Development and Evaluation of a Chronic Care Competency Scale for Primary Care Teams in Thailand

Piyanart Ruksaphram, Sang-arun Isaramalai, Umaporn Bunyasopun

Abstract: The Thai health care system currently has no tool available to measure chronic care competency in primary care settings. This research aimed to develop a conceptual structure and evaluate a Chronic Care Competency Scale for primary care teams in Thailand. The Scale was developed using a concept analysis from literature reviews. In-depth interviews of Thai primary care team members were used to form the specified domains, which were then used to generate an item pool consisting of 50 items whose content validity was tested by 9 experts (CVI = 0.95). The retained 40-item Scale was further evaluated by 35 primary care team members and yielded high internal consistency.

The field test was conducted in 434 primary care team members, resulting in a high reliability of the Scale. Exploratory factor analysis was used to test its construct validity; and final version revealed three domains: basic medical care, health risk management and symptom control, and community resources management. Construct validity evaluation using hypothesis testing reported a positive correlation between years of education and the total scores. Moreover, stability evaluation using the test-retest method demonstrated a correlation between time 1 and time 2 testing.

We conclude that this Scale will be useful in measuring the chronic care competency of Thai primary care teams and have demonstrated its validity and reliability in this study. However we encourage research and use of the Scale by different disciplines in primary health care teams to further confirm its adequate validity and reliability in other provinces across the country, including those with male team members.

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Introduction

A chronic illness is defined as an illness that lasts longer than three months. National Health Statistics have demonstrated that chronic illnesses such as diabetes mellitus and hypertension are the leading cause of morbidity in Thailand.[1] The impact of chronic illnesses

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weighs heavily on the Thai health system because the treatment involves a high cost at the secondary and tertiary level of care.[1-2] Therefore, Thai health policy on managing chronic care has expanded into primary care settings, with the expectation that it would lower the cost of care and allow easier access to appropriate health services. This policy change has led to substantially increased demand on primary care teams working at primary care settings. The nurses from community hospitals and some health care personnel such as physicians, dentists, and pharmacists, became primary care team members.[2-3]

In reality, the primary care teams have faced some challenges. For example, achieving the appropriate mix of primary care team members has involved collaboration issues and lack of competency for chronic care provision. These problems can be partly solved by the development of chronic care competency for primary care teams.[2, 4] Thus, the chronic care competency scale is a necessary instrument for Thai primary care teams to identify their areas of professional weakness. This is a competency that applies to all teams who provide chronic care. Because of this, the competency is general, and not specific to a profession.

The literature reveals a limited amount of research on chronic care competency for primary care teams within primary care settings. Similarly, only a few instruments are used to assess chronic care activities. The primary assessment procedure that has been used to date is the Assessment of Chronic Illness Care (ACIC). This evaluation is completed by the health care team members and appears particularly useful for helping primary care teams identify gaps and generate innovation for providing better chronic care.[5] The other tool, developed by Wensing and colleagues, is the Patient Assessment of Chronic Illness Care (PACIC), a 20-item survey assessing the extent to which patients report having received chronic care model (CCM)-based services that they could reasonably be expected to observe. This assessment was conducted at an integrated health maintenance organization and included patients with a variety of illnesses.[6]

At present, no research has been done on chronic care competency in Thailand. One study has developed a primary care competency assessment scale which was used by all primary care providers, but no rigorous evaluation has been conducted regarding chronic care competency of primary care teams.[7] Accordingly, developing an instrument to measure chronic care competency for primary care teams in the Thai primary care setting is much needed. In this study chronic care competency (CCC) refers to the primary care team's ability to provide chronic care at primary care settings.

Review of Literature

Chronic care competency studies have been conducted in Western and Asian countries including Thailand. The defining attributes of chronic care competency are synthesized from the concepts of competency, chronic illness trajectory frameworks, and standards of care related to Thai primary care services. In this research, the defining attributes of competency consist of knowledge, skills, and traits.[8-18] The primary care team members have to integrate knowledge and skill, and then act in a service-minded manner to enhance the team's ability to perform chronic care service.[8-11]

These defining attributes of competency provide the foundational capability on chronic care that fits with primary care settings based on the chronic illness trajectory framework of Corbin and Strauss.[12] This framework identified eight phases of chronic illness trajectory that is, pre-trajectory, trajectory onset, crisis, acute, stable, unstable, downward, and dying. These phases allow for variable paths through the course of the illness. The chronic illness trajectory framework can clarify the purpose of chronic care in every phase of the chronic illness trajectory and explain the meaning of the domains in this study.

