

# ASSESSMENT OF KNOWLEDGE, ATTITUDE, AND PRACTICE OF PREVENTIVE SELF-CARE ON DIABETIC FOOT ULCER IN TYPE II DIABETIC PATIENTS, MUANG ROI-ET DISTRICT, ROI-ET PROVINCE, THAILAND

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**ABSTRACT:** Lower extremity amputation and diabetic foot ulcer is a burden for Thailand health care system. The same proves in Roi-Et province, Thailand in terms of morbidity, health care expenses, as well as mortality. Preventive self-care information is required to be given for diabetic patients. The objective of this study were to (1) assess the demographic data, the level of knowledge, the level of attitudes, and the level of practice of preventive self-care for diabetic foot ulcer of the respondents (2) study the factors associated with the practice of preventive self-care for diabetic foot ulcer of the respondents. This study is a cross-sectional study with an interview questionnaire conducted from September to December 2009. A total of respondents were 300 respondents through quota sampling from the 800 out-patient department patients who were registered as diabetic patients at the Diabetic Foot Clinic at Roi-Et Hospital. The results revealed that the respondents' knowledge level was moderate (66.0%), their attitude on high level (75.3%), and their practice was also on high level (50.7%). In addition, some socio-demographic data, knowledge, and attitude were identified as factors associated with the practice of preventive self-care on diabetic foot ulcer in diabetic type II patients. Further improvement of local diabetes care program should be improved.

**Keywords:** Diabetic foot ulcer, Preventive self-care, Diabetic patients

## INTRODUCTION

Numbers of diabetic patients who have experienced diabetic lower extremity amputation are high [1]. Lower extremity amputation is considered a threat to quality of life of diabetic [2]. About 50% of diabetic patients with lower extremity amputation die within 5 years after the amputation. In several countries, studies on prevention and treatment of diabetic foot have been focused to reduce occurrence of lower extremity amputations [3]. Foot deformities are more likely to be occurred among diabetic patients rather than others. Apart from dietary management, exercise,

medication and foot care are very important for diabetes mellitus treatment [4]. For developing country, expenses for diabetic foot care are as high as 40% of the total health care expense [1] Preventive self-care information is required to be given for diabetic patients. Based on working experiences as nurse at the surgery patient ward at Roi-Et Hospital, there have been diabetic patients admitted to the hospital due to a lack of knowledge, understanding, and awareness of preventive self-care for diabetic feet [1, 5]. The objective of this study were to (1) assess the demographic data, the level of knowledge, the level of attitudes, and the level of preventive self-care for diabetic foot ulcer of the respondents (2) study the factors associated with the preventive self-care for diabetic foot ulcer of the respondents.

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**Table 1** Association between gender, occupation, monthly-household expense, knowledge, attitude, and practice

Variables	Practice			Chi Square	P- value
	Low & Moderate n(%)	High n(%)	Total n(%)		
<b>Gender</b>					
Male	39(39.8)	59(60.2)	98(100)	5.297	0.021*
Female	109(54.0)	93(46.0)	202(100)		
Total	148(49.3)	152(50.7)	300(100)		
<b>Occupation</b>					
House worker	33(73.3)	12(26.7)	45(100)	12.761	0.005*
Labor	37(48.7)	39(51.3)	76(100)		
Agriculturist	39(43.3)	51(56.7)	90(100)		
Trade	39(43.8)	50(56.2)	89(100)		
Total	148(49.3)	152(50.7)	300(100)		
<b>Monthly /household</b>					
1,000-9000	88(56.8)	67(43.2)	155(100)	7.103	0.008*
9,001-80,000	60(41.4)	85(58.6)	145(100)		
Total	148(49.3)	152(50.7)	300(100)		
<b>Knowledge</b>					
Low& Moderate	140(58.1)	101(41.9)	241(100)	37.604	<0.001*
High	8(13.6)	51(86.4)	59(100)		
Total	148(49.3)	152(50.7)	300(100)		
<b>Attitude</b>					
Low & Moderate	51(68.9)	23(31.1)	74(100)	15.075	<0.001*
High	97(42.9)	129(57.1)	226(100)		
Total	148(49.3)	152(50.7)	300(100)		

