



DEVELOPMENT OF HYPERTENSION PREVENTION AND CONTROL MODEL AMONG MONKS IN NONG KHAI PROVINCE, THAILAND

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Abstract

Background and Objectives: Nong Khai Province implemented a health promotion project among monks in 2016. The objective was to ensure monks maintain good health, enabling them to continue preserving and promoting Buddhism and to serve as health role models within their communities. The project included 11 activities. This research aimed to develop the hypertension prevention and control model and evaluate the hypertension prevention and control model among monks in Nong Khai Province using the CIPPIEST Model. This model was an extension of the CIPP evaluation model (Context, Input, Process, and Product) by expanding the Product Evaluation into Impact Evaluation, Effectiveness Evaluation, Sustainability Evaluation, and Transportability Evaluation of the evaluated projects.

Methodology: This research and development approach to hypertension prevention and control among monks in Nong Khai had two parts: Part 1: Development of a hypertension prevention and control model; and Part 2: Evaluation of a hypertension prevention and control model among monks in Nong Khai Province.

Main Results: This research found two parts: Part 1: This section involved the development of a hypertension prevention and control model, which comprises six components: Belly reduction, blood sugar control, medication, blood pressure measurement, health literacy, and protection and rest. By addressing ten success factors, the model can be effectively implemented and sustained, contributing to the control of hypertension among monks; and Part 2: This part evaluated the hypertension prevention and control model using the CIPPIEST model. The summary of the sample group's opinion on the project components revealed that Input Factors, Impact, and Transferability were rated at a very good level, while Context, Process, Productivity, and Effectiveness were rated at a good level. These findings indicate a generally favorable perception of the model among the sample group across various evaluated components. The model serves as a comprehensive framework for promoting and maintaining the health and well-being of monks.



This approach underscores a commitment to addressing the multifaceted health challenges faced by monks in the region. By aligning strategies with identified success factors, stakeholders can ensure the effective implementation and sustainability of health promotion initiatives aimed at controlling hypertension among monks.

Involvement to Buddhadhamma: This investigation revealed the application of Buddhism in relation to Buddhist innovations for the achievement of "Healthy Monks," it can be applied to the implementation of activities for Bhavana 4 (Kayabhavana) about prevention and control of high blood pressure among monks, consisting of 6 components, 20 activities, and 10 success factors for this model were identified. These factors include clarity of policy, sector collaboration, mutual understanding, integration of operations, administrator emphasizing, network and coordination, monitoring and evaluation, continuity in operation, faith, and confidence in merit in compliance with the National Sangha Health Charter 2017.

Conclusions: This research highlighted the significance of comprehensive and culturally sensitive health promotion strategies for monks grounded in collaboration, community participation, and adherence to ethical principles. By aligning with these factors, health promotion efforts effectively addressed the unique health needs of monks in Nong Khai Province while respecting their beliefs and lifestyles. Overall, the evaluation indicated that the prevention and control of hypertension model among monks was well-received and made significant strides in improving monk health and well-being. Continued monitoring, support, and community engagement were essential for sustaining and enhancing the project's impact over time. In summary, the evaluation underscored the commendable success of the prevention and control of hypertension model. Continued vigilance, support, and community involvement were pivotal in upholding and augmenting the project's impact over time.

Keywords: Buddhist Monk, Hypertension Prevention & Control, Evaluation Model, Nong Khai Province

Introduction

In Buddhism, monks are ordained who follow the Dhamma and Vinaya as well as the Sangha Act. In Thailand, there are 503,064 monks across 43,305 temples (National Statistical Office, 2023). The Sangha Supreme Council, the governing body overseeing monks in alignment with Buddhist principles, has established policies to promote monks' health through initiatives such as health promotion temples and the National Monks Health Statute. During the monastic order meeting No. 7/2017 on March 20, 2017, the Sangha Supreme Council passed resolution No. 191/2017, leading to the establishment of the National Sangha Health Charter 2017. This statute serves as a framework and guideline for promoting the health of monks nationwide, aligning with the principles of the Constitution on the National Health System. It aims to advance the goals of the National Health Assembly resolutions, focusing on three key areas: Monks' self-care, community and societal support for monks' health, and the monks' role in promoting community health according to Dhamma and discipline. The statute emphasizes the implementation of measures in



five key areas: Knowledge, information, development, health services, and research. These measures aim to enhance the quality of life for monks by fostering physical, mental, spiritual, and social well-being. Additionally, the statute seeks to create a health-promoting environment by strengthening the connection between temples and communities. The overarching goal is to achieve "Healthy Monks, Healthy Temples, and Healthy Communities" within a decade (2017-2026) (National Health Commission Office, 2017).