The attributive purposes of chronic care in the primary care setting were used to provide structure of care in order to further explore the structure of chronic care competency based on standards of care related to Thai primary care services. The three standards of care in this context are: 1) the standard and guideline of primary care services for all primary care teams which comes from the Ministry of Public Health (MOPH)[16], 2) the standard for nursing and midwifery services, and 3) the primary care competency for primary care nurses. The second and third standards are from the Thai Nursing Council which are specific to nursing and midwifery.[7, 17] All standards of care related to Thai primary care services can be used to frame the activities of chronic care that fit within the Thai health care system.

These chronic care activities were formed to develop the structure of chronic care in pre-specified domains of chronic care competency for Thai primary care teams and were further refined to fit in the empirical setting by conducting a preliminary study. Finally, the chronic care competency that fits within the Thai primary care context is structured by four domains: behavioral risk management, symptom management, basic medical care, and health coaching. The details of each domain are described below:

Behavioral risk management. A primary care team's ability to reduce the individual health risk factors of patients suffering from chronic illnesses is highlighted in the literature reviews. The studies showed that the competency of behavioral risk management consists of behavioral risk assessment, behavioral consultation, and behavioral follow up.[18-25] Primary care team members play an important role in behavioral risk assessment and assisting patients to maintain healthy behavior. The aim of this step is to identify and understand all internal and external risks that seem to be a threat to patients with chronic illnesses. The most important risk factors are an unhealthy diet, physical inactivity, smoking, drinking alcohol, and psychological stress. Patients report that they expect primary care team members to be sources of preventive health information and recommendations.[18-21] Consultation has generally been a high priority in the primary care setting as a strategy to implement treatment plans for patients with behavioral risk or people who are at risk of developing chronic illness. The consultation should be integrated with the management and available recourses. In order to provide effective consultation, the relationship between the primary care team members and the patients must be characterized by reciprocal respect.[21-23] A follow up is an important component of behavioral risk management because it allows the primary care team to evaluate and monitor the behavior of patients. During the follow up, the primary care team members can evaluate the patient's behavioral risk several times.[24-25] Consequently, primary care teams use behavioral risk management to aid in the provision of chronic care in the primary care setting.

Symptom management. Research articles identify that primary care teams provide control of patients' symptoms to the best of their ability and resources by using assessment, relief, monitoring, and referral management.[26-31] The foundation of effective symptom management is symptom assessment, which consists of an interview, physical assessment, and medication review. This assessment must determine the cause as well as the effectiveness and impact on quality of life for the patient and their family.[26-27] The main aim of symptom management is to provide rapid and effective symptom relief. The primary care team has a role to play in helping to achieve the best symptom relief and optimum quality of life for patients, which may include medications and lifestyle changes.[27-28] Patients suffering from chronic illnesses are often reluctant to report symptoms of their diseases.[28] Therefore, the primary care team needs to monitor a patient's symptoms during each follow-up visit and actively involve the patient's family and caregivers in the treatment plan. Ongoing monitoring of the patient's response to treatment

helps determine if the treatment regimen is a success. Referral management is a way of monitoring, directing and controlling patient referrals. Although most symptoms of chronic illness can be controlled in the primary care setting, referring patients for invasive procedures for symptom relief is considered if the side effects are severe.[29-31] Thus, the symptom management competency is important for primary care teams to provide care for all patients with chronic illnesses.

Basic medical care. Basic medical care is crucial because it allows a Thai primary care team to provide basic medical care in various trajectory phases of chronic illnesses. These include the acute/crisis, stable, unstable, downward and dying phases.[12] The studies mentioned that the competency of basic medical care consists of first aid and treatment prescription in the primary care setting.[2, 7, 30-31] First aid involves the prevention of further injury and responder safety, and the treatment.[2, 7] Treatment prescription refers to the primary care teams' ability to correctly prescribe the appropriate treatment for the chronically ill patient.[30-32] Basic medical care is given by all types of primary care team members under the primary care service guidelines. Physicians have the broadest authority of basic medical care. Nurses play major roles in providing basic medical care including prescribing intervention for chronically ill patients according to the established protocol. Dentists, pharmacists, public health directors, public health officers, and public health staff are able to perform first aid and treatment prescription for chronically ill patients under the chronic care guidelines of the community hospital and MOPH.[2,6,16] Therefore, basic medical care competency is necessary for primary care team.

