Health Behaviors and Health-Related Quality of Life among Buddhist Monks with Metabolic Syndrome

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Abstract: Metabolic syndrome is a major health concern among Thai monks. However, little is known about health behaviors and health-related quality of life among Thai monks with metabolic syndrome. This study 1) examined the health behaviors and health-related quality of life among Thai monks with metabolic syndrome, and 2) predicting factors of health-related quality of life, including health behaviors, and monks' characteristics. Two hundred and sixty monks with metabolic syndrome who visited outpatient clinics at a large university hospital in the north of Thailand participated in the study. Four research instruments, a demographic data form, case record form, health behavior questionnaire, and the SF-36 Thai version were employed for data collection. Data were analyzed using descriptive statistics. Simple and multivariate logistic regressions were also used to estimate the odds ratio of good health-related quality of life.

The findings demonstrated that the total health behaviors score was at the fair level while healthy diet, physical activities, adherence to medication and follow up were at the good level. In multivariate analysis, age, location of monastery, healthy diet, and physical activities were statistically significant predictors of health-related quality of life among monks with metabolic syndrome. Of those four predictors, only healthy diet and physical activities can be modified. Nursing interventions targeting on improving health behaviors, especially for diet and physical activities, are important to improve health-related quality of life among Thai monks with metabolic syndrome.

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Introduction

Metabolic syndrome (MetS) is one of the leading health concerns worldwide due to urbanization, excess energy intake, increasing prevalence and incidence of obesity, and sedentary lifestyle. MetS is

an asymptomatic chronic health condition, including a cluster of cardiovascular risk factors, such as central obesity, dyslipidemia, hypertension, and insulin resistance.[1] MetS increases the risk of cardiovascular disease, and type 2 diabetes mellitus (T2DM).[1-6]

MetS affects approximately 25% of the adult population worldwide.[7, 8] In the United States, the prevalence of MetS is 34% among adults.[2] In Thailand, based on the data from the fifth Thai National Health Examination Survey (NHES V), the prevalence of MetS among Thai males who were at least 15 years and older was 24.9%.[9] For monks, the prevalence of Mets ranged between 13%[10] to 20.83%.[11] However, there are challenges in presenting prevalence of MetS if different diagnostic criteria of MetS is used. MetS has different definitions based on diagnostic criteria, including 1) WHO, 2) the European Group for the Study of Insulin Resistance (EGIR), 3) the National Cholesterol Education Program Adult Treatment Panel III (NCEP/ATPIII), 4) the American Association of Clinical Endocrinologists (AACE), American Heart Association, National Heart, Lung and Blood Institute, American Diabetes Association (AHA/NHLBI/ADA Updated NCEP/ATPIII), 5) the International Diabetes Federation (IDF), and 6) Harmonized Definition which is a joint interim statement from 5 groups, including IDF, AHA, NHLBI, World Heart Federation, International Atherosclerosis Society, and International Association for the Study of Obesity.[12] Although those definitions share similar criteria the cut-point for each risk factors is slightly different.[12]

Buddhist monks are ordained males who follow the path of the Buddha, aiming for spiritual development so that their lives are governed by 227 rules of the *Patimokkha*, the basic code of monastic discipline.[13] Since monks keep strict discipline, this may pose challenges in health behaviors, especially on dietary habits and physical activities. Monks consume donated food from the morning alms round from lay devotees.[14] Based on the *Patimokkha*, monks receive and eat alms food appreciating the effort and expense the Buddhist devotees went to in giving alms food.[15] As a matter of principle, monks cannot choose the food they eat, cannot show preferences for particular foods, and cannot refuse eating alms food. Monks have to eat what Buddhist devotees offer them. Since Buddhist devotees believe that offering alms allows them good karma in this life and the next, and hope to bring good luck on deceased family members, they always offer their favorite foods or the favorite foods of their dead relatives.