Nong Khai Province has implemented a health promotion project for monks. The first round of health screenings was conducted in 2016, involving 4,331 monks. The results of the health screenings were as follows: Waist Circumference Normal: 87.69% (3,798 Monks), Abdominal Obesity: 12.31% (533 Monks), Blood Sugar Levels Normal: 94.30% (4,084 Monks), At Risk: 4.20% (182 Monks), High Risk: 1.50% (65 Monks), Blood Pressure Levels Normal: 76.08% (3,295 Monks), At Risk: 15.33% (664 Monks), High Risk: 8.59% (372 Monks), Oral Health Normal: 44.70% (1,936 Monks), tooth decay: 32.88% (1,424 Monks), Dental tartar: 22.42% (971 Monks), Skin Health No Skin Disease: 99.15% (4,294 Monks), Skin Disease: 0.85% (37 Monks), New cases of chronic diseases identified included: diabetes: 1.91% (63 Monks), hypertension: 1.67% (72 Monks), both diabetes and hypertension: 0.72% (31 Monks), Heart disease: 0.14% (6 Monks). The operations in 2016 included screening and health promotion activities but did not cover all target groups. Consequently, the project needs to continue to ensure comprehensive screening and continuous, appropriate health promotion to increase coverage (Nong Khai Provincial Health Office, 2017).

Nong Khai Province implemented a health promotion project among monks in 2016, in alignment with the Monks' Health Statute, to effectively support and promote monks' health. The objective was to ensure monks maintain good health, enabling them to continue preserving and promoting Buddhism and to serve as health role models within their communities. The project included 11 activities: Executive monk meetings involving abbots, deputy abbots, and assistant abbots. Providing knowledge to monks on drug protection and surveillance, educating monks on health care, conducting health screenings, offering preliminary treatment, operating a mobile dental health unit, inspecting and registering monks' health insurance rights, screening monks for drug use through urine analysis, implementing behavior change activities for monks who tested positive for drugs, initiated a health behavior change project for at-risk and ill groups and trained volunteer monks to promote health within temples. The project also evaluated the satisfaction of monks receiving services and the satisfaction of the staff operating the project. This research aimed to develop the hypertension prevention and control model and evaluate the hypertension prevention and control model among monks in Nong Khai Province using the CIPPIEST Model: This model is an extension of the CIPP evaluation model (Context, Input, Process, and Product) by expanding the Product Evaluation into Impact Evaluation, Effectiveness Evaluation, Sustainability Evaluation and Transportability Evaluation of the evaluated projects. (Stufflebeam & Shinkfield, 2007). The findings will be used to enhance the efficiency of health promotion operations for monks in accordance with the Monks Health Statute 2017.



Objectives

This research aimed to develop the hypertension prevention and control model and evaluate the hypertension prevention and control model among monks in Nong Khai Province by CIPPIEST Model. This model was an extension of the CIPP evaluation model (Context, Input, Process, and Product) by expanding the Product Evaluation into Impact Evaluation, Effectiveness Evaluation, Sustainability Evaluation, and Transportability Evaluation of the evaluated projects.

Methodology

This research and development approach for the development of the hypertension prevention and control model and evaluate the hypertension prevention and control model among monks in Nong Khai, this research had 2 parts: Part 1: Development of hypertension prevention and control model among monks; and Part 2: Evaluation of a hypertension prevention and control model among monks.

The research employed the CIPPIEST Model, which encompasses the following components: Context Evaluation: Assessment of the background, setting, and conditions affecting the project. Input Evaluation: Analysis of resources, strategies, and plans used in the project. Process Evaluation: Examination of the implementation processes and activities. Product Evaluation: Evaluation of the outcomes and results achieved by the project. Impact Evaluation: Measurement of the long-term effects and changes resulting from the project. Effectiveness Evaluation: Determination of how well the project achieved its goals and objectives. Sustainability Evaluation: Analysis of the project's ability to maintain its benefits over time. Transportability Evaluation: Assessment of the potential for replicating the project's success in other settings or contexts.

Data collection techniques and Data sources:

Part 1: Population involved in the development of the hypertension prevention and control model: The population included all 4,183 monks in Nong Khai Province. For this study, a sample size of 3,741 individuals was utilized. Data were collected from complete monk health screenings, and detailed information was gathered according to predetermined inclusion criteria, without prior calculation of sample size.