Health coaching. Health coaching is a significant competency for primary care teams in the Thai primary care setting. Coaching generally involves a health professional who provides individualized support for self-management. The literature reviews show the role of health coaching has expanded to primary care team members. Most of the articles mention that self-care facilitators, effective communication, and building self-care networks are important in health coaching competency.[2, 7, 11, 31-34] As a self-care agent, the primary care team is open to cultural elements in the nature of known self-care requisites and ways of meeting them.[34] Some of these elements would be known measures of care integrated into the family or the general culture. Some articles identified professional coaching as a core competency that includes communicating effectively and facilitating communication.[2, 7, 11, 32] Other studies stated that the building of a self-care network is based on a primary care team's ability to construct and maintain a network of people who are chronically ill.[30, 33] Hence, the primary care team members can help and encourage their patients to identify issues and concerns that may present problems, or help patients change to a better lifestyle for their chronic illness by using the health coaching competency.

Study Aim

To develop the Chronic Care Competency Scale (CCCS) and evaluate its validity and reliability for primary care teams in Thailand.

Methods

Design: This study is an instrument development research in two phases. The first phase was scale development of the CCCS for primary care teams in Thailand. The second phase was the testing of psychometric properties of the newly developed instrument.

Ethical considerations: Approval was obtained from the Ethics Committee of the Faculty of Nursing, Prince of Songkla University. The researcher contacted all participants to obtain their permission to take part in this research. The protection of human subjects was assured by the use of two consent forms. The first form was used in the first phase of scale development

to gain permission for the interview during the process of domain identification. The second form was used in the second phase of psychometric evaluation during the process of pre-test, field test, and final test. Both consent forms were included in an overview of each phase of the study.

Setting and participants: Thai primary care team members from one province, in the southern region of Thailand, were selected to represent all Thai primary care team members for a number of reasons. Firstly, this province has all three types of primary care settings and/or sub-district health promoting hospitals which provide chronic care for patients. Secondly, the new Thai health policy has been launched for the provision of chronic care nationwide and expanded into all primary care settings in this province. Thirdly, all primary care team members in this province are expected to provide chronic care for patients suffering from a chronic illness. Lastly, the chronic care system at all primary care settings in this province are under quality control systems as in other parts of Thailand.

The participants were recruited from seven groups of primary care team members: public health directors, public health officers, public health staff, physicians, pharmacists, dentists, and nurses. The inclusion criterion was primary care team members who had provided chronic care in primary care settings for at least one year.

In the scale development phase, three persons were purposely selected from seven groups of primary care team members giving a total of 21 participants who took part in the domain identification. Most were female (85.70%) whose age ranged from 25 to 54 years old (Mean = 34.66, SD = 9.07). Their duration of chronic care experience was 5.24 years (SD = 3.88). The phase of psychometric evaluation consisted of pre-test, field test, and final test. In the pre-test, five persons were purposely selected from seven groups of primary care team members giving a total of 35 participants. The participants were female (68.60%) whose age ranged from 20 to 60 years old (Mean = 39.00, SD = 10.89). On average, their duration of chronic care experience was 6.50 years (SD = 7.40).

In field testing, the estimated sample size was based on factor analysis.[35] This statistic requires a ratio of 5 to 10 participants per item for adequate psychometric evaluation of a new tool. The third draft of the CCCS had four domains with 40 items. Therefore, 435 participants were recruited from seven groups of primary care team members in three sizes of primary care settings by using multi-stage random sampling. As a result, 434 subjects was deemed sufficient because one sample was an outlier and removed. The subjects were nurses (20.30%), public health officers (19.80%), public health staff (19.40%), public health directors (18.00%), physicians (8.50%), pharmacists (7.60%) and dentists (6.50%). The majority of subjects were female (69.40%) whose age ranged from 23 to 60 years old (Mean = 38.84, SD = 10.11). The average duration of chronic care experience was 7.06 years (SD = 6.94).