The results from previous studies showed that monks consume food with a high proportion of carbohydrates, fats and sodium, but less vegetables and fruits.[11, 16] In addition, since monks cannot eat after midday, sweet sugar beverages are consumed as the additional source of energy.[11, 17, 18] Moreover, sedentary behaviors seem to be big challenges for monks. Results from a previous study suggested that the majority of Thai monks have insufficient physical activities.[19] These challenges in health behaviors expose Buddhist monks to a greater risk of metabolic syndrome and non-communicable diseases (NCDs).[16-19]

Health behaviors are actions that one performs to maintain health and well-being and to prevent illness. Generally, people who live with a chronic health condition have to modify their health behaviors, including dietary habits, physical activities, compliance with medication, self-monitoring and follow up, in order to stay healthy and delay serious complications. Since MetS is a chronic health condition that can affect an individual both physically and psychosocially, people with MetS also have to adjust their health behaviors to meet their need to maintain health status. However, little is known about health behaviors among monks with MetS. In addition, a chronic health condition such as MetS can alter health-related quality of life (HRQoL).

HRQoL is an important health outcome to evaluate not only the impact of MetS on an individual, but also the effectiveness of health behaviors that individuals with MetS perform. Although there are a

few studies that have examined HRQoL among monks,[20-24] no such study was conducted among Buddhist monks with MetS. Thus, this study aimed to examine health behaviors, HRQoL, along with its' predicting factors (i.e., health behaviors, and monks' characteristics) among Thai monks with MetS.

Review of Literature and Conceptual Framework

MetS has widely gained attention because of its association with the development of CVD and T2DM. MetS confers a 2-fold risk of developing cardiovascular disease over the next 5 to 10 years, a 5-fold increase in risk for T2DM and 2 to 4-fold increased risk of stroke compared with those without MetS.[1, 3, 25]

Although monks are at risk for MetS due to challenges in health behaviors, especially dietary habit and exercise, there are only two studies addressing MetS in monks. In 2018, the prevalence and associated factors of MetS were examined among 895 monks from one province in the central of Thailand who underwent an annual check-up.[10] Thirteen percent of participants in this study met the IDF criteria of MetS. Number of years of being ordained and smoking were associated with MetS among monks. Another study was conducted to examine situations related to nutritional problems among 96 monks from Bangkok, and the prevalence of MetS was as high as 20.83 percent.[11] However, criteria for diagnosis of MetS was not described. For nutritional problems, monks consumed protein and vegetable less than daily recommendations but ate high carbohydrates, especially from sweet sugar beverages.

Although the *Patimokkha* provides direction for monks to follow, the rules related to food can skip among monks with illness. During sickness, the *Patimokkha* allows monks to consider and carefully choose proper diet.[15] Beside prayer and meditation, monks have duties and responsibilities to fulfill that can be claimed as performing physical activities such as morning alms round, and temple cleaning. Exercise is a sensitive issue for monks. Exercise such as fast walking or walking meditation is proper to perform in the public, but yoga and a flat treadmill can be done only indoors.[26] For people living with chronic conditions like MetS, health behaviors are important to maintain health and well-being. In this study, health behaviors were classified into five dimensions of healthy diet, physical activities, compliance with medication, self-monitoring, and follow up. For healthy diet, high fiber diet, nuts, whole grains, and olive oil with a low-fat, prudent diet, low salt diet, and foods with low glycemic index can improve glycemia and dyslipidemia, weight loss, and control blood pressure.[27, 28] Physical activities are also important to control MetS. A moderate-intensity such as walking for 30 min/day is recommended because it can reduce weight and remove abdominal fat.[28] Compliance with medication is also necessary for monks with MetS. Doctors may prescribe medication such as statins, lipid lowering drugs, antihypertensive drugs, anti-diabetes drugs, peroxisome proliferator activated receptor (PPAR) agonists, and low dose aspirin to control/prevent MetS' complications.[28] It is necessary for monks with MetS to adhere to medication. Since MetS is an asymptomatic but chronic health condition, monks with MetS need to do self-monitoring, such as control his weight, monitor blood pressure, blood glucose, and observe for any possible complication. Regular follow-up with a health care provider is also important to manage MetS and prevent complications.