Part 2: The Research Area: All temples in the nine districts of Nong Khai Province. The total population consisted of 4,183 monks in Nong Khai Province, and sample Group: A sample group of 340 monks. This research used a formula to calculate the sample group for the case of Multivariate relationship analysis using multiple logistic regression statistics. (Hsieh et al., 1998).

$$n = \frac{P(1-P)(Z_{1-\alpha} + Z_{1-\beta})^2}{[B(1-B)(P_0 - P_1)^2]}$$

$$n = \frac{0.50(1 - 0.50)(1.96 + 0.84)^2}{[0.39(1 - 0.39)(0.58 - 0.38)^2]}$$

$n = 205.96, n = 206$



To prevent overfitting, the sample size for the multiple logistic regression analysis was adjusted and the influence of the relationship between the independent variables had to be adjusted using the Variance Inflation Factor or VIF, which has the following value (Hsieh et al., 1998):

$$n p = \frac{n_1}{1 - \rho^2_{1,2,3,\dots,p}}, n_1 = 206, p = 0.6278$$

$$n p = 340$$

Quantitative research tools: 1) Health Screening Form; 2) Interview Questionnaire: A structured questionnaire used to collect individual-level data from monks, focusing on personal information that was nominal scale and satisfaction with the project operations, which was a 5-level rating scale; and 3) Health Screening Form: A form comprising four parts: Personal characteristics information (Ratio Scale, Ordinal Scale and Nominal Scale), health history of illness (Nominal Scale), health behaviors of monks (Rating Scale).

Qualitative research tools: In-depth Interview Guideline: A structured guide to conduct detailed interviews with selected participants. Focus Group Interview Guideline: A framework for facilitating focus group discussions to gather insights from multiple participants. This was a structured interview about project implementation using the concept of the CIPPIEST evaluation model. Document Collection Form: A form for systematically collecting and recording relevant documents and archival data, and Non-participant Observation Guideline: A guide for observing and recording the activities and behaviors of participants without direct involvement.

Data collection techniques: Quantitative data collection was done from a sample of 340 people. The research team collected data directly using systematic random sampling and divided quotas in each district. Qualitative data collection for the target group in part 1 included the ecclesiastical provincial governor, ecclesiastical district officers, ecclesiastical commune chiefs, the provincial public health office, and the district public health office, 4 monks from the staff, 4 public health volunteers, totaling 31 individuals.

Data analysis: Quantitative data: Descriptive statistics: Frequency, percentage, standard deviation. Inferential statistics: Pearson Correlation Coefficients, Linear multiple regression, Exploratory Factor Analysis (EFA). Qualitative data: Content analysis.

Ethical approval: Research ethics approval was obtained from the Human Research Ethics Committee at Sirindhorn College of Public Health, Khon Kaen Province, with approval number HE 6320012.

Results and Discussion

Part 1: Hypertension Prevention and Control Model Among Monks in Nong Khai Province. Population for the development of the hypertension prevention and control model: The population included all 4,183 monks in Nong Khai Province. For this study, a sample size of 3,741 individuals was utilized. Data were collected from complete monk health screenings, and



detailed information was gathered according to predetermined inclusion criteria without prior calculation of sample size. The researchers conducted a post-hoc analysis using statistical software, focusing on variables related to hypertension, especially body mass index (BMI). The Pearson Correlation Coefficient for BMI was $r = 0.308$ (95% CI: 0.276 to 0.338, P-value < 0.001), with 42.77% (1,600 Monks) having a BMI > 23.00 kg/m². With a significance level set at 0.05, the statistical power was determined to be 1, indicating that the sample size was adequate for testing the hypotheses. The monks had 1,675 normal systolic pressure (44.77%), risk condition 1,298 (34.70%), and normal diastolic blood pressure 2,541 (67.92%), in risk condition 587 (15.69%), hypertension conditions 768 (20.53%). The coefficients Correlation of Pearson analysis showed that the initial variables were related to hypertension. This table presents the factors related to hypertension among monks, along with their respective correlation coefficients, based on a sample size of 3,741 individuals, shown in Table 1.

Table 1 Shows Pearson correlation analysis of coefficients identified dependent variables related to hypertension

Relationship of Variables with Hypertension (n = 3,741)			95% Confidence Interval	
Variables	Pearson Correlation Coefficients (r)	P-value	Lower	Upper
Age*	0.333	<0.001	0.305	0.360
Year in monk*	0.177	<0.001	0.141	0.464
Education*	-0.147	<0.001	-0.175	-0.116
Smoking	0.009	0.575	-0.22	0.016
Sleeping/day	0.022	0.180	-0.010	0.53
Congenital disease*	0.166	<0.001	0.132	0.198
Regular medication*	0.169	<0.001	0.133	0.204
Annual health examination*	0.061	<0.001	0.029	0.090
Inpatient*	0.058	<0.001	0.026	0.092
Had Surgery*	0.045	0.005	0.013	0.079
Exercise	0.016	0.333	0.016	-0.016
Weight*	0.294	<0.001	0.262	0.323
Height*	0.081	<0.001	0.046	0.113
Body mass index*	0.308	<0.001	0.279	0.336
Waist circumference*	0.294	<0.001	0.263	0.323
FBS	0.231	<0.001	0.198	0.266

The analysis of correlation coefficients between variables using multiple linear regressions statistics to study the variables affected by hypertension found that Age, Inpatient, FBS (Fasting Blood Sugar) together predicted 16.10 % of hypertension ($R^2 = 0.161$ P-value < 0.05) when controlling the other independent variables. Analyzing the exploratory factor in all independent variables, the components of each element from the analysis of EFA values; Kaiser-Meyer-Olkin Measure of



Sampling Adequacy: KMO = 0.601, Approx. Chi-Square = 33097.33 df = 192 P-value < 0.001, shown in Table 2.