In the final test, five persons were purposely selected from seven groups of primary care team members giving a total of 35 participants for evaluating the reliability in terms of stability. Most were female (68.60%) whose age ranged from 23 to 60 years old (Mean = 39.09, SD = 10.75). On average, their duration of chronic care experience was 6.60 years (SD = 7.41). Moreover, 128 nurses who provided chronic care in primary care settings were purposely selected for hypothesis testing. The hypothesis of this study was that the duration of chronic care experience and years of education would be positively correlated with the CCC scores. The sample size of nurses in this step was calculated by using power analysis, all of which were calculated in a previous study.[7] Most subjects were female (65.60%) whose age ranged from 23 to 60 years old (Mean = 41.01, SD = 10.42). The average duration of their chronic care experience was 7.40 years (SD = 8.20).

Procedure and Data Analysis: The procedure of this study was organized into two phases. The first phase was scale development of the CCCS. The second phase was the testing of psychometric properties of the newly developed instrument. The CCCS developmental process followed the procedures outlined in **Figure 1.**

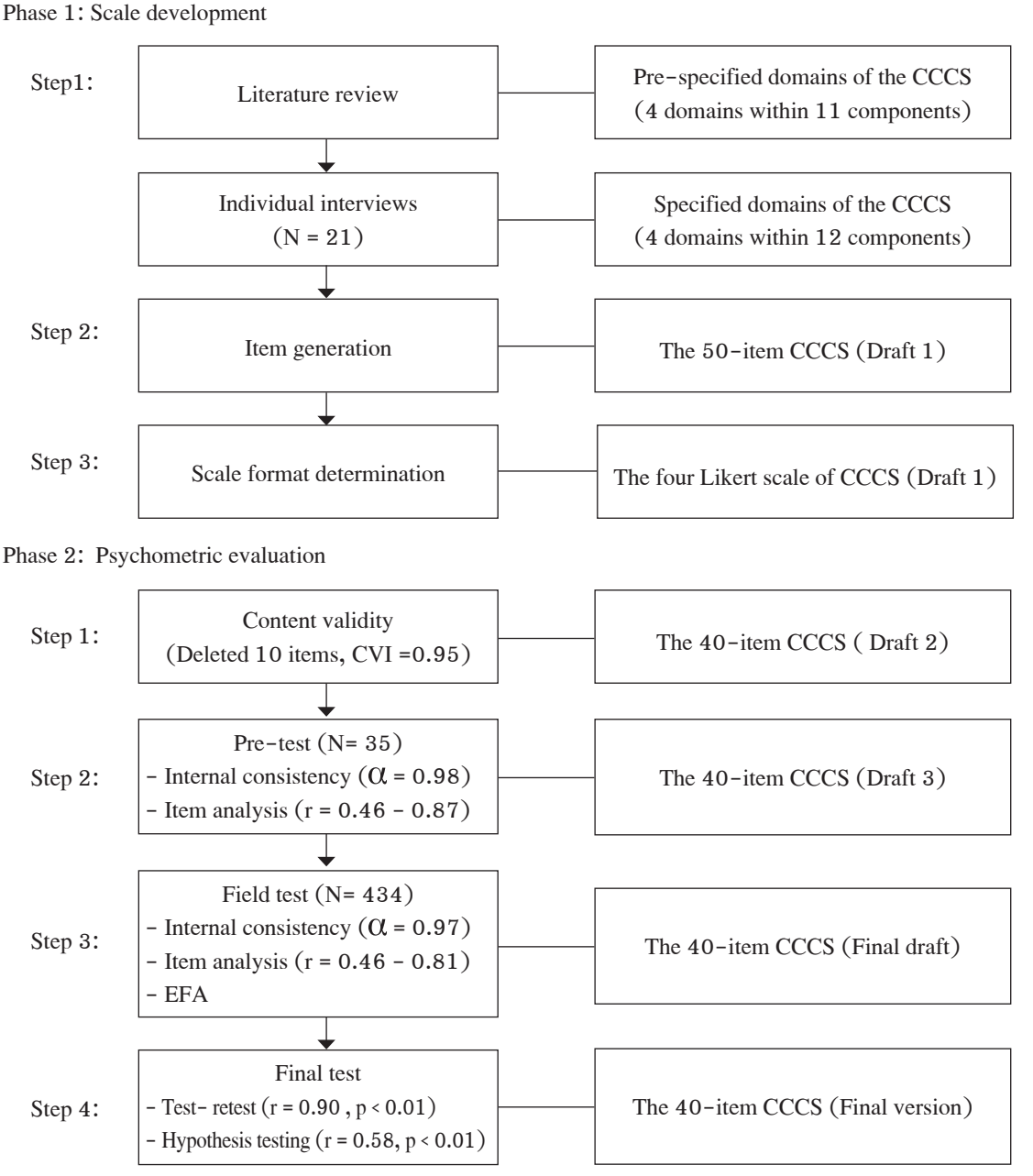

Figure 1 Results of the CCCS Developmental Process

Phase 1: Scale Development. There were three steps in this phase: domain identification, item generation, and scale format determination. Domain identification aimed to explore the concept structure and specify the domains of chronic care competency for primary care teams. The pre-specified domains of CCCS were performed with the method of concept analysis from the literature review using Walker and Avant's method as a guideline.[36] In-depth interviews with 21 Thai primary care team members were then conducted to establish the specified conceptual structure of CCC for primary care teams. Examples of the interview questions were: "What should the chronic care competency for primary care teams be?" and "How do primary care teams provide chronic care and apply the chronic care competency into practice or services?" Data from the interviews was analyzed using content analysis. The main ideas were identified, categorized and arranged into the conceptual structure of CCCS.

The second step was item generation to generate an item pool from the specified domains of chronic care competency identified during the previous step of domain identification.

The third step, the scale format determination, was undertaken after generating the item pool. A Likert scale was selected for the CCCS developed. The descriptor of the rating scale ranged from 0 to 3, where "0" means "never performed" and "3" means "always performed and allow others to perform". The first draft of the 50-item CCCS was completely developed by the end of this phase.

