

Predicting Factors of Depression among Persons with Chronic Medical Illness in Bhutan

ปัจจัยทำนายภาวะซึมเศร้าในผู้ที่เป็นโรคเรื้อรังในประเทศภูฏาน

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Abstract

This predictive study aimed to determine the factors associated with depression including age, gender, income, duration of illness, number of medical illness, physical activity, and social support among persons with chronic medical illness in Bhutan. A simple random sampling technique was conducted to recruit 120 adults diagnosed with chronic medical illness in a hospital, Bhutan. Data were carried out from March to April 2018. Research instruments were self-report questionnaires, including a demographic, the patient health, the global physical activity, and the medical outcomes study social support survey. Their reliability ranged from .88-.93. Descriptive statistics and Stepwise multiple regression analysis were used to analyze the data.

Prediction analysis revealed 35.3% variance in the prediction of depression from five significant predictors. The best predictor was gender (male) ($\beta = -.242$), followed by age ($\beta = -.218$), physical activity ($\beta = -.229$), social support ($\beta = -.202$), and duration of chronic medical illness ($\beta = -.168$). These findings suggest that nurses and related health care providers could utilize to plan and develop an activity or intervention to lessen

depression in persons with medical chronic illness by promoting social support and physical activity focusing on female, young and newly diagnosed patients.

Key words: Depression, chronic medical illness, social support, physical activity, Bhutan

บทคัดย่อ

การวิจัยแบบทำนายครั้งนี้มีวัตถุประสงค์เพื่อศึกษาปัจจัยทำนายภาวะซึมเศร้า ได้แก่ อายุ เพศ รายได้ ระยะเวลาการป่วย จำนวนโรคเรื้อรัง กิจกรรมทางกาย และการสนับสนุนทางสังคม ในผู้ที่เป็นโรคเรื้อรังในประเทศภูฏาน กลุ่มตัวอย่างจำนวน 120 คน คัดเลือกโดยวิธีการสุ่มอย่างง่ายคือ ผู้ใหญ่ที่ได้รับการวินิจฉัยด้วยโรคเรื้อรังและมารับการรักษาต่อเนื่องในโรงพยาบาล ประเทศภูฏาน เก็บรวบรวมข้อมูลระหว่างเดือนมีนาคมถึงเดือนเมษายน พ.ศ. 2561 เครื่องมือวิจัยประกอบด้วยแบบสอบถามที่ให้กลุ่มตัวอย่างเป็นผู้ตอบเอง ได้แก่ แบบสอบถามข้อมูลทั่วไป ภาวะสุขภาพของผู้ป่วย กิจกรรมทางกายทั่วไป และการสนับสนุนทางสังคม มีค่าความเชื่อมั่นอยู่ระหว่าง .88-.93 วิเคราะห์ข้อมูลด้วยสถิติพรรณนา และการวิเคราะห์ถดถอยพหุคูณแบบขั้นตอน

ผลการวิจัยพบว่ามี 5 ปัจจัยที่สามารถทำนายภาวะซึมเศร้าได้อย่างมีนัยสำคัญทางสถิติ โดยทำนายได้ร้อยละ 35.5 ปัจจัยทำนายที่ดีที่สุดคือเพศ (ชาย) ($\beta = -.242$)

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รองลงมาคืออายุ ($\beta = -.218$) กิจกรรมทางกาย ($\beta = -.229$) การสนับสนุนทางสังคม ($\beta = -.202$) และระยะเวลาที่ป่วย ($\beta = -.168$) ผลการวิจัยนี้ให้ข้อเสนอแนะว่า พยาบาลและผู้ที่เกี่ยวข้องในการดูแลสุขภาพสามารถนำไปใช้ประโยชน์ในการวางแผนและพัฒนากิจกรรมหรือโครงการส่งเสริมการสนับสนุนทางสังคมและกิจกรรมทางกาย เพื่อช่วยลดภาวะซึมเศร้าในผู้ที่เป็นโรคเรื้อรัง โดยเน้นในกลุ่มเพศหญิงอายุน้อย และผู้ป่วยรายใหม่