Table 2 Shows the analysis of EFA for components grouping

Variables	Component Matrix					
	Component					
	1	2	3	4	5	6
Weight	0.957					
Body mass index	0.896					
Waist circumference	0.861					
FBS (NPO)		0.968				
FBS (Aft-Meal)		0.968				
Regular medication			0.845			
Congenital disease			0.830			
BP-sys				0.820		
BP-dias				0.818		
Education					0.719	
Year in monk					0.669	
Smoking						0.723
Sleeping/day						-0.642

The Components of Hypertension Prevention and Control Model consisted of 6 components. These components encompass various aspects of health and lifestyle factors relevant to hypertension prevention and control among monks in Nong Khai Province. This research involved a qualitative study aimed at developing a model for health promotion and prevention and control among monks in Nong Khai Province. The results of the research served as a database for workshops, including focus groups with relevant stakeholders. Workshop Methodology: Focus Groups conducted workshops with the concerned group to brainstorm and consult on effective health promotion strategies for monks. Brainstorming: Utilized sessions to generate innovative ideas and solutions. Participants: Engaged 31 experts and individuals involved in monk health promotion initiatives. These models were employed to guide monks in adopting and sustaining healthier behaviors, as shown in Table 3.

Table 3 Shows activities of the prevention and control hypertension model among monks

Component	Activities
Component 1 Belly Reduction	<ul style="list-style-type: none"> - Activities to reduce the belly not to exceed 90 cm - Waist circumference - Exercise activities that are appropriate for the monk - Healthy food for monks - DASH Eating food - Weighing-machine at temple



Table 3 Shows activities of the prevention and control hypertension model among monks
(Continued)

Component	Activities
Component 1 Belly Reduction	- Continuous body mass index assessment
Component 2 Blood Sugar Control	- Blood sugar control: Level FBS (NPO) <100 & level FBS (Aft-Meal) <180 - Reducing sugar or drinking that contain sugar - Reducing the amount of sticky rice
Component 3 Medication	- Continuous treatment - Annual health examination
Component 4 Blood Pressure Measurement	- Continuous blood pressure measurement - Providing blood pressure monitors at temple - Reduce eating salty, reduce eating spicy - Reflection and Confirmation of results and Referrals for effective treatment
Component 5 Health literacy	- To give knowledge of health promotion for monk - Training for volunteer health promotion at the temple
Component 6 Protection & Rest	- No smoking - Sleeping > 6 hr./day

Following an After-Action Review between researchers and the 31 experts involved, the success factors for the prevention and control hypertension model among monks in Nong Khai Province were identified. These factors include:

1. Clarity of Policy: Clear and well-defined policies provide a foundation for effective implementation and understanding of health promotion initiatives.
2. Sector Collaboration: Collaboration across all sectors ensures a comprehensive and coordinated approach to health promotion, leveraging the expertise and resources of various stakeholders.
3. Mutual Understanding: Fostering mutual understanding among stakeholders promotes cohesive efforts toward common health goals.
4. Integration of Operations: Integrating operations streamlines processes and enhances efficiency in implementing health promotion strategies.
5. Administrator Emphasis: Strong emphasis and support from administrators highlight the importance of health promotion initiatives and encourage participation.
6. Network and Coordination: Establishing networks and coordination mechanisms that facilitate communication and cooperation among stakeholders involved in health promotion efforts.



7. Monitoring and Evaluation: Regular monitoring and evaluation enables the assessment of progress and effectiveness, allowing for adjustments and improvements as needed.

8. Continuity in Operation: Ensuring continuity in health promotion operations sustains momentum and reinforces positive health behaviors over time.

9. Faith: Faith, both in oneself and in the merit of health-promoting actions, can motivate individuals to actively participate in health promotion activities.

10. Confidence in Merit: Confidence in the positive outcomes and benefits of health-promoting behaviors strengthened commitment and adherence to health guidelines. By addressing these success factors for the prevention and control hypertension model among monk was effectively implemented and sustained, contributing to the control of hypertension among monks in Nong Khai Province.

