Knowledge, Attitude and Practice towards Metabolic Syndrome Prevention among Buddhist Monksin Nan Province, Thailand: A Preliminary Study

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Background and significant

Metabolic syndrome (MetS) is a cluster of metabolic abnormalities, including central obesity, dyslipidemia (abnormal serum lipid), insulin resistance, and hypertension. (YogitaPochlani, Naga VenkataPothineni, SwathiKovelamudi, and Jawahar L. Mehta, 2017 : 215)Metabolic syndrome has widely received attention because it is associated with cardiovascular diseases(KrithikaSrikanthan, Andrew Feyh, HareshVisweshwar, Joseph I. Shapiro, and KomalSodhi, 2016 : 25)and diabetes. (WichaiAekplakorn, Virasakdi, Chongsuvivatwong, PyatatTatsanavivat, and PaibulSuriyawongpaisal, 2011 : 793)Metabolic syndromeimpacts people's activities of daily living; one with Metabolic syndrome may decline in their daily function, increase risk for morbidity and mortality, and increase expense related to cost of healthcare and treatment. In Thailand, situation of metabolic syndrome among Thai male were between 16.4 and28.7 percent depending upon the criteria that were used to diagnose metabolic syndrome.(WichaiAekplakorn, Virasakdi, Chongsuvivatwong, PyatatTatsanavivat, and PaibulSuriyawongpaisal, 2011 : 794-796)Up to my knowledge, there is no report of the prevalence of metabolic syndrome among Buddhist monks.

Nowadays, the prevalence of Buddhist monks with non-communicablediseases (NCDs) increasing continuously every year especially diseases that are related to Metabolic syndrome. According to the statistics from the priest hospital, the biggest Buddhist monk hospital in Thailand,in 2015 the top three diseases that occur among Buddhist monks were 1) dyslipidemia 2) hypertension and 3) diabetes. All of those three diseases are abnormality that are related to metabolic syndrome.(Priest hospital,<http://www.priest-hospital.go.th/healthCareforMonk/> (article in Thai)The possible cause that monks are targets of metabolic syndrome might be due to limitation of dietary consumption and physical activities. Monks consume food that rich in carbohydrates and sugarfrom Buddhists and monks cannot perform some exercise like ordinary like guys due to Buddhist discipline.(Matichon online, <https://www.matichon.co.th/news/212144> (article in Thai)

Health promotion among Buddhist monks is important and urgent issue, especially the prevention of metabolic syndrome. Metabolic syndrome prevention will increase monks' capability to modify their lifestyles and perform health behaviors to improve their health status. However, up to my knowledge, there is no basic information related to knowledge, attitude, and practice towards prevention of metabolic syndrome among Buddhist monks. According to previous studies, there were several focusing on some issues but not all and those researches were studied among different population rather than monks, for example, Metabolic syndrome knowledge among college students (Bettina-Maria Becker, Rainer Bromme, and Regina Jucks, 2008 : 367-379), attitude and Metabolic syndrome prevention among college student,self-management of Metabolic syndrome among persons with Metabolic syndrome (KannikaRuangdejChaosuansreecharoen, and PaiboonChaosuansreecharoen, 2018 : 33-45),illness perception and health behaviors among those who had characteristics fit with Metabolic syndrome(PhasukMankhong, 2014)etc.Therefore, it is necessary to study knowledge, attitude, and practice towards metabolic syndrome among Buddhist monks. Results from this.

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study will be very useful to develop activities aimed to prevention of metabolic syndrome among Buddhist monks

Objectives of the study

1.To examine knowledge related to metabolic syndrome among Buddhist monks in Nan province, Thailand.

2.To examine attitude towards metabolic syndrome prevention among Buddhist monks in Nan province, Thailand

3.To examine practice towards metabolic syndrome prevention among Buddhist monks in Nan province, Thailand

4.To examine the relationships between knowledge, attitude, and practice towards metabolic syndrome prevention among Buddhist monks in Nan province, Thailand

Conceptual framework

Bloom's taxonomy of learning domains was employed as a conceptual framework for this research study.(Bloom, B., 1964)According to Bloom's taxonomy of learning, there are three domains of learning, including cognitive domain, affective domain, and psychomotor domain. Cognitive domain is mental skills or knowledge that one has while affective domain is related to growth in feelings or emotional area that interferes with attitude. Last but not least, psychomotor represents physical skills that one has to perform specific tasks related to the topic of learning.Knowledge, attitude, and practice (KAP) are related. When individual has sufficient knowledge, it will lead to improve attitude. Good attitude will also allow individual to perform skills or practice. In this cross-sectional descriptive study, knowledge, attitude, and practice towards metabolic syndrome prevention among Buddhist monks in Nan province, along with relationships between these 3 variables were examined.

Methods

Design

This research study was a cross-sectional correlational descriptive researchaimed to examine knowledge, attitude, and practice towards metabolic syndrome prevention among Buddhist monks in Nan province, Thailand, along with to explore the relationships between those three factors.