คำสำคัญ: ภาวะซึมเศร้า โรคเรื้อรัง การสนับสนุนทางสังคม กิจกรรมทางกาย ประเทศภูฏาน

Significance of the Problem

Depression can be found in any group of population regardless of age, gender and ethnicity. The total number of people with depression is estimated to be 322 million worldwide and nearly 86 million people in South-East Asia Region (World Health Organization [WHO], 2017). The global burden of depression poses a substantial public health challenge, both at social and economic levels. The increasing prevalence of depression in populations all over the world and the serious impacts that it produces make the disease one of the most serious public health problems of the 21st century (Boing et al., 2012). Chronic diseases account for a large proportion of deaths, even in the South-East Asian Region accounting for about 50.4% and the three top-ranked diseases are cardiovascular diseases, chronic obstructive pulmonary disease and cancer (Dhillon et al., 2012). Studies have reported increased prevalence of depression in individuals diagnosed with specific medical illness mostly in cardiovascular disease, diabetes mellitus, chronic obstructive pulmonary disease, arthritis and chronic pain, asthma and cancer (Hare, Toukhsati, Johansson, & Jaarsma, 2013; Khuwaja et al., 2010; Tsai et al., 2013).

Depression in chronic medical illness increases the morbidity and mortality, increases health costs, worsens the prognosis for the patient, and reduces the capacity for self-management, which increases the risk of major health complications in patients with chronic medical illness (Goldberg, 2010; Katon, 2011). People with chronic medical illness may be present with a high prevalence of depression, and thus health professionals working in a diverse range of settings will be involved in the care and management of people with this conditions. Therefore, recognition of this association is important in the holistic management of patients with chronic medical illness. Factors associated with depression in chronic illness are almost similar to those in the general population. From the review of literature of previous studies on depression in chronic medical illness, factors such as disease characteristics, some sociodemographic factors, physical activity and social support have shown to be significantly associated to depression in chronic medical illness.

Rapid urbanization in Bhutan has led to an increase in mental disorders in the country. It was found that from 2011 to 2015, there was an increase in the total number of cases of mental health disorders, from 2878 cases to 7004, of which 31% was depression (Dorji et al., 2017). Along with that a number of people with chronic medical illness in the country are also increasing drastically. Medical illnesses such as diabetes, cardiovascular diseases, cancer and chronic obstructive pulmonary diseases are increasing in the Bhutanese population (Annual Health Bulletin, 2015). Despite the increase in number of both depression and chronic illness in Bhutan, there is limited information regarding depression in

chronic medical illness. Thus identifying the risk factors of depression in chronic medical illness would help reduce the prevalence of depression by providing preventive intervention program in the high risk group.

Purpose the Study

To determine predicting factors of depression among persons with chronic medical illness in Bhutan

Conceptual Framework

The conceptual framework of this study is based on the diathesis stress model of psychopathology (Monroe & Simon, 1991) and literature review related to depression in chronic medical illness and its risk factors. The diathesis-stress models of psychopathology suggest that all people have some level of predisposing factors (diathesis) for any given mental disorder. People have different levels of

vulnerability for developing depression and this underlying vulnerability comes from biological, psychological or social predisposing factors (Conde et al., 2015). This could explain why one person may develop depression while another does not. Even though they encounter the same stress. The chronic medical illness in this state is viewed as a stressor that could increase vulnerability to precipitate depression alone or in combination with other factors. The current diathesis-stress models of depression emphasizing on social, cognitive, and biological vulnerability factors. The biological vulnerabilities include genetic predisposition to depression such as gender and age. Social vulnerabilities that play a role in the impact of depression are socioeconomic status, occupation and physical activity. Psychological vulnerability includes lack of social support. The diagrammatic representation of the conceptual framework based on diathesis stress model is given in figure 1.