In this study, the RAND-36 (SF-36)[29] was used as a framework to explain HRQoL. In this framework HRQoL is defined as the perception of the individual about their function and well-being in physical, mental, and social domains in life according to their health condition and based on the context of cultural and value systems in relation to the

objectives, beliefs, and expectations of their health condition[29]. HRQoL is an important health issue because of its focus on components of functioning and well-being, which are affected by progressive changes in one's health status, health care, and social support. Based on the RAND-36, HRQoL consists of eight health concepts, physical functioning, role limitations caused by physical health problems and emotional problems, social functioning, emotional well-being, energy/fatigue, pain, and general health perceptions. Beside the HRQoL total score, eight health concepts also provide a score on physical and mental health.

The assessment of HRQoL among individuals with chronic health conditions is important since it can be used to verify the impact of a disease and the efficacy of treatments at an individual level[29]. Although in previous studies, individuals with MetS have compromised their HRQoL[30-33] and monks with chronic illness also have changes in HRQoL[20-24], there is no study examining HRQoL among Thai monks with Mets. Thus, HRQoL should be examined as an outcome to understand how well monks with MetS are able to adjust their health behaviors in order to maintain health and well-being.

Despite consistent evidence of the impacts of health behaviors on health among people with chronic illness, little is known about the association between health behaviors and HRQoL, especially among persons with MetS. The few studies investigating the relationship between health behaviors and HRQoL in people with diabetes, hypertension, and dyslipidemia, which are components of MetS, have described a positive relationship between HRQoL and healthy diet[34], physical activities[35], and compliance with medication.[36, 37] Since HRQoL consists of functioning and well-being parts[29], health behaviors (i.e., healthy diet, physical activities, compliance with medication, self-monitoring, and follow up) may impact on the functioning part of HRQoL and may also play an important role on well-being, it is crucial to examine health behaviors and their impacts on HRQoL among monks with MetS. Therefore, this study aimed at to examine health behaviors and HRQoL among monks with MetS, along with factors predicting HRQoL among Thai monks with MetS.

Methods

Design

We used a cross-sectional descriptive design.

Sample and Setting

Potential participants were identified by a review of the medical records of people who visited either hypertension or diabetes outpatient clinics at a large university hospital in the north of Thailand. Inclusion criteria were Buddhist monks aged at ≥20 years who: had been ordained for one *vassa*, a 3-month period during the rainy season or Buddhist Lent; met the criteria of MetS based on Harmonized definition[1]: presenting with any three or more of the following five components; 1) elevated waist circumference with Asia population cut point (≥ 90 cm), 2) elevated triglycerides (≥150 mg/dL) or drug treatment for elevated triglycerides is an alternate indicator, 3) reduced HDL-C (<40 mg/dL) or drug treatment for reduced HDL-C is an alternate indicator, 4) elevated blood pressure (systolic ≥ 130 and/or diastolic ≥ 85 mmHg) or antihypertensive drug treatment in a patient with a history of hypertension is an alternate indicator, 5) elevated fasting plasma glucose (≥ 100 mg/dL) or drug treatment of elevated glucose as an alternate indicator; were able to read and write in Thai; and were willing to participate in this study and to provide informed consent. Cognitive function was tested by simple questions to examine whether participants were oriented to time, place, and person. Participants with documented psychiatric illness and/or cognitive impairment were excluded.

The sample size was determined based on the estimated proportion of 20.83% of Thai monks with MetS.[11] Based on Cochran formula[38] with 95%

confidence level and the desired precision of the prevalence estimate of 5%, the minimum sample required was 253 participants. However, an additional 2.5% of the sample size was added in case of incomplete questionnaire responses, giving the total sample required of 260 participants.

