FACTORS INFLUENCING PROTECTION COVID-19 TO PEOPLE IN THE COMMUNITY, WANGMOUNG DISTRICT, SARABURI PROVINCE

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ABSTRACT

COVID-19 pandemic is a very serious health problem. Infected diabetes mellitus patients have high chances to be fatal. The aims of this research are to examine preventive COVID-19 practices and identify influencing factors protection COVID-19 practices of diabetes mellitus patients in primary care units, Wangmoung district, Saraburi province during the COVID-19 pandemic. A cross-sectional survey study was employed for the research. The sample size was 156 patients from a total of 254 patients who were in all 7 primary care units in Wangmuong district, Saraburi province. The systematic random sampling was conducted to select the samples by choosing from lists of the patients one except one randomly. The questionnaire was tested for validity by 3 experts resulting in IOC valued more than 0.5 and reliability by 30 patients in district hospital with Chronbach's alpha of 0.84. The data were analyzed by using SPSS. for descriptive statistics, multiple correlation, and linear regression. The research hypothesis was that protection COVID-19 were influenced by knowledge, perception, and stress. The findings were the high preventive COVID-19 practice of patient level and the influencing factors of protection COVID-19 were knowledge, perception, and stress. The suggestion revealed that primary care units should promote COVID-19 to enhance perception and knowledge for preventive COVID-19 practices and relief stress of diabetes mellitus patient.

Keywords: Prevention ; COVID-19 ; Primary care unit ; Diabetes Mellitus

INTRODUCTION

The coronavirus is a family of viruses which may lead to various symptoms such as fever, dyspnea, and pneumonia (LI, et al., 2020). The World Health Organization (WHO) called the term 2019 coronavirus refer to a coronavirus that infected the lower respiratory tract of patients with pneumonia in Wuhan, China on 29 December 2019 (CDC, 2019). Currently, the reference name for the virus is severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It was reported that a cluster of patients with pneumonia of unknown cause was linked to a local Huanan South China Seafood Market in Wuhan, Hubei Province, China in December 2019 (Zhu, et al., 2020). Within 1 month, this virus spread quickly throughout China during the Chinese New Year. Although it is still too early to predict susceptible populations, early patterns have shown a trend similar to severe acute respiratory syndrome (SARS) and middle east respiratory syndrome (MERS) coronaviruses. Susceptibility seems to be associated with age, biological sex, and other health conditions

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Received: Sep 29, 2021, Revised: Dec 19, 2021, Accepted: Dec 24, 2021

(WHO., 2020; Fehr, Channappanavar, Perlman, 2017). COVID-19 has been declared as a Public Health Emergency of International Concern by the WHO. Human-to-human transmission of the COVID-19 has posed a major global health threat (Wang, et al., 2020). Since the WHO declared the COVID-19 as a pandemic and hence a public health emergence of international concern, the rate of new infections and deaths has been ever-accelerating in many parts of the world. As of August 2020, at least 21,549,706 confirmed cases of COVID-19, including 767,158 deaths, had been reported in 216 countries around the world (WHO, 2020). When the pandemic of COVID-19 occurs. The cities were locked down and made various measures, including shutting down work, delayed school opening, closing all kinds of entertainment places, and home segregation. Everyone restricted travel. It is important to know the method to lessen COVID-19 spreading. (CDC, 2019). The COVID-19 pandemic has caused unprecedented damage to the health system worldwide. Hence, most countries were seen as a credible global health actor (Zhang, et al., 2020; Wu, et al., 2020). This pandemic has brought a significant change in life style as well as working environment. Such sudden changes to daily life may have adversely impact peoples' mental health (Dong & Bouey, 2020). There have been implementing strict controls over social gatherings that would anyhow be regarded as a super spreading event (Abdollahi, et al., 2020; Auger, 2020). To control COVID-19, proper use of masks, hand hygiene and social distancing have proved extremely useful in most countries (Chu et al., 2020; Koo, 2020). Among other practices, mask wearing is considered the most recommended practice for infection control and breaking the transmission chain of COVID-19 (Goh, et al., 2020). However, a cross-sectional study that investigated Chinese residents, found only 73.9% of residents chose the proper type of mask (Zhang, et al., 2020). Another cross-sectional study among primary school students in Wuhan, China which included 9,145 students showed only 51.60% of students practiced appropriate mask wearing behavior (Chen, 2020). In addition, about 19.6% of study participants frequently reported to experience itchy sensations when they wore the mask for an extended time (Szepietowski, et al., 2020). An observational study involving 1,738 respondents from 190 Chinese cities revealed that high frequency of mask wearing regardless of the presence or absence of symptoms was significantly associated with stress (Wang, et al., 2020). According to the knowledge-attitude-practice (KAP) model, the more knowledge, the better attitude and leading to good practice (Monde, 2011). Each person's compliance with preventive practices was affected by their KAP toward COVID-19 through KAP theory (Ajilore, Atakiti, Onyenankey, 2017). In previous study such as MERS and SARS (Choi, Kim, 2016), the knowledge and perceptions were found to be influencing factors of preventive practices (Ejeh, et al., 2020). Based on above evidences, a cross-sectional survey during COVID-19 pandemic to explore the influencing factors which were knowledge, perception and stress of preventive COVID-19 practices should be conducted.