Phase 2: Psychometric Evaluation. The aim of this phase was to evaluate the validity and reliability of the CCCS by using DeVellis' guidelines.[37] The four steps were content validity, pre-test, field test, and final test.

The content validity step involved contacting 9 professional experts representing multiple sectors related to chronic care in primary care settings, and asking for their evaluation of the 50 items of the CCCS. Six experts are responsible for chronic care service at primary care settings from six different regions of Thailand: northern, central, north eastern, eastern, western, and southern. Two are were a director and a deputy director of the National Health Security Office in region #10 and #11, responsible for health care standards and quality control of primary care settings in the southern region of Thailand. Lastly, a nursing educator who is experienced in chronic care and tool development was consulted. A request form was sent by mail to each of the experts who had agreed to participate in this step. After the experts reviewed the 50-item CCCS, 10 redundant items were deleted based on the experts' recommendations. Therefore, the second draft of the 40-item CCCS was considered valid.

The second step, pre-test, focused on internal consistency with regard to the homogeneity of the items within a scale. Cronbach's alpha coefficient was used as a measure of reliability. At this step, items were re-examined to decide whether they should be retained, revised or deleted. The alpha correlation of each item was analyzed. The results of this step showed that all items were acceptable. Therefore, the result of the third draft of the CCCS was to keep 40 items.

The third step, the field test, was conducted to re-evaluate internal consistency and item analysis. In addition, factor analysis was performed to evaluate the construct validity. In this step, the internal consistency was estimated using Cronbach's alpha coefficient of the total CCCS. An alpha coefficient of 0.7 or greater is acceptable for the newly developed instrument. Item analysis occurred during the second round of evaluation of factor analysis, with the estimated sample based on statistics. The item(s) with a level of 0.3 are adequate. In this step, all 40 items in the CCCS were retained. Then, the exploratory factor analysis (EFA) was used to support the internal structure of the CCCS item set. A principal component and varimax methods was conducted to extract and rotate the components. Furthermore, the criteria in evaluating items were

eigenvalues, scree plot, per cent of variance, factor loading, and theoretical interpretability. Therefore, the scores from the respondents were analyzed to extract and specify factors of the CCCS. Finally, the final draft of the CCCS was 40 items with 3 factors.