Ethical Considerations

The study was approved by the Ethical Review Committee, Faculty of Nursing, Chiang Mai University, ethical clearance number Exp-035-2559 and Faculty of Medicine, Chiang Mai University, ethical clearance number NONE-2559-04206. Each potential participant received an explanation and an information sheet with the following: detailed description of the study purpose, methods, number of participants, potential benefits, procedures, participation time, participants' rights, risks, ability to withdraw, costs, incentive payment, and how to contact the researchers. Participants could withdraw at any time without any consequence and still receive regular treatment from the hospital. Monks who agreed to participate in this study were asked to sign a consent form prior to data collection. To protect confidentiality, code names were used in all questionnaires.

Research instruments

There were four research instruments in this study, described below:

Demographic Data Form: used to obtain data such as age, number of years being ordained, position in a monastery, location of a monastery, secular education, and *dharma* education.

Case Record Form: gathered information from the medical records to identify possible participants. Information related to each component of metabolic syndrome was collected.

Health Behavior Questionnaire (HBQ) was developed by researchers to obtain monks' health behaviors. The HBQ has 40-items with five subscales: healthy diet (18 items), physical activities (3 items), compliance with medication (9 items), self-monitoring (9 items), and follow up (1 item). Examples of items were: "Eat high fiber diet such as green vegetable (healthy diet)"; "Beside monks' daily duty, perform physical activities such as arms swing, yoga (physical activities)"; "Understand indications and complications of given medication (compliance with medication)"; "Monitor blood pressure regularly (self-monitoring)"; and "Follow up an appointment (follow up)". The responses are given on a 4-point Likert scale, from 1 (never) to 4 (always). There are 20 negative items which are then rescored. The score is divided by the number of items so that a score ranges from 1-4, with a higher score indicating higher health behavior. For the overall score, a score of 1-2 indicates poor health behavior, 2.01-3.00 fair health behavior, and 3.01-4.00 good health behavior. Content validity was validated by five experts, an endocrinologist, two nursing instructors, and two nurses with >10 years of expertise in taking care of patients with MetS. The Content Validity Index (CVI) was 0.9. The Cronbach alpha coefficient was .74 when tested with 20 Buddhist monks with MetS and .72 for the main study.

The SF-36[29] was used to evaluate HRQOL. It consists of eight dimensions: physical functioning (10 items), role limitations due to physical health (4 items), role limitations due to emotional problems (3 items), energy/fatigue (4 items), emotional well-being (5 items), social functioning (2 items), pain (2 items), and general health (5 items). The score is calculated using the RAND 36-Item Health Survey 1.0 approach. The score for each subscale is divided by the number of items in the subscale so that a score ranges from 0-100. A higher score indicates a more favorable HQOL. In addition, a score of ≥50 indicates good HRQOL. Reliability was tested with Cronbach Alpha coefficients: .95 among 20 monks with MetS and .93 for the main study. For each subscale, Cronbach Alpha were between .40 and .93.

Data collection

Besides two approvals for ethical clearance, permission to review medical records and approach potential participants was obtained from the hospital

director. Doctors and nurses at two outpatient clinics were informed of this study. The medical records for patients on the daily appointment rosters were searched for any potential participants who met the Harmonized definition of MetS. After that, the potential participant was approached at the time of his scheduled medical appointment at the outpatient clinic. The research study was explained and an information sheet was given to potential participants. Prior to data collection, participants signed a consent form at the outpatient clinic. However, data was collected at any convenient place for participant, either at outpatient clinic or at temple. All data were collected by the primary investigator. Data collection for each participant took approximately 30 minutes. The data collection period was between December, 2016 to September, 2017.

Data analysis

Data entry and analysis were performed using SAS software, version 9.3. All data were double entered and compared for any errors. Descriptive statistical analysis was used for demographic data of monks, along with health behaviors, and HRQoL. Simple logistic regression was performed to examine the association between each independent variable and HRQoL, while multivariate logistic regression was employed to explore predicting factors of HRQoL while controlling for the association of other factors. A p-value of <.05 was considered statistically significant.