## MATERIALS AND METHODS

This study is a cross-sectional study with an informed consent interview questionnaire, both face to face and self-administered, as a research tool. Data collection was between September to December 2009 with a total number of 300 respondents by Taro Yamane sample size calculation formula. The sampling technique was quota sampling (by respondent number criteria) from the total numbers of 800 out-patient department patients who were registered as diabetic patients at the Diabetic Foot Clinic at Roi-Et Hospital during October 2007 to October 2009, and held Thailand's Universal Coverage Care Gold Card. There were 4 sections in the questionnaire. The first part was the socio-demographic of the respondents (gender; age; marital status; educational level; occupation; numbers of family members; monthly household income; monthly household expense; and family history with diabetes mellitus). The second part was knowledge on diabetes mellitus in general and knowledge on preventive self-care of diabetic foot ulcer in particular (28 items). The third part was attitude on diabetes mellitus in general and attitude on preventive self-care of diabetic foot ulcer in particular (11 items). The fourth part was on practice of preventive self-care for diabetes mellitus in general and of diabetic foot ulcer in

particular (12 items). The reliability with 30 samples in Sealaporn district, Roi-Et province, who were diabetic patients and not samples of the research for try-out of the questionnaire revealed the Cronbach's alpha value of 0.758. The scoring of knowledge part was in 3 levels: 0-16 (less than 60%) indicated the low knowledge level; 17-22 (60-80%) indicated the moderate knowledge level; 23-28 (more than 80%) indicated the high knowledge level [6]. The scoring for attitude and practice part was in 3 same level by the use of range: 1.00-1.66 indicated low level; 1.67-2.33 indicated moderate level; 2.34-3.00 indicated high level. The statistic significant level was less than 0.05. Data analysis for descriptive statistics (frequency, percentage, mean, standard deviation, minimum and maximum values) and inferential statistics (Chi-square test) were conducted by SPSS version 17 (licensed for Chulalongkorn University).

## RESULTS

The study revealed that majority of the respondents were female (67.3%), in the age bracket of 55-60 years old (41.7%) with mean age of 53 years married (76.0%), finished their primary school (59.0%), and were agriculture by occupation (30.0%). The average numbers of their family members were 4 persons. Their household monthly

income was 15,682 baht on average with average household monthly expenses of 10,702 Baht. The family members had no diabetes mellitus problem (45.3%) and had on foot ulcer unconsciously (80.3%). In terms of their knowledge level, the respondents were on moderate (66.0%), their attitude was on high level (75.3%), and their practice was on high level (50.7%). Regarding factors associated with the practice of preventive self-care of diabetic foot ulcer were gender ( $p=0.021$ ); occupation ( $p=0.005$ ); household monthly expense ( $p=0.008$ ); knowledge ( $p<0.001$ ), as well as attitude ( $p<0.001$ ), Table 1.

## DISCUSSION AND CONCLUSION

Based on this study, the type II diabetic patients' knowledge level was a moderate. Attitude and practice level was high level. These findings are in line with a study conducted by Siwina's study [7] found that 75.9% and 63.6% of the diabetic type II patients had an overall DM knowledge and positive attitude towards DM. In term of preventive self-care of foot wound, a haft of the samples (56.4%) performed preventive self-care of foot wound in overall which is in line with Srisarakam's study [8]. The study also found that diabetic type II patients performed preventive self-care of foot wound in all 6 aspects and in each aspect at fair level [8]. In addition, a study of Limaunaylap et al. [9] indicated that half of diabetic type II patients performed a correct nail trimming. About haft of diabetic type II patients cleaned their feet properly, while only few (4.0%) of them let their feet dirty to a wound. Furthermore, most of them (85.2%) wore flip-flop. Some factors such as socio-demographic data, knowledge, and attitude were identified as factors associated with the practice of preventive self-care on diabetic foot ulcer in diabetic type II patients. Such finding is in line with Siwina's study [7].

