3. GFI (Goodness of fit index)	$> 0.90$	<b>0.53</b>	Inconsistent
4. RMSEA (Root Mean Square Error of Approximation)	$< 0.08$	<b>0.096</b>	Inconsistent



**Figure 1:** Confirmatory Factor Analysis (CFA) Model 1<sup>st</sup>

New components from Confirmatory Factor Analysis (CFA):

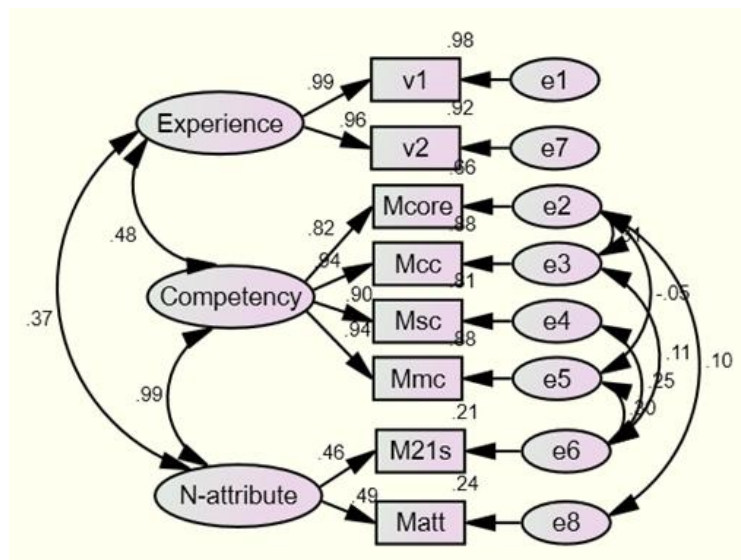
- Competency (38 v.): Core competency (5 v.), Common competency (13 v.), Specific competency (13 v.), Managerial Competency (7 v.)
- New Attribute (17 v.): Person attribute (Trait:12 v., Motives 5 v.), 21<sup>st</sup> Century skills (2 v.: English Literacy,

Research)

- Experience (2 v.): age, working period

**Table 9:** Evaluating the Data-Model Fit 2<sup>nd</sup> results

Evaluating the Data-Model Fit	criterion	Statistics	The result of consideration
1. Chi-square	$P > 0.05$	18.29	Consistent
2. CMIN (Chi-square/df)	$< 3$	1.66	Consistent
3. GFI (Goodness of fit index)	$> 0.90$	0.99	Consistent
4. RMSEA (Root Mean Square Error of Approximation)	$< 0.08$	0.030	Consistent



**Figure 2:** Confirmatory Factor Analysis (CFA) Model 2<sup>nd</sup>

The results of the analysis by CFA considering the suitability of the model from the factor loading value should have had a value of 0.70 or more. The experience was described by age (V1) and working period (V2) with factor loading = 0.990, 0.959. Competency was described by Managerial Competency (Mmc), Common Competency (Mcc), Specific Competency (Msc) and Core Competency (Mcore) with Factor loading = 0.939, 0.938, 0.899, 0.815, respectively, and the Competency component, Experience component and N-attribute component explained each other with Factor loading = 0.993, 0.482, 0.380 respectively.

Core competency (Mcore) described each other with Common competency (Mcc)  $P < 0.001$ , Specific competency (Msc) described each other with 21st Century Skills (M21s)  $P = 0.002$  Work Management Competency (Mmc) described each other with 21st competency. (M21s)  $P = 0.004$  The core competency (Mcore) described each other with Person attribute (Matt)  $P = 0.035$  respectively and the result is given in Table 10.

**Table 10:** Standardized Regression Weights

Latent Var.		Latent Var.	Estimate		S.E.	C.R.	P
			Unstandardized	Standardized			
V1	<---	Experience	1.000	0.990	0.032	30.269	***
V2	<---	Experience	1.023	0.959	0.033	31.215	***
Mmc	<---	Competency	1.096	0.939	0.046	23.594	***
Mcc	<---	Competency	1.083	0.938	0.039	27.745	***
Msc	<---	Competency	1.048	0.899	0.047	22.327	***
Mcore	<---	Competency	1.000	0.815	0.044	20.902	***
<b>Covariances</b>							
Competency	<-->	N-attribute	0.203	0.993	0.203	7.273	***
Experience	<-->	Competency	2.926	0.482	0.343	8.522	***
Experience	<-->	N-attribute	1.174	0.370	0.260	4.522	***
e2 (Mcore)	<-->	e3 (Mcc)	0.034	0.309	0.010	3.564	***
e4 (Msc)	<-->	e6 (M21s)	0.051	0.253	0.016	3.105	0.002
e5 (Mmc)	<-->	e6 (M21s)	0.048	0.303	0.016	2.911	0.004
e2 (Mcore)	<-->	e8 (Matt)	0.021	0.101	0.010	2.106	0.035

## Discussion

The community health practitioners were a profession that must perform work related to human life, must practice following the specified standards and quality. This must be a person with the required and expected performance of the people. In order to be highly competent, it requires knowledge, awareness, mastery, skills, and a positive attitude about the profession. In this study, the average competency level was  $3.48 \pm 0.68$ : 44.00% professional level, 42.44 practitioner level, learner level, 8.89% respectively. Most of the community health practitioners in Thailand are working in sub-district health promoting hospitals, district health offices, hospitals of all levels, and all types of local administrative organizations. They aim to work in the bureaucracy. Age and working period were factors affecting professional competency in community health practitioners.