The fourth step was the final test, which was conducted to evaluate the reliability of the CCCS in terms of internal consistency and stability. Hypothesis testing was used to evaluate the construct validity of the CCCS. The final draft of the CCCS was evaluated for its internal consistency. The data analysis was performed with an alpha coefficient of 0.97. The stability of the CCCS was examined by test-retest. The tests were carried out twice within a two-week interval. The stability evaluation was calculated using a Pearson product moment correlation coefficient. The scores obtained from both administrations at two different times showed the stability of the CCCS. In the hypothesis testing step, the nurses were approached based on the Benner's model.[9-10] This model was used to derive the hypothesis which stated that duration of chronic care experience and years of education would be positively correlated with the CCC scores of primary care team members. It was expected that as the nurses' experience in delivering chronic care and their years of education increased, their chronic care competency would improve. In this step, Pearson's product moment correlation coefficient was used. Finally, the construct validity of the CCCS was accepted as evidenced by a significantly positive relationship between the CCC scores and years of education.

Results

The CCCS demonstrated high content validity with an overall Content Validity Index (CVI) of 0.95. The results of Bartlett's test of sphericity showed a significantly high inter-item correlation (χ^2 = 17145.13, $p < 0.01$). The KMO reported the sampling adequacy at 0.97. The final CCCS version was obtained consisting of 3 factors with 40 items: 1) basic medical care (17 items); 2) health risk management and symptom control (17 items); and 3) community resources management (6 items); **see Table 1.** These factors showed a total percentage variance of 65.15% with communality ranging from 0.40 to 0.78. The stability evaluation demonstrated a correlation between time 1 and time 2 at 0.90. Furthermore, results of internal consistency showed an alpha coefficient of 0.97 reflecting good reliability of the CCCS. Moreover, the result of hypothesis testing reported a positive correlation between years of education and the total CCC scores ($r = 0.58$, $p < 0.01$).

Table 1 Factors and Factor Loadings of 40-Item CCCS (N = 434)

Item no.	Factors and item statements	Eigen value	Variance Explained (%)	Factor loading
Factor 1: Basic medical care		10.05	25.14	
26	Caring for patients with urinary catheters			0.83
27	Caring for patients with feeding tubes			0.83
28	Caring for tracheotomy patients			0.80
23	Performing first aid on emergency patients such as those suffering from chest pain, dyspnea, seizures or unconsciousness			0.76
24	Performing cardio pulmonary resuscitation			0.76
25	Prescribing medications within scope of profession			0.68
29	Performing pressure wounds			0.67
20	Evaluating the patients' symptoms to classify the severity of symptoms			0.65

Table 1 Factors and Factor Loadings of 40-Item CCCS (N = 434) (continued)

Item no.	Factors and item statements	Eigen value	Variance Explained (%)	Factor loading
30	Analyzing health problems with patients and their care takers to prioritize the patients' problems and needs			0.63
31	Setting objectives for self-care based on patients' problems			0.63
14	Evaluating the severity of symptoms by using tools such as stethoscope, otoscope, ophthalmoscope			0.61
22	Performing first aid once basic symptoms occur such as hypoglycemia, epistaxis or fainting			0.60
32	Planning for continuing care with patients and their caregivers			0.58
15	Providing basic health examination such as blood sugar level test, hematocrit test, urine test			0.57
16	Dispensing medications to control patients' symptoms			0.55
21	Transferring the patients with failing symptom management to the secondary care settings			0.54
33	Setting appropriate self-care plan with the patients			0.53
Factor 2: Health risk management and symptom control		0.68	24.21	
1	Screening behavioral risks of the people according to the chronic care screening standard for the primary care settings			0.74
5	Training volunteers to provide counseling to modify risk behaviors			0.70
3	Training volunteers to conduct behavioral risks screening			0.70
4	Providing counseling to modify risk behaviors			0.69
2	Referring patients with abnormal screening results to the secondary care settings			0.69
11	Training volunteers to follow up and monitor behaviors of at-risk people in communities			0.68
7	Monitoring adjustments in the behaviors of at-risk patients after scheduled counseling			0.66
10	Monitoring adjustments in behaviors of at-risk patients who missed appointments			0.64
8	Asking questions and observing at-risk people in the community			0.64
9	Documenting behavioral assessment of the at-risk patients for continuous monitoring			0.63
12	Discussing with patients to assess their illnesses			0.62
6	Promoting local wisdom to help modifying risk behaviors			0.61
13	Talking with the caregivers to assess the patients' symptoms			0.61
17	Advising the caretakers to manage the patients' symptoms at home such as elevating the patients' heads when sleeping to relieve dyspnea			0.56
18	Providing advice about symptom management to the patients and their caregivers			0.53
33	Setting appropriate self-care plan with the patients			0.53
19	Training volunteers to manage the patients' symptoms such as using herbs and over-the-counter drugs			0.50