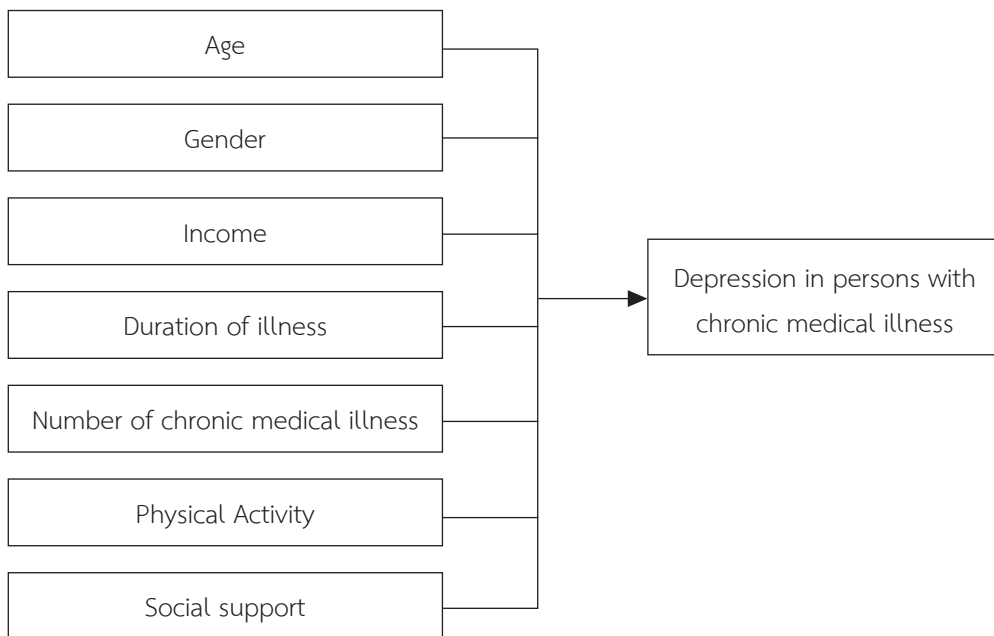


Figure 1 Conceptual framework of the study

Methods

A descriptive correlational predictive study was conducted at Jigme Dorji Wangchuck National Referral Hospital, Bhutan. Data were collected from March to April, 2018.

Target population was Bhutanese adults who were diagnosed with chronic medical illness and visit the medical outpatient departments of Jigme Dorji Wangchuck National Referral Hospital, Bhutan for follow-up in 2018.

Sample: A simple random sampling technique was used to recruit 120 participants from the target population who met the study inclusion criteria; age between 18-65 years, be able to read and write English, never been diagnosed with mental health problem by psychiatrist or psychologist, and diagnosed with chronic medical illness of diabetes mellitus, cardiovascular diseases, chronic obstructive pulmonary disease, hypertension or arthritis for more than 6 months. A list number of outpatients who visited the medical outpatient chambers for follow up who met the inclusion criteria was drawn randomly using their registration number from the reception. From the patient's registration number, the researcher randomly recruited 15 participants each day. Each patient was selected entirely by chance and each patient had an equal chance of being selected if they met the inclusion criteria.

A sample size was calculated by using Thorndike's formula (1978) showed minimum of 120 participants.

Research instruments

There were 4 self-report questionnaires included:

A demographic questionnaire was developed by the researcher. It was used to

collect patient's personal information, health and medical records. It consists of age, gender, marital status, education level, occupation, monthly income in ngultrum currency, duration of the illness and number of medical illnesses.

The Patient Health Questionnaire (PHQ-9) (Kroenke, Spitzer, & Williams, 2001) based on the DSM-IV depression diagnostic criteria with other leading major depressive symptoms into a brief self-report tool. It contains 9 items of 4 rating scores of 0 = not at all, 1 = several days, 2 = more than half of the days and 3 = nearly every day. They are summed to be a total score ranged from 0 to 27. The level of depression interpreted as minimal (0-4), mild (5-9), moderate (10-14), moderately severe (15-19), and severe (20-27). The PHQ-9 also has been used in many studies in primary care settings, as well as with older individuals and with those who have physically disabling conditions. It has been used in many clinical populations such as stroke, cardiology, spinal cord injury and general medical outpatients to assess depression (Spearing & Bailey, 2012). It is free to users and available in English and over 30 other languages. In this study, its Cronbach's alpha reliability was .90 for 30 patients with chronic medical illness.

