

Competencies of Nurse Practitioners Working in Diabetes Mellitus Clinic at Primary Care Unit in Chiang Mai Province

สมรรถนะของพยาบาลเวชปฏิบัติที่ปฏิบัติงานในคลินิกเบาหวาน ณ หน่วยบริการปฐมภูมิ จังหวัดเชียงใหม่

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Abstract

Background/ Significance: According to health system reform, nurse practitioners are the key providers for providing Diabetes Mellitus (DM) care at the Primary Care Unit (PCU) that can increase access, reduce inequities and provide continuous quality service in remote areas. The purpose of this descriptive study is to determine the competencies of nurse practitioners working in DM clinic at PCU in Chiang Mai province.

Methods: A descriptive study in 135 nurse practitioners who worked at the DM clinic in PCU. The competencies in diabetes care management of nurse practitioners were studied using questionnaires which composed of 5 domains: (1) management of patient health/illness status, (2) the nurse practitioner-patients relationship, (3) the teaching-coaching function, (4) professional role, and (5) managing and negotiating the health care delivery system. Descriptive statistics were used to analyze the data.

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Results: The findings revealed that nurse practitioners' competencies in diabetes care management was at medium competent; when separated in to five aspects, 2 domains were high competent: (1) the nurse practitioner-patients relationship ($\bar{x} = 2.50$ SD = 0.75), (2) managing and negotiating health care delivery system ($\bar{x} = 2.54$ SD = 0.70), and 3 domains were medium competent: (1) management of patient health/illness status ($\bar{x} = 2.35$ SD = 0.79), (2) the teaching-coaching function ($\bar{x} = 2.39$ SD = 0.83), and (3) professional role ($\bar{x} = 2.16$ SD = 0.80).

Conclusion: The overall competencies of nurse practitioners in diabetes care management were determined to be at medium levels. This study suggests that the strengthening competency should be provided for nurse practitioners who have the responsibility of taking care of diabetic patients at DM clinics in PCUs. Moreover, the strengthening of nurse practitioners should be done continually to increase confidence levels in job performing these tasks.

Key words: Diabetes Mellitus, Nurse Practitioner, Competencies, Primary Care Unit.

บทคัดย่อ

การปฏิรูประบบสุขภาพในประเทศไทยส่งผลให้พยาบาลเวชปฏิบัติเป็นบุคลากรหลักที่สำคัญในการให้บริการดูแลผู้ป่วยเบาหวาน ณ หน่วยบริการปฐมภูมิ เพื่อให้ผู้ป่วยสามารถเข้าถึงบริการอย่างทั่วถึง เท่าเทียม และได้รับบริการที่มีคุณภาพอย่างต่อเนื่อง โดยเฉพาะพื้นที่ห่างไกล การศึกษาค้นคว้าครั้งนี้มีวัตถุประสงค์เพื่อศึกษาสมรรถนะของพยาบาลเวชปฏิบัติที่ปฏิบัติงานในคลินิกเบาหวาน ณ หน่วยบริการปฐมภูมิ จังหวัดเชียงใหม่

การวิจัยครั้งนี้เป็นการวิจัยเชิงพรรณนา ประชากรในการศึกษาคือ พยาบาลเวชปฏิบัติ จำนวน 135 คน ที่มีหน้าที่รับผิดชอบในการให้บริการผู้ป่วยโรคเบาหวาน ณ หน่วยบริการปฐมภูมิ ผู้วิจัยประเมินสมรรถนะในการจัดการดูแลผู้ป่วยเบาหวานของพยาบาลเวชปฏิบัติ โดยการแจกแบบสอบถามประกอบด้วย 5 ด้าน ได้แก่ (1) การจัดการสุขภาพและความเจ็บป่วย (2) สัมพันธภาพระหว่างพยาบาลและผู้ป่วย (3) การสอนและการกำกับ (4) บทบาทเชิงวิชาชีพ (5) การจัดการและการต่อระบบบริการสุขภาพ

วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา

ผลการวิจัยพบว่า สมรรถนะในการจัดการดูแลผู้ป่วยเบาหวานโดยรวมอยู่ในระดับปานกลาง เมื่อแยกเป็น รายด้านพบว่า สมรรถนะด้านสัมพันธภาพระหว่างพยาบาลและผู้ป่วย ($\bar{x} = 2.50$ SD = 0.75) ด้านการจัดการและการต่อระบบบริการสุขภาพ ($\bar{x} = 2.54$ SD = 0.70) อยู่ในระดับสูง ส่วนสมรรถนะอีก 3 ด้าน ได้แก่ สมรรถนะด้านการจัดการสุขภาพและความเจ็บป่วย ($\bar{x} = 2.35$ SD = 0.79) ด้านการสอนและการกำกับ ($\bar{x} = 2.39$ SD = 0.83) และด้านบทบาทเชิงวิชาชีพ ($\bar{x} = 2.16$ SD = 0.80) อยู่ในระดับปานกลาง