Results

Demographic information

There were 260 monks who participated in the study, ranging in age from 22 to 92 years (mean = 57.00, SD = 15.12). The number of years being ordained was between 1 and 67 *vassa* (mean = 24.46, SD = 17.06). Nearly 30% had bachelor degrees, while approximately 70% earned *dharma* scholar advanced level. However, only 33% were abbots, a monk who holds the position of administrator of a Buddhist temple. The majority of monks lived at a temple located in an urban area.

Health behaviors among Buddhist monks with MetS

Table 1 shows health behaviors among monks with MetS. Although the total health behaviors score was at the fair level, when each subscale was explored, all subscales except self-monitoring were at a good level.

Table 1 Possible range, range, average, and standard deviation of total health behaviors and all 5 subscales among Buddhist monks (N=260)

Variable	Possible Range	Range	Mean	SD	Level
Total health behaviors	1.00 – 4.00	1.88 – 3.68	2.87	0.30	Fair
Diet	1.00 – 4.00	1.94 – 4.00	3.15	0.38	Good
Physical activity	1.00 – 4.00	1.00 – 4.00	3.22	0.92	Good
Compliance with medication	1.00 – 4.00	1.67 – 4.00	3.17	0.48	Good
Self-monitoring	1.00 – 4.00	0.56 – 4.00	1.79	0.76	Poor
Follow up	1.00 – 4.00	1.00 – 4.00	3.81	0.57	Good

Health-related quality of life among Buddhist monks with MetS

As detailed in **Table 2**, overall HRQoL was good among the majority of monks, with scores of the physical health domain less than those of the mental health domain. Monks with MetS reported lowest scores on general health, which was at a poor level. Role limitations due to physical health seemed to be another concern since it was the second lowest score. For mental health, emotional well-being had the highest score, followed by energy/fatigue, and social functioning. Role limitation due to emotional problems had the lowest score.

Table 2 Health-related quality of life among Buddhist monks with MetS (N=260)

Health concepts	Mean	SD	Level	
			Poor n (%)	Good n (%)
Physical health				
physical functioning	76.65	25.79	34 (13.1)	226 (86.9)
role limitations due to physical health	57.60	44.94	100 (38.5)	160 (61.5)
Pain	70.60	23.53	60 (23.1)	200 (76.9)
general health	43.25	14.71	154 (59.2)	106 (40.8)
Mental health				
energy/fatigue	72.15	17.55	23 (8.8)	237 (91.2)
social functioning	73.94	23.92	31 (11.9)	229 (88.1)
role limitations due to emotional problems	64.49	43.93	96 (36.9)	164 (63.1)
emotional well-being	78.86	15.09	15 (5.8)	245 (94.2)
Overall health-related quality of life	67.19	19.46	54 (20.8)	206 (79.2)
Overall physical health	62.03	21.18	76 (29.2)	184 (70.8)
Overall mental health	72.36	19.95	42 (16.2)	218 (83.8)

Associated factors with health-related quality of life among Buddhist monks with MetS

In simple logistic regression, four factors were found to have associations with HRQoL among Buddhist monks with MetS, age, location, secular education, and health behavior related to physical activities (**Table 3**). When multiple logistic regression analysis was employed (**Table 4**), for each year increasing in age, monks were 0.94 times likely to have good HRQoL (Adj.OR = 0.94; 95% CI = 0.91 - 0.97). In addition, monks who lived in a monastery located in the urban area were 3.64 times more likely to have good HRQoL as compared to those living in a rural area (Adj.OR = 3.64; 95% CI = 1.34 - 9.89). Health behavior related to healthy diet showed monks to be 1.08 times likely to have good HRQoL (Adj. OR = 1.08; 95% CI = 1.02 - 1.14). Lastly, health behavior related to physical activities showed monks to be 1.18 times likely to have good HRQoL (Adj. OR = 1.18; 95% CI = 1.05 - 1.32).