The Global Physical Activity Questionnaire (GPAQ) (WHO, 2002) consists of 16 questions to estimate an individual's level of physical activity in three domains that is activity at work (6 items), transport to and from places (3 items) and recreational activities (6 items). The last part deals with the time spent on sedentary behavior (1 item).

Metabolic Equivalents (MET) is used to analyze the GPAQ data and to express the intensity of physical activities. MET is the ratio of

a person's working metabolic rate relative to the resting metabolic rate. One MET is defined as the energy cost of sitting quietly, and is equivalent to a caloric consumption of 1 kcal/kg/hour. For interpretation we calculate minutes per week spent in moderate and vigorous activities, as well as the sum of both intensities (moderate-to-vigorous physical activity). Then we convert it into MET as per the GPAQ guide. It is estimated that, compared to sitting quietly, a person's caloric consumption is four times as high when being moderately active, and eight times as high when being vigorously active. Therefore, when calculating a person's overall energy expenditure using GPAQ data, 4 METs get assigned to the time spent in moderate activities, and 8 METs to the time spent in vigorous activities. WHO recommendation for physical activity throughout a week, including activity for work, during transport and leisure time is at least 75 minutes of vigorous-intensity physical activity, 150 minutes of moderate-intensity physical activity, and an equivalent combination of moderate- and vigorous-intensity physical activity achieving at least 600 MET-minutes. Its test-retest reliability with 2 weeks apart was .88 for 15 patients with chronic medical illness.

The Medical Outcomes Study Social Support Survey (MOS-SSS) (Sherbourne & Stewart, 1991) is a 19-item self-administered, consists of four domains; emotional/informational support (8 items), tangible support (4 items), affectionate support (3 items) and positive social interaction (3 items), and the last additional 1 item. The answers range from 1 = none of the time, 2 = a little of the time, 3 = some of the time, 4 = most of the time, and 5 = all of the time. A higher score for an individual scale or for the

overall support index indicates more support. The MOS survey appears to be easy to administer to chronically ill patients and the items are short and simple. Its Cronbach's alpha reliability was .93 for 30 patients with chronic medical illness

Ethical consideration

The study proposal and all research instruments were approved by the IRB committee of Faculty of Nursing, Burapha University Thailand (IRB code # 03-12-2560), and the Research Ethical Board of Ministry of Health, Bhutan (IRB code # 2018/003). All the participants were informed regarding the purpose of the study and the procedure. Their participation in the study was on voluntarily basis and their decision to withdraw from the study was respected. Informed consent was obtained from each participant prior to data collection. Confidentiality was maintained and no name was disclosed in the research report. All data were stored in a specific file using specific password and only researcher have access to it. The data will be destroyed after publication of the findings already.

Data collection procedures

After obtained IRB approval, data collection procedure was discussed with health workers in the medical outpatient department. The researcher presented at the medical outpatient department to collect the data from 8:30 a.m. to 3:00 p.m.. Then, explained to the participants about the purpose, method and confidentiality of this study as well as how to respond to the questionnaires and let them fill the questionnaire in a private room provided. Each participant took approximately 30 minutes to complete all questionnaires. The researcher checked for completeness of the questionnaire before the participant left.

Data analysis

Data were analyzed by using a statistical software program. An alpha level of .05 was set as a level of significance for the study. Descriptive statistics including frequency, percent, mean and standard deviation was used to describe the demographic characteristics of the sample. Stepwise multiple regression analysis was performed to determine association of age, gender, income, duration of illness, number of chronic medical illness, physical activity, social support and depression in persons with chronic medical illness.