Discussion of Part 1: Hypertension Prevention and Control Model among Monks in Nong Khai Province

The results of this research, in addition to providing a model for promoting health for monks, also promoted the development of monks according to the Bhavana 4 (Kayabhavana) in terms of physical development. The findings of this research regarding factors related to hypertension among monks were consistent with previous research. Sararak (2017) found a significant relationship between body mass index, treatment practices when sick, frequency of health examinations, and chronic illnesses among monks. Similarly, the results of the analysis by Phra Thamma Kittiwongthongdee Surtecho Ratchanee (2005) highlighted the challenges faced by monks, including chronic diseases, smoking habits, consumption of energy drinks, and limited access to healthy food options obtained through alms.

These insights underscore the importance of addressing lifestyle factors and improving healthcare access for monks to effectively prevent and manage chronic diseases like hypertension. The findings suggested the need for comprehensive health promotion initiatives tailored to the unique needs and circumstances of monks in Nong Khai Province.

Furthermore, the positive perceptions of the prevention and control hypertension model among monks in the sample group, as evidenced by their opinions on various project components, indicate the project's effectiveness and potential for sustainability. Collaborative efforts involving stakeholders from various sectors, along with clear policies and effective monitoring and evaluation mechanisms, were essential for ensuring the continued success and impact of such initiatives.

Overall, this research contributed valuable insights into the factors influencing hypertension among monks and highlights the importance of holistic health promotion strategies to support their well-being and improve health outcomes.

The prevention and control hypertension model among monks aimed at preventing and controlling hypertension among monks in Nong Khai Province aligns with existing holistic healthcare models proposed by Buathet (2012), Chatchawat & Piromruen (2014), and Phra Kittianyamete et al. (2018). These models advocated for comprehensive approaches to monk healthcare, emphasizing the role of temples as centers for community development and health promotion. Buathet's model



suggests various strategies, including establishing health promotion plans within temples, conducting regular health checks for monks, and developing public health volunteers to support healthcare initiatives (Buathet, 2012). Additionally, the model emphasizes creating safe environments and promoting nutritious foods to support monk health.

Chatchawarat & Piromruen's model (2014) focused on five key areas of monk health promotion, including food consumption, exercise, stress management, health responsibility, and overall healthcare. The model proposed specific activities, equipment, and responsible parties for each area, emphasizing the feasibility and ethical alignment of the monk health promotion model.

Similarly, Phra Kittianyamete'e's model for Lopburi Province emphasized the importance of having dedicated healthcare teams for monks, increasing monk registration and database systems, and involving public health agencies and community health volunteers in monitoring and promoting monk health. The model underscored the need for behavior change interventions and clear role definitions for promoting holistic healthcare among monks (Phra Kittianyamete'e et al., 2018).

Overall, these models provided valuable frameworks for developing effective health promotion guidelines for monks, ensuring their physical, mental, and spiritual well-being while respecting the ethical principles of monkhood. The alignment of the Nong Khai Province guidelines with these models suggested a holistic and comprehensive approach to monk healthcare that addressed various aspects of their health and well-being.

The success factors identified for health promotion among monks in controlling blood pressure in Nong Khai Province closely resemble those found in the research of Upra & Chatcharat (2016), as well as Phrakhr'u Suwattanapattanabandit et al. (2014). These factors emphasized the importance of clear policies, collaboration across sectors, mutual understanding, integrated operations, administrative emphasis, network coordination, monitoring and evaluation, operational continuity, and the role of faith and confidence in merit.

Upra and Chatcharat's research emphasized the necessity for health promotion efforts to be rooted in community participation and aligned with the beliefs and lifestyles of the community, ensuring acceptance and adherence by monk organizations (Upra & Chatcharat, 2016). Similarly, Phrakhr'u Suwattanapattanabandit's guidelines for monk healthcare focused on promoting, preventing, treating, and rehabilitating health issues within a holistic healthcare framework, with an emphasis on the role of network partners (Phrakhr'u Suwattanapattanabandit et al., 2014).

Additionally, Chatchawarat and Piromruen's development of a health promotion model for monks underscores the importance of activities, resources, and responsibilities in promoting overall healthcare. Their findings suggested that the proposed model is both feasible and ethically acceptable for monk healthcare initiatives (Chatchawarat & Piromruen, 2014).

Together, this research highlighted the significance of comprehensive and culturally sensitive health promotion strategies for monks grounded in collaboration, community participation, and



adherence to ethical principles. By aligning with these factors, health promotion efforts effectively addressed the unique health needs of monks in Nong Khai Province while respecting their beliefs and lifestyles.

Part 2: Evaluation of the Health Promotion Project among Monks in Nong Khai Province

In this evaluation, the sample group comprised 352 individuals, with the following key findings: The sample group had an average age of the sample group had an average age of 41.89 years (S.D. = 17.92), Education Level: A majority of the sample group had completed primary school, accounting for 34.41%, Health Status: Most of the sample group (43.24%) had undergone a physical examination in the past year, with no diseases detected. 42.06% of the sample group had never undergone a physical examination. Chronic Diseases: Hypertension was diagnosed in 7.06% of the sample group, diabetes was diagnosed in 3.82% of the sample group, Health Insurance Rights: Most of the sample group (93.23%) had universal health coverage, 6.77% of the sample group had social security rights. These findings provide insights into the health status, healthcare utilization, and health insurance coverage among monks participating in the health promotion project in Nong Khai Province.