The results of the confirmation factor analysis showed that experience was described by age and working period with Factor loading = 0.990, 0.959 Competency was described by Managerial competency, Common competency, Specific competency, and Core competency with Factor loading = 0.939, 0.938, 0.899, 0.815, respectively, and Competency, Experience and Characteristic component explained to each other by factor loading = 0.993, 0.482, 0.380 respectively. The development of the competency of public health professionals must be performed for all competencies because all competencies were related and affected each other in

a complementary direction.

This finding was in agreement with previous, community health practitioners competency must be consistent with the expectations of the people which consists of knowledge, skills, personal attributes, service availability, and able to effectively integrate competency component for using. (Chada, W., Leethongdee S. (2018): *"People's expectations of the competency of public health scholars in the Hospital Health Promotion Sob-District: Case Study of Health District 7"* & Inthisaenworapot K., Promsattayapot V. (2018): *"Knowledge of the provisions of the Community Health Professions Act, B.E. 2556, of public health workers working in Kantharawichai District. Mahasarakham Province"* & Gebbie, K. M., Weist, E. M., McElligott, J. E., Biesiadecki, L. A., Gotsch, A. R., Keck, C. W., & Ablah, E. (2013): *"Implications of preparedness and response core competencies for public health"*)

In this study, the composition of competencies of community health practitioners was interrelated and interdependent. The competency development of community health practitioners must be implemented in all competencies. Because all components of competence are related and affect each other in a complementary direction. This finding was in agreement with previous, competency development should include: clear and easy competency determination produces the desired results, consistent with the needs of the people, practice and linked to the competency development processes. (Bondy, S. J., Johnson, I., Cole, D. C., & Bercovitz, K. (2008) *"Identifying core competencies for public health epidemiologists"* & Neiworth, L. L., Allan, S., D'Ambrosio, L., & Coplen-Abrahamson, M. (2014). *"Charting a course to competency: an approach to mapping public health core competencies to existing training"*))

## 5. Conflict of Interest

The author declared no conflict of interest with respect to the research, authorship, and/or publication of this article.

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## References

- [1] Bondy, S. J., Johnson, I., Cole, D. C., & Bercovitz, K. (2008) "Identifying core competencies for public health epidemiologists". *Can J Public Health*, 99(4), 246-251.
- [2] Byatzis, R. E. (1982). "Competence at work In a Stewart (Ed.), *Motivation and society*". San Francisco: Jossey-Bass, 1982.
- [3] Chada, W., Leethongdee S. (2018). "People's expectations of the competency of public health scholars in the Hospital Health Promotion Sob-District: Case Study of Health District 7", Mahasarakham University Research Conference, 14, 428-437.
- [4] Council of Community-Public Health. (2018). "Diary Council of Community-Public Health 2018". Nonthaburi.
- [5] Gebbie, K. M., Weist, E. M., McElligott, J. E., Biesiadecki, L. A., Gotsch, A. R., Keck, C. W., & Ablah, E. (2013). "Implications of preparedness and response core competencies for public health". *J Public Health ManagPract*, 19 (3), 224-230, doi: 10.1097/PHH.0b013e318254cc72.
- [6] Human Research Ethics Committee. (2020).

“Ethics in Human Research Certificate: Certificate No. HE-063-2020, NakhonRatchasima University.

- [7] Inthisaenworapot K., Promsattayapot V. (2018). “Knowledge of the provisions of the Community Health Professions Act, B.E. 2556, of public health workers working in Kantharawichai District. Mahasarakham Province”, *Journal of Health and Public Health Law*, 4 (3), 403-415.
- [8] Khunluek, K.(2019). “Research report on The Competency Development Curriculum for Community Health Professional”, Faculty of Science and Health Technology Kalasin University, 127-129.
- [9] Neiworth, L. L., Allan, S., D'Ambrosio, L., & Copen-Abrahamson, M. (2014). “Charting a course to competency: an approach to mapping public health core competencies to existing training”. *Health Promot Pract*, 15(1 Suppl), 33S-38S, doi: 10.1177/152483991350.
- [10] Ngamjarus C., Chongsuvivatwong V.(2014). “n4Studies: Sample size and power calculations for android”. The Royal Golden Jubilee Ph.D. Program - The Thailand Research Fund & Prince of Songkla University.
- [11] Royal Thai Government Gazette. (2013). “Community Health Profession Act BE 2556 (2013)”. *Royal Thai Government Gazette*, (130), 19-35.
- [12] Siljaru, T.(2014). “Statistical research and analysis with SPSS and Amos”. S.R. Printing co., Ltd., Nonthaburi, 517- 566, 2014.
- [13] Singhareart, R.(2015). “Research methodology”. Mahasarakham: Triple group co., Ltd., 141-143.
- [14] Wayne W., D. (1995). “Biostatistics: A Foundation of Analysis in the Health Sciences” (6th ed.). John Wiley & Sons, Inc.; 180.