Diabetes mellitus (DM) is one of the worst diseases of the global burden especially in developing countries, because there were serious complications such as disability, reduction of quality of life, and global mortality. Thus, it is identified as the most challenging health problems of 21st century (Sophia, Sunny, 2017). The main problems were not only people's lack of concerning and understanding about these diseases, but lack of compliance with treatment also (WHO, 2017). Thailand's national statistic organization reported that among a sample of 100,000 Thai people, 69.4% do not concern about their health and did not know whether they had DM complications. The National

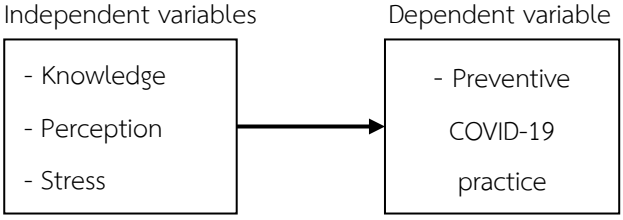
Health Security Office proposed an improvement plan for health promotion and primary care services in Thailand. Subsequently, the Thai government assigned health services throughout the country to the campaign of self- care for disease prevention and health promotion in the general population. Primary care persons have been responsible for monitoring and educating those patients identified being at risk (Tawatchai, Pilasinee, Siriyaporn, Thipakorn, 2016) . Moreover, during COVID- 19 pandemic, DM patients are in vulnerable groups because of high opportunity to pass away from COVID- 19 infection. Hence, it is very interesting to study preventive COVID- 19 practices and influencing factors of diabetes mellitus patients in primary care units, Wangmoung district, Saraburi province.

Objectives

1. To examine preventive COVID- 19 practices during COVID-19 pandemic of diabetes mellitus patients in primary care units, Wangmoung district, Saraburi province.

2. To analyze the relationships of knowledge, perception and stress with preventive COVID- 19 practices during COVID- 19 pandemic and of diabetes mellitus patients in primary care units, Wangmoung district, Saraburi province.

Conceptual Framework



Picture 1 Conceptual Framework

Population and Participants

In this cross- sectional survey study, diabetes mellitus patients from all seven primary care units in Wangmoung district, Saraburi province were selected as research subjects, consisting of 254 patients.

The sample size was calculated by the formula below:

$N = N / (1 + Ne^2)$

n: sample size

N: population

e: sampling error = 0.05

$n = 254 / 1+ 254 (0.05)^2$

n = 155.35

Based on Taro Yamane formula with the receivable error 0. 05, the result of sample size from calculation was 156 DM patients. In order to make every patient in each primary care unit had the same opportunity to be selected as sample, the systematic random sampling method was employed. Firstly, the names of seven primary care units were simple drawn randomly for ordering. Secondly, the researcher went to the primary care unit orderly and collected data from DM patients by systematic (one except one) randomly from each primary care unit until full sample. If it was not full, the researcher would turn to collect data from the first one again orderly until the full sample.