Table 3 Simple logistic regression examining factors associated health-related quality of life among Buddhist monks with MetS (N=260)

Independent variables	HRQOL			OR (95% CI)	*p-value*
	N	Poor (%)	Good (%)		
Age (years)					.0002
< 40 years	37	5.14	94.59	9.95 (2.23-44.42)	
40 – 65 years	143	16.08	83.92	2.97 (1.57-5.61)	
Older than 65 years[ref]	80	36.25	63.75	1	
Number of years being ordained (vassa)					.1951
Less than 5 vassa	34	8.82	91.18	2.72 (0.78-9.44)	
5 – 10 vassa	38	23.68	76.32	0.85 (0.37-1.96)	
11 – 15 vassa	25	32.00	68.00	0.56 (0.22-1.41)	
More than 15 vassa[ref]	163	20.86	79.14	1	
Position in a monastery					.0817
Abbot	82	20.73	79.27	1.24 (0.65-2.38)	
Assistant abbot	31	3.23	96.77	9.72 (1.28-73.76)	
Ordinary monks[ref]	147	24.49	75.51	1	
Location of a monastery					.0277
Rural	23	39.13	60.87	0.37 (0.15-0.90)	
Urban[ref]	237	18.99	81.01	1	
Secular education					.0118
Less than basic general education	138	26.81	73.19	0.44 (0.23-0.84)	
At least or more than basic general education[ref]	122	13.93	86.07	1	
Dharma education					.4798
No dharma study	30	26.67	73.33	0.63 (0.26-1.53)	
Elementary level	33	21.21	78.79	0.85 (0.33-2.11)	
Secondary level	19	31.58	68.42	0.49 (0.18-1.39)	
Advanced level[ref]	178	18.54	81.46	1	
Smoking					.7487
Never	113	18.58	81.42	1.28 (0.49-3.36)	
Quit	116	22.41	77.59	1.01 (0.39-2.61)	
Still smoking[ref]	31	22.58	77.42	1	
Overweight					.6707
No	34	23.53	76.47	0.83 (0.35-1.96)	
Yes[ref]	226	20.35	79.65	1	
Health behaviors					
Dietary habits					.7728
Poor	1	0.00	100.00	>999.999 (<0.001->999.999)	
Fair	90	23.33	76.67	0.80 (0.43-1.48)	
Good[ref]	169	19.53	80.47	1	

Table 3 Simple logistic regression examining factors associated health-related quality of life among Buddhist monks with MetS (N=260) (Cont.)

Independent variables	HRQOL			OR (95% CI)	*p-value*
	N	Poor (%)	Good (%)		
Physical activities					.0021
Poor	37	43.24	56.76	0.25 (0.12-0.55)	
Fair	74	18.92	81.08	0.82 (0.40-1.70)	
Good[(ref)]	149	16.11	83.89	1	
Compliance with medication					.6196
Poor	9	11.11	88.89	1.99 (0.24-16.43)	
Fair	85	23.53	76.47	0.81 (0.43-1.51)	
Good[(ref)]	166	19.88	80.12	1	
Self-monitoring					.2899
Poor	177	23.16	76.84	0.95 (0.30-3.04)	
Fair	65	13.85	86.15	1.78 (0.48-6.62)	
Good[(ref)]	18	22.22	77.78	1	
Follow up					.4004
Poor	12	16.67	83.33	1.41 (0.30-6.66)	
Fair	21	9.52	90.48	2.68 (0.61-11.91)	
Good[(ref)]	227	22.03	77.97	1	
Total health behaviors					.6347
Poor	1	0.00	100.00	>999.999 (<0.001->999.999)	
Fair	183	22.40	77.60	0.72 (0.36-1.43)	
Good[(ref)]	76	17.11	82.89	1	