Summary of Sample Group's Opinion on Project Components: Context: The sample group's mean opinion on the project's context was at a good level ($\bar{x} = 4.49$, S.D. = 1.38). Input Factors: The sample group perceived the project's input factors very positively, with an overall mean opinion at a very good level ($\bar{x} = 4.51$, S.D. = 1.44). Process: In terms of the project process, the sample group's mean opinion was at a good level ($\bar{x} = 4.47$, S.D. = 1.22). Productivity: The sample group's mean opinion on project productivity was at a good level ($\bar{x} = 4.43$, S.D. = 1.25). Impact: The sample group perceived the project's impact very positively, with an overall mean opinion at a very good level ($\bar{x} = 4.59$, S.D. = 1.86). Effectiveness: The sample group's mean opinion on project effectiveness was at a good level ($\bar{x} = 4.38$, S.D. = 1.46). Sustainability: The sample group perceived the project's sustainability positively, with an overall mean opinion at a good level ($\bar{x} = 4.45$, S.D. = 1.83). Transferability: The sample group's mean opinion on project transferability and forwarding was very positive, with an overall mean at a very good level ($\bar{x} = 4.56$, S.D. = 1.41). These findings indicate a generally favorable perception of the health promotion project among the sample group across various components evaluated, and these models serve as comprehensive frameworks for promoting and maintaining the health and well-being of monks in Nong Khai Province, as shown in Table 4.



Table 4 Shows summary of Sample Group's Opinion on Project Components

In term of	Mean	S.D.	95% Confidence Interval		P-value*	Level
			Lower CI	Upper CI		
Context	4.49	1.38	3.51	8.12	<0.001	Good
Input	4.51	1.44	2.61	6.31	<0.001	Very good
Process	4.47	1.22	4.18	4.57	<0.001	Good
Product	4.43	1.25	2.55	5.19	<0.001	Good
Impact	4.59	1.86	3.26	5.89	<0.001	Very good
Effectiveness	4.38	1.46	2.18	5.62	<0.001	Good
Sustainability	4.45	1.83	2.41	6.25	<0.001	Good
Transportability	4.56	1.41	2.45	8.32	<0.001	Very good

Discussion of part 2: Evaluation of the Health Promotion Project among Monks in Nong Khai Province

1. Context: The sample group expressed a highly positive opinion of the project, with an average rating at a very good level (\bar{x} = 4.49, S.D. = 1.38). They demonstrated a clear understanding of the project objectives, recognizing its potential to enhance the quality of life for monks. The health promotion project for monks and novices in Nong Khai Province, initiated by various key entities such as the Office of the Provincial Abbot, Nong Khai Provincial Public Health Office, Nong Khai Provincial Buddhism Office, and Narcotics Prevention and Suppression Center, has been ongoing since 2017. Scheduled health examinations for monks and novices in all nine districts of Nong Khai Province are a central component of this initiative, indicating a comprehensive approach to monk healthcare.

This evaluation aligned with Liamthong et al.'s study, which assessed a Buddhist nursing project aimed at promoting self-reliant healthcare for the elderly. Their findings revealed a similarly high level of satisfaction among participants regarding the project's content (Liamthong et al., 2016) and emphasized the importance of context evaluation, which considers external factors influencing project success or failure, such as societal needs, economic conditions, and policy alignment. The consistency of the health promotion project's objectives with the identified needs of the target group and stakeholders underscored the relevance and effectiveness of the initiative.

In summary, the positive perception of the project's context by the sample group reflected the alignment of project objectives with societal needs and the proactive approach of key agencies in addressing monk healthcare in Nong Khai Province. This holistic approach, guided by clear objectives and stakeholder collaboration, laid a strong foundation for the project's success.

2. Input: The sample group expressed a highly positive opinion of the project's input, with an average rating at a very good level (\bar{x} = 4.51, S.D. = 1.44). The research findings indicated strong support from relevant departments for project implementation, including initiatives such as providing health education to monks and novices, conducting health screenings and preliminary



treatments, deploying a mobile dental unit, ensuring health insurance coverage, implementing drug prevention campaigns, and facilitating behavior change programs for monks with substance abuse issues. Additionally, training programs for temple volunteers and monks, as well as regular meetings at the Abbot, Deputy Abbot, and Assistant Abbot levels, contributed to the comprehensive approach of the project.