Instrument

The questionnaire of preventive COVID- 19 practices with 10 items was developed covering 2 components which were personal hygiene such as wearing mask, washing hand or alcohol usage, and avoiding risk of infection such as crowded place, infected person. Each item comprised of 5 level as: 1 = never, 2 = seldom, 3 = sometimes, 4 = often, 5 = very often. The meanings and score ranges of preventive COVID-19 practices were highest (>4.2-5.0), high (>3.4-4.2), moderate (>2.6-3.4), low (>1.8-2.6) and

lowest (1-1.8). The quality of instrument was tested. The validity was checked by 3 experts by IOC more than 0.5 in each item. The try-out of 30 patients in district hospital was conducted to check reliability. The Chronbach's alpha was 0.84.

The questionnaire of knowledge about COVID-19 with 8 items was developed covering 3 components as symptoms, transmission, and protection. Each item comprised true or false and calculated as percentage. The meanings and average percentage of knowledge about COVID-19 were highest (81-100%), high (61-80%), moderate (41-60%), low (21-40%) and lowest (0-20%). The quality of instrument was tested. The validity was checked by 3 experts by IOC more than 0.5 in each item. The try-out of 30 patients in district hospital was conducted to check reliability. The KR-21 was 0.80.

The questionnaire of perception with dissatisfaction about COVID-19 with 7 items was done covering 2 components which were risk perception and management dissatisfaction. Each item comprised of 5 level as: 1= completely disagree, 2 = mostly disagree, 3 = agree, 4 = mostly agree, 5 = completely agree. The meanings and score ranges of preventive COVID-19 perceptions were highest, high, moderate, low and lowest. The quality of instrument was tested. The validity was checked by 3 experts by IOC more than 0.5 in each item. The try-out of 30 patients in district hospital was conducted to check reliability. The Chronbach's alpha was 0.81.

The questionnaire of stress about COVID-19 during the COVID-19 pandemic with 5 items was done. Each item comprised of 5 level as: 1= never, 2 = seldom, 3 = sometimes, 4 = often, 5 = very often. The meanings and score ranges of preventive COVID-19 practices were highest, high, moderate, low and lowest. The quality of instrument was tested. The validity was checked by 3 experts by IOC more than 0.5 in each item. The try-out of 30 patients in district hospital was conducted to check reliability. The Chronbach's alpha was 0.83.

Data collection

We collected by 5 steps as: 1) obtain formal data collection approval from Mahidol University graduate school. 2) contact the head of the primary care units obtain their permission. 3) according to the size of the sample, researchers visit the primary care units to collect the data. 5) check whether the questionnaire is complete.

RESEARCH RESULTS

According to descriptive statistics, 81 patients (51.9%) were women and 75 patients (48.1%) were men. All of them were Bhuddists. Average age was 62.62 with SD. Of 11.67 years old. 103 patients (66.0 %) were elderly, 109 patients (69.9%) were married. For highest education level, 15 patients (9.6%) were no schooling, 109 patients (69.9%) were primary school, 10 patients (6.4%) were secondary school, 18 patients (11.5%) were high school and 4 patients (2.6%) were bachelor degree. Only 45 patients (28.9%) had sufficient income. For occupation, 74 patients (47.4%) did not work, 33 patients (21.7%) were workers, 27 patients (17.3%) were farmers, 12 patients (7.7%) were merchants and 10 patients (6.4%) were government officers.

The scores of preventive COVID19 practices from 1.00 - 5.00 were divided into 5 levels (highest, high, moderate, low and lowest). After survey, the results showed that the average preventive COVID-19 practices in high level (mean = 3.64, SD. = 0.82). The detail was shown in table 1.

Table 1. preventive COVID-19 practices of DM patients in primary care units (n=156)

Preventive COVID-19 practices	Mean±SD.
Wearing mask	4.19±0.56
Washing hands or using alcohol	3.82±0.66
Avoiding touching eyes, nose, mouth	3.79±0.61
Avoiding close contact with ill people	3.71±0.58
Avoiding to share utensils and eating heated food	3.69±0.71
Staying out of crowded places and mass gathering	3.61±0.61
Cleaning and disinfecting frequently touching surfaces on daily basis	3.59±0.70
Taking temperature if symptoms were showed	3.57±0.57
Covering my mouth and nose with a tissue when I coughed or sneezed or used inside of my elbow, if I did not have a mask on a private setting.	3.52±0.62
Throwing used tissues in the infected trash, and suddenly washed my hands after coughing or sneezing	3.49±0.71

The scores of knowledge about COVID19 from 0.00 - 100.00% were divided into 5 levels (highest, high, moderate, low and lowest). After survey, the results showed that the average knowledge about COVID-19 was in highest level (83.0) as in table 2.