สรุปได้ว่า สมรรถนะโดยรวมของพยาบาลเวชปฏิบัติในการจัดการดูแลผู้ป่วยโรคเบาหวาน อยู่ในระดับปานกลาง ข้อเสนอแนะของการศึกษาค้นคว้าครั้งนี้คือ ควรมีการเสริมสร้างสมรรถนะของ พยาบาลเวชปฏิบัติที่มีหน้าที่รับผิดชอบในการให้บริการผู้ป่วยโรคเบาหวาน ณ หน่วยบริการปฐมภูมิ นอกจากนี้ การเสริมสร้างสมรรถนะแก่พยาบาลเวชปฏิบัติ ควรดำเนินการอย่างต่อเนื่องเพื่อเพิ่มความมั่นใจในการปฏิบัติงาน

คำสำคัญ: โรคเบาหวาน พยาบาลเวชปฏิบัติ สมรรถนะ หน่วยบริการปฐมภูมิ

Background and Significance

Diabetes Mellitus (DM) is a major non-communicable disease of public health concern in many countries which affecting 5 to 6% of the global adult population¹⁻⁴. According to the World Health Organization, over 220 million people around the world have diabetes⁵. Moreover, the expectation is that in 2025, the majority of DM patients will be living in South East Asia, which will have more cases than any other part of the world including Thailand³. In Thailand, the prevalence of DM patients is high, particularly type 2 which is greatly affecting the health and cost of diabetes care⁶⁻⁷.

In 2002, Thailand was promoted a system of primary care that can improve health through increasing access and thereby reducing inequities in remote areas including diabetes care at primary care units (PCUs). Thus, the need for nurse practitioners (NPs) to work at 10,000 PCU was evidenced and they play a key role in providing necessary care for Diabetic patients particularly in PCUs⁸. The job performance for NPs in providing care for Diabetic patients at PCUs that consist of diagnosing and providing treatment under the supervision of a physician, counseling, health promotion, home visit, and referrals⁹.

Chiang Mai province had established the DM clinic for providing diabetes care and supported the nurse practitioners to work at PCUs including DM clinic. In addition, this province is the first highest prevalence of DM patients in Region five¹⁰.

Thailand Nursing and Midwifery Council had defined the core competency of nurse practitioners in primary care consisting of five domains: (1) management of patient health/illness status, (2) the nurse practitioner-patient relationship, (3) the teaching-coaching function, (4) professional role, and 5) managing and negotiating health care delivery systems¹¹. These domains have not been investigated in NPs who responses for providing diabetes care in PCUs at Chiang Mai province yet. Therefore, the aim of this study was to examine the competencies of nurse practitioners working in diabetes mellitus clinic at primary care unit. The results of this study should be benefit to strength competencies of nurse practitioners for providing diabetes care at PCUs.

Research Objective

To assess the competencies of nurse practitioners working in DM clinic at PCU in Chiang Mai province.

Research Methodology

Research Design

A descriptive study was designed to assess the competencies of nurse practitioners working in DM clinic at PCU in Chiang Mai province.

Population and Sampling

The population of this study was nurse practitioners who work full-time in DM clinic in Chiang Mai province at least 1 year. There were 246 PCUs and population was 215 nurse practitioners after discard 80 NPs who had working in DM clinic less than 1 year and part-time work at PCUs. Therefore, the sample of this study was 135 nurse practitioners.

Research instruments

The questionnaires consist of two parts as follows:

Demographic characteristics of nurse practitioners includes gender, age, marital status, educational background, post specialty training program in Nurse Nurse Practitioner (Primary Medical Care), work experience in PCU, work experience in DM clinic at primary care unit, number of DM service, and during time of DM service.

The NPs' competencies in managing comprehensive diabetes care questionnaires. The questionnaires was constructed by the researcher based upon standard of medical care for patients with DM (2012) and literature review related to 5 domains of core competencies of nurse practitioners practice released by the Thailand Nursing and Midwifery Council (2007): (1) management of

patient health/illness status, (2) nurse practitioner-patient relationship, (3) teaching-coaching function, (4) professional role, and (5) managing and negotiating health care delivery systems. This questionnaire was used to assess the NPs' competencies in managing comprehensive diabetes care in primary care unit. The scale consisted of a 30-item list, which ranged from 0 (cannot do it definitely) to 4 (can do it definitely). Interpretation of the scores was divided into 5 different levels.