Results

Of the 120 participants, most of them were female (59.2%). Their age ranged from 18-64 years with a mean of 44.17 (SD=12.67). About 73.3% were married. More than half of them (65%) completed an educational level of primary school while only 4.2% has a university level of education. About 39.2% had occupations of housewives, farmers and business, followed by 22.5% working in private sectors and 21.7 % in government services. Their average monthly income was Nu.13570.42 (approximately USD 208) with no income for nuns and monks. About 42% had hypertension followed by diabetes mellitus

(30.8%) and Chronic Obstructive Pulmonary Disease (5.8%). Most participants had one chronic medical illness (78.3%) while 21.7% had a combination of hypertension and diabetes. The duration of chronic medical illness ranged from 6-408 months with a mean of 88.13 (SD = 88.50).

The total mean score of depression among the sample was 4.22 (SD = 3.97). 59.2% had minimal, 26.7% showed mild while 14.1% had moderate depression. The total mean score for physical activity was 2315.8 (SD = 1764.1) with a range of 0-7680, indicating a moderate level of physical activity in the sample. The total mean score for social support was 63.51 (SD = 13.69).

Stepwise multiple regression analysis showed that there were five significant predictors. The best predictor was gender (male) ($\beta = -.242$), accounted for 13.4%. The followings were age ($\beta = -.218$) with 9.6% increasing prediction, physical activity ($\beta = -.229$) with 6.0% increasing prediction, social support ($\beta = -.202$) with 3.7% increasing prediction, and duration of chronic medical illness ($\beta = -.168$) with 9.6, 6.0, 3.7, and 2.6% increasing in the prediction, respectively. All five predictors accounted for 35.3% in the prediction of depression. The results show in Table 1

Table 1 A stepwise multiple regression analysis to determine the best predictors (n = 120)

Variables	R ² Change	b	SE	β	t
Gender (male)	.134	-1.95	.633	-.242	3.08**
Age	.096	-.068	.025	-.218	-2.70**
Physical Activity	.060	-.001	-.000	-.229	-2.99**
Social support	.037	-.059	.023	-.202	-2.55*
Duration of illness	.026	.008	.004	-.168	-2.13*
Constant		13.622	1.647	-	8.269***
R ² = .353, Adjust R ² = .325, F _(5, 114) = 12.46**					

*p < .05, **p < .01, ***p < .001

Discussion

The results show that five predictors, including, gender (male), age, physical activity, social support and duration of the illness significantly predicted the depression with the best predictor was age, followed by the others respectively. Females are associated with and predicted depression and the result was consistent with the previous studies that women are more likely to suffer from depression than men (Khuwaja et al., 2010; Neupane et al., 2015). The variance can be explained by the role of stress vulnerabilities in women where a little stress is enough to induce depression in women and they view the illness as a stressor (Monroe & Simon, 1991). The result was also consistent with a study on the pattern of psychiatric admissions in a referral hospital in Bhutan which reported that those admitted for depression were mostly females (Pelzang, 2012). Weaver and Hadley (2011) in their study of depression and anxiety in female diabetic patients in a developing country in Asia found that difficulties in achieving socially important roles contributed to depression (Weaver & Hadley, 2011). In Bhutan it is very common for women to be left at home alone to tend to both home duties and the farm and in the current study majority of the participants were housewives or farmers.

Another significant predictor of depression in this study is age ($\beta = -2.18, p < .01$). It implies that the younger having chronic medical illness would have higher depression. Though, many studies revealed that depression in chronic medical illness is more in older adults, but in the current study found that age is inversely associated with the depression. The study was supported by other studies (Gottlieb et al., 2004;

Tsai et al., 2013) where they found out that there is higher incidence of depression in patients younger than 50 years of age compared to the older age. This is further supported by Kessler (2007) where they said that the mean onset of depression is between 20-50 years (Kessler et al., 2007). The younger patients report that the illness interferes with their day to day activities and are unable to accept whereas in the older adults they are able to accept the situation. Physical activity could predict depression in persons with chronic medical illness in Bhutan and is negatively associated with depression. In this study the participants had moderate level of physical activity (Mean = 2315.8) and this is supported by the WHO STEPS survey (2014) which reported that only 6.4% of Bhutanese adults does not meet the WHO recommendations on physical activity for health (i.e. < 150 minutes of moderate-intensity physical activity per week, or equivalent) (WHO, 2016). This finding was supported by other studies which found that a lower level of moderate and vigorous physical activity were associated with higher rates of depression (Bishwajit et al., 2017). Having an illness can limit the physical activity. For instance, in case of COPD, cardiovascular disease and arthritis, the patients have low level of physical activity due to pain and discomfort and limitations in physical activity.