Table 2. Knowledge about COVID-19 (n=156)

Items	Ans.	Category	Correct
			N (%)
COVID-19 is transmitted by close contact with the infected person.	True	Transmission	156 (100)
Fever, cough, sore throat, muscle pain, short breathing are possible symptoms.	True	Symptoms	156 (100)

Table 2. Knowledge about COVID-19 (n=156) (Cont.)

Items	Ans.	Category	Correct
			N (%)
COVID-19 is transmitted by close contact with the infected person.	True	Transmission	156 (100)
Using face masks cannot help in the prevention of COVID-19	False	Prevention	141 (90.4)
You could been infected and spread COVID-19 to others even if you do not have symptom	True	Transmission	136 (87.2)
If soap and water are not available, you can use a hand sanitizer with 50% of alcohol.	False	Prevention	126 (80.8)
COVID-19 could be fatal only for the elderly.	False	Transmission	118 (75.6)
Nausea, diarrhea, taste and olfactory dysfunction are not specific symptoms.	True	Symptoms	107 (68.6)
It requires people who have recently close contact with infected COVID-19 person to go into quarantine for 1 week.	False	Prevention	95 (60.9)
Average			83.0

The scores of perceptions about COVID19 were divided into 5 levels (highest, high, moderate, low and lowest). After survey, the results showed that the average preventive COVID-19 practices in high level (mean = 4.16, SD. = 0.71) as in table 3.

Table 3. perception about COVID-19 of DM patients in primary care units (n=156)

Perception with dissatisfaction	Mean±SD.
Having chance to infect COVID-19 easily	4.48±0.50
Having chance to spread COVID-19	4.32±0.56
Having confidence to prevent COVID-19	4.24±0.68
Having chance to admit in hospital by COVID-19	4.08±0.61
Having chance to pass away by COVID-19	3.69±0.71

The scores of stresses during COVID19 pandemic were divided into 5 levels (highest, high, moderate, low and lowest). After survey, the results showed that the average stress during COVID- 19 pandemic in high level (mean = 3.94, SD. = 0.78) as in table 4.

Table 4. Stress during COVID-19 pandemic of DM patients in primary care units (n=156)

Items	Mean±SD.
Having anxiety during this 2 - 4 weeks	4.34±0.62
Difficult to sleep during this 2 - 4 weeks	4.18±0.65
Boring during this 2 - 4 weeks	3.88±0.52
Decreasing concentration during this 2 - 4 weeks	3.69±0.67
Malaise during this 2 - 4 weeks	3.61±0.72

For multiple correlation, this study demonstrated that factors related to preventive COVID-19 practices during COVID-19 pandemic significantly related to stress knowledge (p- value = <0.001) , the more stress, the worse preventive COVID- 19 practices, knowledge (p- value = 0.010), the more knowledge, the better preventive COVID- 19 practices and perception (p- value = 0.016), the more perception, the better preventive COVID-19 practices of DM patients in primary care unit, Wangmoung district, Saraburi province as in Table 5.

Table 5. Correlation among variables

Variables	Knowledge	Perception	Preventive COVID-19 practice
Stress	-0.19 (0.003)	0.23 (0.006)	-0.24 (0.005)
Knowledge		0.32 (<0.001)	0.22 (0.010)
Perception			0.21 (0.017)

From factors related preventive COVID- 19 practices significantly, the multi- variated analysis was done by forward stepwise linear regression. The result was showed as table 6

Table 6 multi-variated analysis of preventive COVID-19 practices of diabetes mellitus in primary care units

Variables	Beta	R	Adj. R^2	T	Sig.
Constant				4.87	<0.001
Perception	0.36	0.581	0.325	4.31	<0.001
Knowledge	0.29	0.662	0.426	3.47	0.001
Stress	-0.27	0.751	0.542	-3.33	0.001

DICUSSION OF RESEARCH RESULT

The COVID-19 pandemic is causing many changes in the lifestyles of people worldwide. In particular, Thailand, the spread of COVID-19 resulted in a dramatic increase of confirmed cases per day. The DM. patients are vulnerable people due to high chances to infect, admit and pass away. The primary care units in rural area lack of specialists to fight a novel pandemic. Therefore, this study was performed to explore preventive COVID-19 practices and identify influencing factors.