Very high	3.20 - 4.00
High	2.40 - 3.19
Medium	1.60 - 2.39
Low	0.80 - 1.59
Very low	0.00 - 0.79

Validity and Reliability

Content validity

The content validity of the questionnaires was approved by five experts by checking the completeness of the content, clarity of the language and relevance to the issues to be examined. Then, the questionnaires were adjusted accordingly to their suggestions from the experts. The Content Validity Index (CVI) was analyzed. The CVI score of items of questionnaire was between 0.80 and 1.00.

Reliability

The questionnaires was tested by 30 nurse practitioners working in DM clinic at PCU in Lamphun province. These nurse practitioners had similar characteristics as the samples to be studied. The reliability of questionnaire was

0.91 by using Cronbach's Alpha Coefficiency.

Data collection

The researcher posted the questionnaires and cover letter directly to 135 nurse practitioners to clarify the objectives of the study and collect the data. After that, nurse practitioners answered the questionnaires within two weeks and 100 % of questionnaires were returned to the researcher directly by post.

Data analysis

The demographic characteristics data and the NPs' competencies in managing comprehensive diabetes care at PCU were analyzed using frequency, percentage, mean and standard deviation.

Ethical Considerations

Ethical considerations of this study were made and approved by the Mahidol University Institutional Review Board (MUPH 2013-134). All nurse practitioners were informed about the purpose of the study,

procedure, confidentiality, anonymity preserved, benefits, and the right to withdraw at any time without any adverse repercussions. Their rights were protected throughout the study.

Results

The demographic characteristics of nurse practitioners working in DM clinic at PCUs

1. The majority of nurse practitioners were female (97.0 %) with the average age of 44.04 years (S.D. = 5.91). Most of them were married (77.8 %), held the bachelor degree level (87.4%) and they have been trained Nurse Practitioner (Primary Medical Care) short course and worked as a nurse practitioner for approximately 3 years (S.D. = 0.70). Their average work experience in PCU was 15.03 years (S.D. = 7.53) and the mean work experience in DM clinic at PCU was 4.50 years (S.D. = 3.77). The majority of them have worked in the DM clinic at PCU about once a month (53.3 %) and the average time of working was 6.04 hours (S.D. = 1.53), as shown in Table 1.

Table 1 Number and percentage of nurse practitioners working in DM clinic at PCUs classified by demographic characteristics (n = 135)

Characteristics	Number	Percentage
Gender		
Male	4	3.0
Female	131	97.0
Age (years)		
20 – 30	1	0.8
31 – 40	40	29.6
41 – 50	71	52.6
51 – 60	23	17.0
(x̄ = 44.04 S.D. = 5.91 ; Min = 25, Max = 59)		
Marital status		
Single	11	8.1
Married	105	77.8
Widowed divorced/ Separated	19	14.1
Educational background		
Bachelor degree	118	87.4
Master degree	17	12.6
Community Nurse Practitioner	4	2.9
Adult Nursing	2	1.4
Mental Health and Psychiatric Nursing	1	0.7
Post training program of Nurse Specialty in Nurse Practitioner (Primary Medical Care)(years)		
< 1		
1 – 5		
6 – 10		
> 11		
(x̄ = 3.05 S.D. = 0.70 ; Min = 0.04 , Max = 16.3)		

Table 1 Number and percentage of nurse practitioners working in DM clinic at PCUs classified by demographic characteristics (n = 135) (cont.)

Characteristics	Number	Percentage
Work experience in PCU (years)		
1- 10	81	60.0
11- 20	37	27.4
21- 30	17	12.6
(\bar{x} = 15.03 , S.D. = 7.53 ; Min = 1 , Max = 28)		
Work experience in DM clinic at PCU (years)		
≤ 5	93	68.8
6 – 10	34	25.2
> 10	8	6.0
(\bar{x} = 4.50, S.D. = 3.77; Min = 1, Max = 24)		
DM service in PCU (month)		
once a month	72	53.3
twice a month	18	13.3
three time a month	6	4.5
four time a month	39	28.9
During time of DM service (hours)		
≤ 4	38	28.1
6	56	41.5
8	41	30.4
(\bar{x} = 6.04 SD = 1.53 ; Min = 4, Max = 8)		

2. Level of nurse practitioners' competencies in managing comprehensive diabetes care

The level of nurse practitioners' competencies in managing comprehensive diabetes care was at medium competent (\bar{x} = 2.38 SD = 0.77), and when separate into five aspects, it was found that the two competent were high level: (1) managing and negotiating

health care delivery systems (\bar{x} = 2.54 SD = 0.70) and (2) nurse practitioner - patients relationship (\bar{x} = 2.50 SD = 0.75). For three competent, (1) the teaching - coaching function (\bar{x} = 2.39 SD = 0.83), (2) management of patient health / illness status (\bar{x} = 2.35 SD = 0.77), and (3) professional role were medium level (\bar{x} = 2.16 SD = 0.80) respectively, as shown in Table 2.