Table 1 Factors and Factor Loadings of 40-Item CCCS (N = 434) (continued)

Item no.	Factors and item statements	Eigen value	Variance Explained (%)	Factor loading
Factor 3: Community resources management		6.32	15.80	
39	Seeking funds from donors or the local community such as local			0.77
38	Creating self-care networks for the people such as fitness clubs and health clubs			0.77
40	Training community leaders or volunteers to build self-care			0.77
37	Training volunteers to monitor and follow up patients' self-care			0.69
35	Training volunteers to provide counseling to modify risk behaviors			0.63
36	Transferring the patients with failing symptom management to the secondary care settings			0.59

Discussion

The existing conceptual structures of the CCCS are 3 domains. Two domains, "basic medical care" and "health risk management and symptom control", were similar to the pre-specified domains. One domain, "Community resources management", was different to the pre-specified domains.

Domain I: The basic medical care was the most powerful contributing factor to chronic care competency for Thai primary care teams. This finding indicates that Thai primary care teams provide direct care for patients suffering from chronic illnesses by using basic medical care in various trajectory phasing.[12] As mentioned in the literature review, the basic medical care competency of Thai nurses was providing medications, managing stable chronic illnesses, and providing emergency medical care when needed.[3,7,17,38-40] Similarly, another study noted that Thai nurse practitioners used basic medical care competency to provide chronic care for patients at home.[39]

Domain II: The health risk management and symptom control was the second powerful contributing factor to chronic care competency for Thai primary care teams. Every item reflects attributes of managing behavioral risk factors and symptom control. Based on the chronic illness trajectory framework and literature reviews, the health risk management and symptom control competency for primary care teams are important because they allow a primary care provider to detect health problems early.[2-3, 31-32, 40] Other studies also indicated that symptom control is the primary care teams' ability to provide control of patients' symptoms to the best of their ability and resources.[26, 31-32, 41]

Domain III: The community resources management was the third powerful contributing factor to chronic care competency for Thai primary care teams. All items reflect attributes of chronic care management by primary care teams to support patients and the community. This domain is consistent with one component, namely community resources and policies in the chronic care model (CCM) as proposed by Wagner and colleagues.[33] Whereas, other literature reviews suggest that as facilitators, primary care teams can help patients to cope with health problems. In Thai primary care settings, chronic care is provided to support patients to encourage social interaction.[3,6] Moreover, some studies also mentioned that Thai primary care teams build membership without becoming directly involved in running the group and offering community support.[2,34,38-41] Therefore, community resources management competency is needed for primary care teams in Thai primary care systems.

All validity and reliability testing in the psychometric evaluation confirmed that the CCCS was a newly developed scale that was quantifiable to

measure CCC of primary care teams. The CCCS is adequate for capturing the attributes of chronic care competency for Thai primary care teams. The reports on reliability evaluation of the CCCS were stable and internally consistent. This finding indicates a high degree of homogeneity.[42] As a result, all CCCS items consistently measured chronic care competency with evidence. Furthermore, the findings of the study can be used as a guide for further research to develop an appropriate instrument to measure chronic care competency in other settings.

Limitations

This study had two major limitations. Firstly, the majority of participants were female and all were selected from one province of southern Thailand. It should be noted that in all seven professions in the primary care team analyzed, the majority were female. Therefore, the study evidence on psychometric properties of the CCCS may be influenced by some characteristics of the female subjects and providers in the southern Thai health care system. Secondly, the CCCS was developed only for health care team members who have provided chronic care at the primary care settings. It should not be used to measure chronic care competency of health care team members in the secondary and tertiary care settings in the Thai health system.

Conclusions and Implications for Nursing Practice

Chronic illnesses are common to a large number of patients in the community, most of whom receive chronic care from primary care teams. This study can contribute to the development of primary care practice in Thailand. First, the new conceptual structure of chronic care competency from the study is the essential conceptual structure for primary care teams to use in improving the quality of chronic care services. It may also be used as a framework for the construction of a primary care team member's competency regulation and to develop chronic care competency in the health professional programs in Thailand.