Population and sample Population in the study was Buddhist monks who lived in Nan province, Thailand, who aged at least 20 years old, be able to comprehend Thai language. This paper presented a preliminary results from 89 monks who agreed to participate in the study.

Research instrument

There were 4 research instruments in this study, including demographic questionnaire, knowledge questionnaire, attitude questionnaire, and practice questionnaire related to metabolic syndrome prevention.

1.Demographic questionnaire was used to obtain data such as age, number of years being ordained, position in a monastery, type of a monastery, location of a monastery, secular education, and dhamma education.

2.Knowledge questionnaire was developed by researchers. It was designed to obtain data related to metabolic syndrome such as cause, impact, diagnosis, sign and symptom, prevention, etc. There were seven questions. Subjects were asked to answer yes or no depending on what they thought about that item. Score was between 0 and 7. Negative score was reversed. Higher score represented good knowledge. Score between 0 – 2.33 represented fair level, score between2.34 – 4.66 represented moderate level and score at least or higher than 4.67 represented good level. Questionnaire was tested for content validity from 3 experts and tested for reliability with KR-20 (Ferketich, S., 1990 : 437-440)with a value of .78.

3.Attitude questionnaire was also developed by researchers. It consisted of nineitems. Four answers, including strongly disagree, disagree, agree, and strongly agree. Score ranged between 9 and 36. Negative items were reversed. High score represented high attitude. Score from

9.00to18.00represented fair level, 18.01 to27.00 represented moderate level and score from at least or higher 27.01 represented good level. Content validity was tested among 3 experts. Cronbach's Alpha Coefficient was used to test reliability with a value of .73.

4.Practice towards metabolic syndrome prevention among Buddhist monks was developed by researchers. It consisted of 25 items asking for frequency of how Buddhist monks performed activity of each item, including never, sometime, often, and usually. Score ranged between 25 and 100. Negative item was reversed. High score represented good practice. Score between 25.00and50.00 represented fair level, while score ranged from 50.00 to75.00 represented moderate level, and score at least or higher than 75.00 represented good level. Content validity was tested among 3 experts. Cronbach's Alpha Coefficient was used to test reliability with a value of .71

Ethical Considerations

The study was approved by the Ethical Review Committee, Buddhist Research Institute, Mahachulalongkornrajavidyalaya University, ethical clearance number R-16/2017.Researcher teams also asked for permission from ecclesiastical officials of Nan province to approach potential subjects. Each potential participants received an explanation, information sheet with a details description of study purpose, methods, number of subjects, potential benefits, procedures, participation time, subject's right, risks, withdraw, costs, incentive payment, and how to contact researcher. Monks also have right to skip answering any question if they did not want to reveal. Participants could withdraw at any time without any consequence. Monks who agreed to participate in this study were asked to sign a consent form prior to data collection. To protect confidentiality, code name was used in all questionnaires.

Data Collection

Beside approval for ethical clearance, permission to approach potential participants was obtained from the ecclesiastical officials of Nan province. Ecclesiastical officials of Nan province were requested to distribute questionnaires, including information sheet and informed consent form. Data was collected at any convenient places for subjects and sent back to ecclesiastical officials when they finished. Data collection took approximately 1 month. Data was analyzed by using descriptive statistics and Pearson Product Moment Correlation

Results

Characteristics of the sample

There were 89 monks, ranging in age from 20 to 83 years ($\bar{x}$ = 42.53). Number of year being ordained was between 1 to 58 years ($\bar{x}$ = 15.14). Nearly 40 percent had bachelor degree while approximately 65 percent earned dhamma scholar advanced level. However, only 8 percent studied Pali.

For knowledge related to metabolic syndrome, monks had average score of 4.75 (SD =1.96),represented 1.96. Average score of attitude was 27.21 (SD = 4.43), which was at the good level. Average of practice towards metabolic syndrome preventionwas 65.39 (SD = 10.96), which was at the moderate level. (Table 1)When classify based on level of knowledge, the majority of monks (57 persons, 67.86 percent) had knowledge at the good level (Table 2). The majority of monks had moderate level of attitude (Table 3). In addition, most of monks had moderate level of practice towards metabolic syndrome prevention (Table 4).