Table 2 Mean, standard deviation, and level of nurse practitioners’ competencies in managing comprehensive diabetes care at PCUs (n = 135)

Nurse practitioner competency	\bar{x}	S.D.	Level
1. Management of patient health/illness status	2.35	0.77	Medium
2. The nurse practitioner-patients relationship	2.50	0.75	High
3. The teaching-coaching function	2.39	0.83	Medium
4. Professional role	2.16	0.80	Medium
5. Managing and negotiating health care delivery systems	2.54	0.70	High
Overall competency	2.38	0.77	Medium

Conclusion and Discussion

In conclusion, the results of this study revealed that the level of nurse practitioners’ competencies in managing comprehensive diabetes care was medium competent and when separate aspect by aspect, it was found that the two competent were high level: (1) The nurse practitioner-patients relationship and managing and negotiating health care delivery systems. For three competent, management of patient health/illness status, the teaching-coaching function, and professional role were medium level. The details can discussion as follows:

(1) Management of patient health/illness status: this study revealed that the level of management of patient health/illness status was medium competent. When the competencies were considered by items, the study found that nurse practitioners lack of confidence for providing diabetes care about treatment, interpret the laboratory, assess

the complications of disease, foot examination, create innovation, and emergencies case such as Hypoglycemia. This is challenging competency because the major roles and responsibilities of nurse practitioners were providing primary medical care¹¹⁻¹². Moreover, 4-month short course for certified nurse as a nurse practitioner. The content of chronic disease especially diabetes care was only a bit content in primary medical care¹³.

(2) The nurse practitioner - patient relationship: this study revealed that the level of the nurse practitioner - patient relationship was high competent. The nurse practitioners had participated and maintained trust with DM patients and care giver to find the health problem by using home visit at community. In addition, nurse practitioners had counseling of DM patients in DM clinic and had advised the resource in community for providing self- care of DM patients. This is congruent with this study found that nurse

practitioners had friendly communicating, building relationship and trust, better listeners, spent more time with patients, and knew the patients need^{12,14}.

(3) The teaching-coaching function: this study revealed that the level of the teaching-coaching function was medium competent. When the competencies were considered by items, the study found that nurse practitioners lack of confidence about transfer knowledge and necessary skills for self-care in DM patients and caregiver to prevent the complications of disease. This is congruent with this study found that nurse practitioners need to increase knowledge and skills for providing diabetes care at PCU¹⁵.

(4) Professional role: this study revealed that the level of the professional role was medium competent. When the competencies were considered by items, the study found that nurse practitioners lack of confidence about the role of nurse case manager, applied diabetes care research to practice, and conducted innovation for providing DM patients. This competency is new nursing role because the major roles of nurse practitioners were providing primary medical care, followed by health counseling, health promotion in elderly people, health problems screening and finding the people at risk, and chronic care, respectively¹¹⁻¹².

(5) Managing and negotiating health care delivery systems: this study revealed that the level of managing and negotiating health care delivery systems was high com-

petent. Nurse practitioners had managed the services system for providing diabetes care at PCUs that consist of diagnosis and treatment under the supervision of a physician, counseling, health promotion, home visit, and referrals. Especially the referral system, NPs had decision making in referring client to appropriate specialist and had ability to negotiating with multidisciplinary team¹². Similarly, this study found that

negotiating and cooperative skills were important factors that can predict the successfulness of primary care practice¹⁶.

Recommendations for further research

The study revealed that nurse practitioners' competency in management of patient health/illness status, the teaching-coaching function, and professional role were lower than other competencies. Therefore, nurse practitioners should be strengthened these competencies to enhance their confidence for providing DM patients continuously and effectively.

The Qualitative methods should be organized in data collection in order to develop the program for strengthening competencies of nurse practitioners working in DM clinic at primary care unit.

This research was conducted only in nurse practitioners working in DM clinic at PCUs in Chiang Mai province. Further research should be conducted in nurse practitioners working in DM clinic in other province for making comparison.

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