Table 4 Multiple logistic regression analysis of the predicting factors of health-related quality of life among Buddhist monks with MetS (N=260)

Factors	Adj. OR	95% CI	*p-value*
Age	0.94	0.91-0.67	< .0001
Location	3.64	1.34-9.89	.0111
Health behavior related to dietary habits	1.08	1.02-1.14	.0060
Health behavior related to physical activities	1.18	1.05-1.32	.0046

Discussion

Monks with MetS in this study practiced health behaviors such as healthy diet, physical activities, adherence to medication and follow up since they believed it would improve their health status. This might be due to the fact that they underwent treatment at the university hospital, which provided health education at every visit. However, self-monitoring behaviors were at a poor level since most of monks did not have appropriate equipment at the temple to monitor their blood glucose or blood pressure. In addition, being a patient at the tertiary hospital led them to believe that the hospital would monitor all lab

values. Doctor and nurses would tell them if any abnormality occurred.

HRQoL among monks with MetS was at a good level, which was similar to previous studies.[20-22, 24] However, the overall score was a little bit higher than HRQoL among monks in the previous studies.[20-22, 24] This might be due to the fact that monks in this study had regular follow up at the hospital, so symptoms were monitored and taken care of. In addition, the medical care was affordable since medical costs were supported by either Thai universal health care coverage or the hospital's Monk Foundation. However, when each subscale was examined, monks with MetS had general health subscale at poor level, which was similar to results from previous studies among monks with chronic diseases[20-22] but different from the result among healthy monks.[24] This data revealed that living with a chronic condition impacted on the general health subscale of HRQoL among Buddhist monks.

Based on multivariate analysis, age, location of monastery, health behavior related to healthy diet, and health behavior related to physical activities were statistically significant predictors of HRQoL among Buddhist monks with MetS. Age was found in association with HRQoL in previous studies among monks.[21, 24] Advancing in age was a risk factor for having poor HRQoL. Thus, the older the monks were the less they would have good HRQoL. The location of the monastery was associated with HRQoL, as monks living in an urban area were 3.64 times more likely to have good quality of life as compared to monks living in a rural area. This might be due limitations on specialists and health care treatment at the district hospital level. Monks who lived in the rural area had to travel to the city to see specialists to get appropriate care and treatment.[23] For health behaviors related to healthy diet and physical activities, these are two factors crucial in the management of MetS.[12, 27, 28, 39] Inappropriate diet affected health status[40] and HRQoL.[22] Physical activities also promoted good HRQoL among monks with chronic condition.[20] One additional score of health behavior related to healthy diet was associated with 1.08 times higher likelihood of a good HRQoL and one additional score of health behavior related to physical activities was associated with 1.18 times higher likelihood of a good HRQoL. Overall, 21.45% of variance in HRQoL was able to be explained by these four significant predictors.

Limitations

This study has potential limitations. Response bias (i.e., recall bias and social-desirability bias, even if the study is anonymous) might occur since self-reporting was used to collect data. In addition, this study was a cross-sectional design that was conducted in a single setting at a large university hospital in the north of Thailand. This is a tertiary care hospital, and monks with MetS with scheduled visits may have complex health problems. Therefore, the results of this study might not be able to be generalized to Buddhist monks with MetS who either have less complex health problems or lack access to treatment and care.

Conclusion and Implications for Nursing Practice

MetS has impacts on HRQoL among monks, especially on their perception of having poor general health. Health behaviors such as healthy diet and physical activities increased the likelihood of having a good HRQoL among monks with MetS. Enhancing monks' capabilities to perform healthy behaviors related to healthy diet and physical activities is very important and necessary to control MetS and to improve HRQoL. Since 227 rules of *Patimokkha* that monks follow as a code of conduct does not prohibit monks from performing healthy behaviors in diet and physical activities, especially during sickness, nurses should formulate appropriate and effective

strategies to improve monks' health behaviors, emphasizing on these two topics. For monks with Mets, educative/supportive intervention must be provided to support them to consider reducing sedentary behaviors, and exercising regularly. Although monks may have limitations on food selection because they get food from alms round, based on *Patimokkha*, monks are able to consider what kind of food they take. Thus, enhancing monks' capability to consider taking a healthy diet and avoiding food enriched with sugar, fat, and salt is necessary. Additionally, educative/supportive intervention is urgently needed for Buddhist devotees to promote giving healthy alms food for monks.