Social support can predict depression in chronic medical illness in Bhutanese. Those with high social support would have low score of depression and vice versa. Social support has a strong impact in persons with chronic medical illness and act as a protective factor. Bhutan is an Asian country that has a strong family culture value where family plays an important role in their lives. So when someone is sick, there is always

someone to look after that person. This was further supported by other studies where they found that family support was high in an Asian culture population with chronic medical illness (Nan et al., 2012). Social support allows one to gain self-esteem and self-efficacy thereby reducing negative emotions, pain and stress (Grav, Hellzèn, Romild, & Stordal, 2012; Wang, Cai, Qian, & Peng, 2014) but the lack of it may lead to depression. Presence of illness can change the way a person sees oneself and relate to others. Having an illness, pain from illness and other conditional factors related to illness makes a person isolate themselves from the society and avoid social gatherings and interact less with friends and family. This was supported by a study which found that social isolation due to pain and disability was one of the reason which lead to high depression in chronic illness patients (Turner & Kelly, 2000). Conversely, low social support associated with high depression (Kaewmart, Koedbangkham, & Nabkasorn, 2011)

Duration of illness was a significant predictor of depression in chronic medical illness and was negatively associated with and predicted the depression. Persons with shorter time of diagnosis with medical illness had higher depression. This finding was consistent with other studies in which they found out that there is more prevalence of depression within one year of diagnosis (Tsai et al., 2013). The reason for increased prevalence of depression in less duration of illness may be because the patient is unable to accept their health condition and is not able to cope with the illness. Some might even be traumatized by the illness. Whereas the duration of illness increases, they are able to

accept, cope and deal with their illness. Some patients in this study had duration of illness more than 30 years and they reported that they get used to with this life with illness.

Income and number of chronic illness were found no association with the depression. Income did not predict depression in chronic medical illness in Bhutan in this study. This finding is inconsistent with the previous studies by Tsai and his colleagues (2013) which revealed that patients with low income increased vulnerability to depression through the effects of poor nutrition, less access to health care and due to the increase in expenditure for illness whereas high income patients tend to have better financial resources in dealing with the challenges of the chronic illness. The inconsistency in the result may be because in Bhutan, all people with disregard to income level are provided with free health care services throughout their life, thus income may not have predicted much variance in depression.

Number of chronic illness also did not predict depression in persons with chronic medical illness in Bhutan. It was inconsistent with other studies where they found that the prevalence of depression increased with increasing number of chronic illness (Boing et al., 2012; Gunn et al., 2012). The inconsistency in the result can be explained by the fact that there were not many variations in number of illnesses in the current study. The maximum frequency of patients had one illness (78.3%), two illnesses (20.8%) and three illnesses (0.8%). Since the frequency of number of illness is less, there is less complication and better health outcomes, variance in depression might not have been predicted.

Implication for Nursing

Nurses and related health care providers could utilize these findings to plan and develop an activity or intervention to promote social support and physical activity in persons with chronic medical illness focusing on female, young and newly diagnosed patients. Consequently, minimizing depression among these persons could be effectively achieved.

The sample was Bhutanese persons with five chronic medical illnesses (Hypertension, Diabetes, Cardiovascular disease, Chronic Obstructive Pulmonary Disease and Arthritis) and who could read and write English. Therefore findings of the study might be limited for generalization. Moreover, increasing size of the sample is recommended to enhance more representative of the Bhutanese population. Further study and clinical consultation need to confirm the diagnosis with comparable standardized measures for depression.

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