Second, the newly-created tool can be implemented by primary care teams to provide better quality care in the primary care settings. The CCCS fills this gap and is significant to primary care teams to measure their competency for the provision of effective chronic care. Lastly, as an empirical indicator, the CCCS is significant for the development of new knowledge. In addition, the administrators and practitioners who are responsible for leading, facilitating, improving, and monitoring the activities for providing chronic care can use the CCCS to assess and monitor chronic care competency for their team members. We encourage further research with this tool in different provinces of Thailand, and especially those with significant number of males so as to try to overcome the limitation mentioned about regarding testing in largely female populations.

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การพัฒนาและประเมินคุณภาพแบบวัดสมรรถนะการจัดการโรคเรื้อรังของทีมบริการสุขภาพระดับปฐมภูมิในประเทศไทย

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บทคัดย่อ: ระบบบริการสุขภาพของไทยในปัจจุบันยังไม่มีเครื่องมือที่ใช้ในการประเมินสมรรถนะการจัดการโรคเรื้อรังระดับปฐมภูมิ การวิจัยนี้มีวัตถุประสงค์เพื่อพัฒนาและประเมินคุณภาพแบบวัดสมรรถนะการจัดการโรคเรื้อรังของทีมบริการสุขภาพระดับปฐมภูมิในประเทศไทย โดยองค์ประกอบของสมรรถนะดังกล่าวพัฒนามาจากการวิเคราะห์วรรณกรรมที่เกี่ยวข้องและการสัมภาษณ์เชิงลึกผู้ปฏิบัติ แล้วนำมาพัฒนาเป็นชุดคำถามรวม 50 ข้อ ซึ่งได้รับการตรวจสอบความตรงเชิงเนื้อหาจากผู้เชี่ยวชาญ 9 คน (CVI=0.95) แบบวัดสมรรถนะการจัดการโรคเรื้อรังที่ได้ จำนวน 40 ข้อ ถูกนำไปทดสอบกับสมาชิกทีมบริการสุขภาพระดับปฐมภูมิ จำนวน 35 คน พบว่าความสอดคล้องภายในของข้อคำถามทั้งชุดอยู่ในระดับสูง

แบบวัดสมรรถนะดังกล่าวยังได้นำไปทดสอบความตรงเชิงโครงสร้างกับกลุ่มตัวอย่างซึ่งเป็นสมาชิกทีมบริการสุขภาพระดับปฐมภูมิ 434 คน ผลการวิเคราะห์ข้อมูลยังคงพบความสอดคล้องภายในของข้อคำถามทั้งชุดในระดับสูง ผลการวิเคราะห์องค์ประกอบเชิงสำรวจ (Exploratory Factor Analysis) พบว่า แบบวัดที่พัฒนาขึ้นในครั้งนี้ ประกอบด้วย 3 องค์ประกอบ ได้แก่ การบริการทางการแพทย์พื้นฐาน การจัดการความเสี่ยงด้านสุขภาพและการควบคุมอาการ และการจัดการทรัพยากรชุมชน และผลการนำไปใช้เพื่อทดสอบสมมติฐาน พบว่าระดับการศึกษาของสมาชิกทีมบริการสุขภาพระดับปฐมภูมิมีความสัมพันธ์กับระดับสมรรถนะในการจัดการโรคเรื้อรัง สำหรับผลการทดสอบความเที่ยงโดยวิธีวัดซ้ำ พบว่า คะแนนสมรรถนะในการจัดการโรคเรื้อรังที่ได้รับจากการวัดครั้งที่ 1 และครั้งที่ 2 มีความสัมพันธ์กันในระดับสูงเช่นกัน

ดังนั้น แบบวัดสมรรถนะการจัดการโรคเรื้อรังชุดนี้ จึงมีความตรงและความเที่ยงเพียงพอที่จะใช้ประเมินสมรรถนะของทีมบริการสุขภาพที่ปฏิบัติงานในระดับปฐมภูมิของระบบบริการสุขภาพของไทย อย่างไรก็ตาม การวิจัยในอนาคต ควรพัฒนาแบบวัดสมรรถนะการจัดการโรคเรื้อรังของทีมสุขภาพ ในแต่ละสาขาวิชาชีพ ให้ครอบคลุมเพศชาย และในจังหวัดอื่นๆ ทั่วประเทศ เพื่อยืนยันความตรงและความเที่ยงของแบบวัดสมรรถนะของทีมบริการสุขภาพต่อไป

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