1. It was found that the samples of DM. patients in Wangmoung district, Saraburi province practice to prevent COVID- 19 infection at high level. This means that diabetes mellitus patients are good in the

prevention of the epidemic behaviors, do a good job of security protection, pay attention to personal hygiene to be the responsibility and obligation of everyone during the epidemic prevention, only effective prevention, can effectively control the outbreak, not only to protect themselves, but also to protect others. This finding relevant to the study of Aristovnik (2020) and Espino-Díaz, et al. (2020). The average score of knowledge about COVID-19 was high (83.0%) This study's knowledge level was lower than the studies of Jang, Jang and Ko (2021) which measured in international students in South Korea and Sun, et al. (2020) which measured in nursing students in China. Certainly, a direct comparison might be difficult because of differences in the instruments used and the different populations. The item showed the least correct answer was the period of quarantine, this is according to the study of Jang, Jang, Ko (2021). The perception levels of the samples of DM. patients in Wangmoung district, Saraburi province was high, this relevant to the study of Albaqawi, et al. (2020). The stresses of the samples in this study were high, this relevant to the study of Akalu, Ayelign, Molla (2020).

2. For multivariate analysis, based on stepwise multiple linear regression, there are two influencing factors as follow: perception and social support. The predictive equation is as follow: Preventive COVID-19 practice levels = Constant + 0.36 (perception) + 0.29 (knowledge) – 027 (stress)

This regression model can predict preventive COVID-19 practice levels of diabetes mellitus patients as 54.2 %.

The finding showed that the influencing factors were perception and knowledge, in detail as follow: The finding showed that variation of patients' preventive COVID-19 practices by perceptions was statistically significant. It shows us in a pandemic, the perception more positive in the pandemic, the more they are able to respond to COVID-19 in a crisis by cooperating with according to policies and related preventive measures. This relevant to the study of Zhang (2018). The finding showed that variation of patients' preventive COVID-19 practices by knowledge was statistically significant. It shows us the more knowledge, the better preventive COVID=19 practices of diabetes mellitus patients. This relevant to the study of Wang (2019) and Santiparp (2019). The more stress, the less preventive COVID-19 practices, this relevant to the studies of Akalu, Ayelign, Molla (2020) and Sun et al. (2020).

SUGGESTIONS

Suggestions from the study

1. Diabetes mellitus patients who have more perception and knowledge of COVID-19, the better patients' preventive COVID-19 practices. in this aspect of knowledge, patients should be positive, search and learn new knowledge. The primary care units should be specially organized to promote perception and learning about COVID-19 related knowledge need to explain the knowledge about the pandemic, understand the symptoms of the epidemic and related measures.

2. Although there are many slogans in the community that allow us to prevent the virus, and there are practical measures to control the virus, the knowledge still needs to be strengthened and supported. The community needs more slogans on COVID-19 knowledge and the establishment of some COVID-19 knowledge columns. More people understand the knowledge of COVID-19.

Suggestions for further study

1. The study was conducted to seven primary care units in Wangmuong district, Saraburi province based on the resources and time available. If more provinces can be covered, it would be more

representative and new findings may be found out. Two factors were found to have impact on teachers' preventive COVID-19 practices during the COVID-19 situation. If the follow up research to find out why these factors have more influence on the patients' preventive COVID-19 practices, it would be a meaningful contribution for the research and development.

2. The study was conducted in the primary care units. Further researches are recommended to include other samples, such as secondary and tertiary care unit patients.

3. The qualitative study should be considered to find deep reasons of no perception or knowledge of patients.

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