These findings resonate with Rodchanaarcha's (2016) study, which evaluated routine work to research projects among Sadao Hospital personnel and found high satisfaction levels regarding input factors. The results of the analysis by Ekthamasut & Jarearnsrimuang (2021) underscore the importance of assessing various factors and resources necessary for project implementation, including personnel suitability, budget support, target group involvement, lecturer expertise, availability of medical equipment, project location, and activity timelines. The information gathered during this assessment aids in planning project implementation and evaluating the feasibility and appropriateness of proposed activities.

In summary, the strong support from relevant departments and stakeholders, coupled with comprehensive initiatives and resources allocated for project implementation, highlights the robust input factors of the health promotion project among monks in Nong Khai Province. This proactive approach and investment in resources set a solid foundation for the project's success and efficacy in improving monk healthcare outcomes.

3. Process: The sample group reported a highly positive perception of the project's process, with an average rating at a very good level. The project implementation involved systematic steps, including meetings to explain operating procedures with relevant networks, community formation to identify critical issues and develop joint action plans, and the establishment of the Monks Health Statute. Continuous training sessions and knowledge-sharing meetings with monks were conducted to ensure their understanding and effective participation in project activities, which were integrated with community involvement. These findings align with Yaemlamai & Hongwiset's (2014) study, which highlighted a high level of satisfaction with the process aspect. As a result of the analysis, Stufflebeam (2022) emphasizes the importance of process evaluation in assessing project management, organizing activities, and ensuring adherence to project objectives. Similarly, Ekthamasut and Jarearnsrimuang (2021) stress the need for periodic supervision and monitoring to verify adherence to planned steps, identify challenges, and address project management deficiencies.

In summary, the systematic approach adopted in the project implementation process, coupled with regular training sessions and community involvement, underscored the effectiveness of the process in achieving project goals. Continuous monitoring and evaluation were essential to identify any deviations from the plan and address challenges promptly, ensuring the smooth execution of project activities and the realization of desired outcomes.

4. Product: The sample group expressed a positive opinion regarding the project's product, with an average rating at a good level. The health promotion initiative among monks in Nong Khai Province, targeting all monks in the region, has been consistently operational since 2016.



Key products of the project include regular health screenings for monks, provision of early treatment, annual health check-ups, behavior change interventions, dental healthcare services, screening for drug use, and the presence of health volunteer monks in temples. Moreover, monks actively disseminate health knowledge to both temple inhabitants and the broader community, fostering active participation in health management activities.

These products align with the principles of product evaluation, as described by Stufflebeam (2022) and Ekthamasut and Jarearnsrimuang (2021). Product evaluation involves assessing the achievement of project objectives, goals, and other relevant indicators, focusing on both quantity and quality. This evaluation occurs periodically throughout the project duration and culminates in a comprehensive assessment of the total project product at its conclusion.

In summary, the positive outcomes of the health promotion project among monks in Nong Khai Province underscore its effectiveness in achieving its objectives and goals. The sustained provision of essential healthcare services, coupled with active community participation, reflects the project's successful implementation and its significant impact on monk health and well-being. The ongoing Product Evaluation ensures that the project remains aligned with its objectives and continues to deliver tangible benefits to the target population.

5. Impact: The sample group exhibited a highly positive perception of the project's impact, with an average rating at a very good level. This indicates widespread recognition of the roles and responsibilities of all parties involved in project implementation, leading to continuous development and fostering positive outcomes for all stakeholders.

As highlighted by Stufflebeam (2022), impact assessment involves evaluating any changes resulting from project implementation, including both positive and negative aspects affecting the target group and broader community. The impact extends beyond individual health outcomes to encompass broader implications for public health and community well-being.

In summary, the overwhelmingly positive perception of the project's impact underscored its effectiveness in driving positive change and improvement within the monk community and the wider society. Moving forward, continued efforts will be necessary to sustain and build upon the project's achievements, ensuring its enduring positive impact on monk health and well-being in Nong Khai Province.

6. Effectiveness: The sample group perceived the project's effectiveness at a good level, indicating that the project implementation has contributed to enhancing the quality of life for monks to a certain extent. This evaluation aligns with the principles outlined by Stufflebeam (2022) and Ekthamasut & Jarearnsrimuang (2021), which emphasize assessing the quality and success of project outcomes upon completion.

Effectiveness evaluation involves determining whether the project results meet high-quality standards and align with predefined objectives. Additionally, it assesses the extent to which the project addresses the needs and requirements of the beneficiary group comprehensively. Furthermore, it considers the level of satisfaction with the project and evaluates its success over time.



In summary, the perceived effectiveness of the health promotion project among monks in Nong Khai Province indicates that it has made significant strides in improving monk's well-being and addressing their healthcare needs. Continuous monitoring and evaluation will be essential to ensure sustained effectiveness and further enhance project outcomes over time.