Table 1 Range, average, and standard deviation of knowledge, attitude, and practice towards metabolic syndrome prevention among Buddhist monks in Nan province (N=89)

Variable	Possible Range	Range	Average	Standard deviation
Knowledge	0-7	0-7	4.75	1.96
Attitude	9-36	9-36	27.21	4.44
Practice	25-100	25-86	65.39	10.96

Table2 Frequency and percentage based on level of knowledge (N=84)

Knowledge	Frequency	Percentage
Good	57	67.86
Moderate	12	14.29
Fair	15	17.86

Table 3 Frequency and percentage based on level of attitude (N=82)

Attitude	Frequency	Percentage
Good	36	43.90
Moderate	44	53.66
Fair	2	2.44

Table 4 Frequency and percentage based on level of practice (N=85)

Practice	Frequency	Percentage
Good	12	14.12
Moderate	69	81.18
Fair	4	4.71

According to the relationships between 3 variables, including knowledge, attitude, and practice towards metabolic syndrome prevention, normal distributions were tested with Kolmogorov-Smirnov, data had normal distribution. Pearson Product Moment Correlation were employed to test those relationships. Results showed that knowledge had positive relationship with attitude ($r=.25$, $p<.05$) but not with practice ($r=.04$, $p>.05$). While attitude had positive correlation with practice towards metabolic syndrome prevention among Buddhist monks in Nan province ($r=.28$, $p<.05$)as shown in Table 5.

Table 5 Relationships between knowledge, attitude, and practice towards metabolic syndrome prevention among Buddhist monks in Nan province (N=89)

Variable	Knowledge	Attitude	Practice
Knowledge	1.00		
Attitude	.25*	1.00	
Practice	.04	.28*	1.00

* $p<.05$

Discussion

According to the study of knowledge, attitude, and practice towards metabolic syndrome prevention among Buddhist monks in Nan province, Thailand, discussion were explained based on research objectives.

1.Knowledge related to metabolic syndrome: results showed that the majority of monks, around 68 percent, had good level of knowledge (Table 2) with an average score of 4.75. The reasons why score on knowledge related to metabolic syndrome was high might be due to the fact that some monks in Nan province had opportunity to attend lecture on metabolic syndrome that provided by local health care sector. In addition, Thailand just launched Health Charter for Buddhist Monks in2017, established healthy monks, temples and happy communities in 10 years. To support the Charter, department of health, ministry of public health creates a program to educate Buddhist monks related to health promotion and disease prevention. These two additional activities may increase level of knowledge among monks.

2.Attitude related to metabolic syndrome: results showed that the majority of monks, more than 50 percent (Table 3), had moderate level of attitude but an average score of attitude was 27.21, which was at the high level. These results represented that some monks still perceived limitation

on health behaviors towards metabolic syndrome prevention, especially attitude towards physical activities. Some monks believed that it was inappropriate for monks to perform physical activities.In addition, majority of monks had passive self-care. They thought that taking medications was better than changing lifestyles in term of controlling and preventing metabolic syndrome.

3.Practice towards metabolic syndrome prevention: results showed that the majority of monks, more than 80 percent (Table 4), had moderate level of practice with an average score of 65.39. There were many challenges issues related to practice towards metabolic syndrome prevention among monks, including diet and physical activities. According to diet, monks consumed less variety of fruits and vegetables, ate green leaves vegetables less than 5 standard portion per day, consumed many type of sugar sweetened beverage, ate high fat diet such as food contained coconut milk, pork belly, chicken skin etc., and paid less attention on nutritional facts. For physical activities, although monks did physical activities based on 10 observance of precepts, however, the total duration of time per week was less than recommendation.In addition, except activities related to Buddhism, some monks had sedentary behaviors longer than 1 hour per day. Those activities might allow monks to have moderate level of practice.

4.Relationship between knowledge, attitude, and practice towards metabolic syndrome prevention among Buddhist monks: results showed that knowledge had positive relationship with attitude related to metabolic syndrome prevention ($p < .05$). This revealed that the better knowledge monks had, the better attitude monks had towards metabolic syndrome prevention. Knowledge is important to allow people to understand situation. According to Bloom's Taxonomy, when one can recall facts and basic concepts, they might be able to explain ideas or concepts. Thus, sufficient knowledge may allow people to have better attitude (Bloom, B., 1964)In addition, attitude had positive relationship with practice towards metabolic syndrome prevention. Monks who had good attitude towards metabolic syndrome prevention had good practice towards metabolic syndrome prevention. This result is supported by Bloom's Taxonomy(Bloom, B., 1964) when individual has good feeling and attitude towards some certain situation, that individual may try to commit activities to make that situation gets better or successful.

Suggestion

According to results, we suggest that

1.Although the majority of monks had good level of knowledge, some monks still did not have sufficient knowledge related to metabolic syndrome. Health education related to metabolic syndrome prevention is necessary and important issue. However, knowledge should be congruent with Buddhist doctrine to improve monks' attitude. Therefore, better attitude may lead to better practice towards metabolic syndrome prevention.

2.These results are important to support future studies, such as predictive study, intervention study to perform healthy lifestyles towards metabolic syndrome prevention, along with longitudinal study aimed to prevent metabolic syndrome among Buddhist monks.

Limitation

Although based on the results, we can see trends of knowledge, attitude, and practice towards metabolic syndrome among Buddhist monks, these results was from a preliminary study among 89 Buddhist monks. Thus, the results might not be able to generalize to population.

Conflict of Interest

The authors declare no conflict of interest.

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