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พฤติกรรมสุขภาพ และคุณภาพชีวิตด้านสุขภาพในพระสงฆ์ที่มีภาวะเมตาบอลิกซินโดรม

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บทคัดย่อ:เมตาบอลิกซินโดรมเป็นหนึ่งในปัญหาสุขภาพที่สำคัญในพระสงฆ์ หากแต่ยังมีการศึกษาเกี่ยวกับพฤติกรรมสุขภาพและคุณภาพชีวิตด้านสุขภาพในพระสงฆ์ที่มีภาวะเมตาบอลิกซินโดรมค่อนข้างจำกัด การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษา 1) พฤติกรรมสุขภาพและคุณภาพชีวิตด้านสุขภาพในพระสงฆ์ที่มีภาวะเมตาบอลิกซินโดรม และ 2) ปัจจัยทำนายคุณภาพชีวิตด้านสุขภาพ ได้แก่ พฤติกรรมสุขภาพ และคุณลักษะส่วนบุคคลของพระสงฆ์ การวิจัยเชิงพรรณนาแบบตัดขวางนี้ดำเนินการศึกษาในพระสงฆ์ที่มีภาวะเมตาบอลิกซินโดรมจำนวน 260 รูปมาที่รับบริการ ณ คลินิกผู้ป่วยนอก โรงพยาบาลมหาวิทยาลัยในภาคเหนือของประเทศไทย เครื่องมือที่ใช้ในการวิจัยประกอบด้วย 4 เครื่องมือ ได้แก่ แบบบันทึกข้อมูลทั่วไป แบบบันทึกข้อมูลผู้ป่วย แบบสอบถามพฤติกรรมสุขภาพ และแบบสอบถามคุณภาพชีวิตด้านสุขภาพ วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา และการวิเคราะห์ถดถอยโลจิสติกแบบตัวแปรทำนาย 1 ตัวแปร และกรณีตัวแปรทำนายหลายตัวแปร

ผลการศึกษาพบว่า พระสงฆ์ส่วนใหญ่มีพฤติกรรมสุขภาพโดยรวมอยู่ในระดับปานกลาง โดยมีพฤติกรรมสุขภาพด้านอาหาร การมีกิจกรรมทางกาย การฉันยาและการมาตรวจตามนัดในระดับดี ในการวิเคราะห์ถดถอยโลจิสติกแบบตัวแปรทำนายหลายตัวแปร พบว่า อายุ สถานที่ตั้งของวัด พฤติกรรมสุขภาพด้านอาหารและการมีกิจกรรมทางกายเป็นปัจจัยทำนายคุณภาพชีวิตด้านสุขภาพในพระสงฆ์ที่มีเมตาบอลิกซินโดรม จากตัวแปรทั้ง 4 ตัวแปรที่มีนัยสำคัญทางสถิติในการทำนายคุณภาพชีวิตด้านสุขภาพ พฤติกรรมสุขภาพด้านอาหารและการมีกิจกรรมทางกายเป็นตัวแปรที่สามารถปรับเปลี่ยนได้ การพยาบาลที่มุ่งเน้นในการพัฒนาพฤติกรรมสุขภาพโดยเฉพาะในด้านอาหารและการมีกิจกรรมทางกายจึงมีความสำคัญที่จะส่งเสริมให้พระสงฆ์ที่มีภาวะเมตาบอลิกซินโดรมมีคุณภาพชีวิตด้านสุขภาพที่ดีขึ้น

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