The occurrence of foot wound is usually occurred with individual who experienced a chronic ulcer before. This is also confirmed by Janchai in 2005 [10] who stated that more than 50% of diabetic patients who had leg amputation will get another leg amputation in next few years. In addition, 2 in 3 will lose their lives in 5 years. Risky factors usually reported were previous diabetic wound or leg amputation, long 85 suffering with DM, uncontrolled blood glucose level, nerve degeneration and peripheral arterial disease. The above-mentioned findings may be caused by changes of lifestyles at the current. As the economic situation has balanced roles of different gender, so this change

also has an influence on individual's lifestyle and health behavior. It is also found that 15% of diabetic patients experienced foot wound before and 14-24% of those with previous history of foot wound had leg amputation eventually. Therefore, preventing a foot wound can reduce numbers of leg amputation, increase quality of life, decrease a burden towards family and reduce an expense.

Diabetic patients are at risk of getting chronic ulcer at foot, because peripheral nerve flowing to leg and foot is degenerated. As a result, foot and leg will get numb and lose feeling when contacting with sharp objects, pressure and heat which will cause a serious and unaware foot ulcer without receiving a proper treatment. Apart from that, degeneration of peripheral nerve also cause a dried a foot's skin, weak muscle of foot, deformed foot to a serious foot ulcer. In addition, obstruction of peripheral nerve flowing to foot is an important cause that slows a recover of foot wound. Risky factors or signs of easily getting a foot wound that should be aware are aging, long suffering from DM, uncontrolled blood glucose level, overweight causing a pressure towards feet, poor vision caused by long suffering from DM, inability to exam a foot wound at the beginning stage and deformation of foot [11].

Although Roi-Et Hospital has been having the multidisciplinary care for diabetic patients for a period of time, the study result still showed some gaps among knowledge, attitude, and preventive practice of the patients. The missing link of awareness to KAP on the current issue is the main improvement recommended for existing health prevention/promotion campaign offered by the involved public sector, in order to response to the principle of Primary Health Care aiming at health prevention and health promotion by patients themselves. Improvement of an effective self-care program can be encouraged through community participation by taking into account area-based problem, however, the moderate level of knowledge should be corrected for better improvement. Local health authority should pay attention to this regard for the higher quality of life among diabetic type II patients in Muang Roi-Et District, Roi-Et province, Thailand.

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**REFERENCES**

1. American Diabetes Association [ADA]. Consensus Development Conference on Diabetic Foot Wound Care: 7-8 April 1999, Boston, Massachusetts. American Diabetes Association. *Diabetes care*. 1999; 22(8): 1354-60.
2. Adler AI, Erqou S, Lima TA, Robinson AH. Association between glycated haemoglobin and the risk of lower extremity amputation in patients with diabetes mellitus-review and meta-analysis. *Diabetologia*. 2010 May; 53(5): 840-9.
3. Albrant DH. Management of foot ulcers inpatients with diabetes. *J Am Pharm Assoc*. 2000; 40(4): 467-74.
4. Canadian Diabetes Association [CDA]. Clinical practice guidelines for the prevention and management of diabetic in Canada; 2003 [cited 2008 March 6]. Available from <http://www.diabetes.ca/cpg2003/>
5. Tawee A. Foot wound. In: Ratchatanawin R, Ningsaon T, editors. A comprehensive version of diabetes mellitus related knowledge. 3<sup>rd</sup> ed. Bangkok: Wittayapat; 2004. p. 70-6.
6. Bloom BS. Learning for mastery. *Evaluation Comment*. 1968; 1(2): 49-62.
7. Siwina S. Factors affecting self-care behaviors of diabetes patients in Amphur Kasetwisai Roi-et province. Mahasarakham: Rajabhat Mahasarakham University; 2003. [in Thai]
8. Srisarakham O. Comparison of self-care behavior on diabetes foot ulcer in type 2 diabetes patients. Mahasarakham: Mahasarakham University; 2007. [in Thai]
9. Limaunuaylap S, Puawilai A, Nunsupawat W. Problem knowledge and practice of diabetic patient's treatment, Srinakarin Hospital, Khon Kaen University. Khon Kaen: Khon Kaen University; 1993. [in Thai]
10. Janchai S. Diabetic foot care: prevention of lower extremity amputation. *Chula Med J*. 2005; 49(3): 173-88. [in Thai].
11. Muthirangkul P, editor. Emergency medicine: for general practitioner. Bangkok: Pimdee Printing House; 2005.