7. Sustainability: The sample group expressed a positive opinion regarding the project's sustainability, with an average rating at a good level. Pho Chai Temple has emerged as a learning hub and serves as a model for other temples seeking to emulate its success. The project fostered teamwork among various stakeholders, facilitating ongoing collaboration aimed at enhancing community well-being. Related agencies continued to organize numerous activities, ensuring the project's continuity beyond its initial implementation phase.

As highlighted by Stufflebeam (2022) and Ekthamasut & Jarearnsrimuang (2021), sustainability assessment involves evaluating whether the project can proceed with subsequent steps even after external support has ceased. Factors such as community needs, collective ownership, and community capacity for self-management were critical considerations in assessing sustainability. This assessment served as a practical guideline for ensuring the long-term success of the project.

In summary, the positive perception of the project's sustainability underscores its potential to endure and thrive beyond its initial implementation phase. By fostering collaboration, promoting community ownership, and building capacity, the project lays the groundwork for sustained success and continued improvements in monk health and well-being in Nong Khai Province. Ongoing monitoring and support will be essential to maintain and enhance sustainability over time.

8. Transportability: The sample group had an overall opinion of the project at a very good level. Recognizing the importance of this initiative, all departments supported its continuous operation. Consequently, a project to enhance the quality of life of monks was developed for the following year. This project focused on training to change health behaviors based on principles of proper nutrition, exercise, emotional well-being, abstinence from smoking and alcohol, and maintaining healthy dental practices. The initiative aimed to expand these positive results to other provinces through the exchange of knowledge on improving monks' quality of life.

As highlighted by Stufflebeam (2022) and Ekthamarit and Jarearnsrimuang (2021), their assessments discussed the feasibility of implementing such projects in different areas and contexts. Their assessments are particularly relevant for pilot projects or as case studies for learning and adaptation. The goal is to take the project's ideas and processes and expand or apply them elsewhere to enhance effectiveness and sustainability.

In summary, the successful transmission of the project's principles to other provinces highlights its replicability and scalability. By focusing on training in health behaviors and expanding knowledge exchange, the project had the potential to positively impact a broader population of monks. This aligns with the concept of feasibility studied and pilot projects as described by Stufflebeam (2022) and Ekthamarit and Jarearnsrimuang (2021), underscoring the importance of adaptability in different contexts.



Overall, the evaluation indicates that the prevention and control hypertension model among monks in Nong Khai Province has been well-received and has made significant strides in improving monk health and well-being. Continued monitoring, support, and community engagement will be essential for sustaining and enhancing the project's impact over time. In summary, the evaluation underscores the commendable success of the prevention and control hypertension model among monks in Nong Khai Province. Continued vigilance, support, and community involvement will be pivotal in upholding and augmenting the project's impact over time.

Originality and Body of Knowledge

1. The activities of the prevention and control hypertension model among monks in Nong Khai Province have 6 components and 20 activities. That could apply to the implementation of activities for Bhavana 4 (Kayabhavana) of physical development about hypertension prevention among monks.

Component 1: Belly Reduction: Activities aimed at reducing the belly not to exceed 90 cm, waist circumference, exercise activities that are appropriate for the monk, healthy food for monks, DASH (Dietary Approaches to Stop Hypertension) eating plan, providing a weighing machine at the temple for regular monitoring, and conducting continuous body mass index (BMI) assessments.

Component 2: Blood Sugar Control-Focuses on maintaining blood sugar levels within healthy ranges, with a target of Fasting Blood Sugar (FBS) < 100 mg/dL (NPO) and Postprandial Blood Sugar (FBS After Meal) < 180 mg/dL. This involves reducing the intake of sugary foods and beverages, as well as limiting the amount of sticky rice in the diet.

Component 3: Medication-Focuses on ensuring continuous treatment for monks with health conditions, along with regular annual health examinations to monitor overall health and adjust medication as needed.

Component 4: Blood Pressure Measurement-Involves continuous monitoring of blood pressure, with blood pressure monitors provided at the temple for regular use. This also includes reducing salt intake and limiting spicy foods, reflecting on and confirming the results, and making referrals for effective treatment when necessary.

Component 5: Health Literacy-Focuses on providing monks with knowledge about health promotion and conducting training programs for temple health promotion volunteers. This aims to increase awareness and empower both monks and volunteers to take an active role in improving health outcomes within the temple community.

Component 6: Protection & Rest-Emphasizes the importance of avoiding smoking and ensuring that monks get more than 6 hours of sleep per day to support overall health and well-being.

2. The 10 success factors for the prevention and control hypertension model among monks in Nong Khai Province have been identified. These factors include Clarity of Policy, Sector Collaboration, Mutual Understanding, Integration of operations, Administrator Emphasis, Network



and Coordination, Monitoring and Evaluation, Continuity in Operation, Faith and Confidence in Merit as summarized in Figure 1.

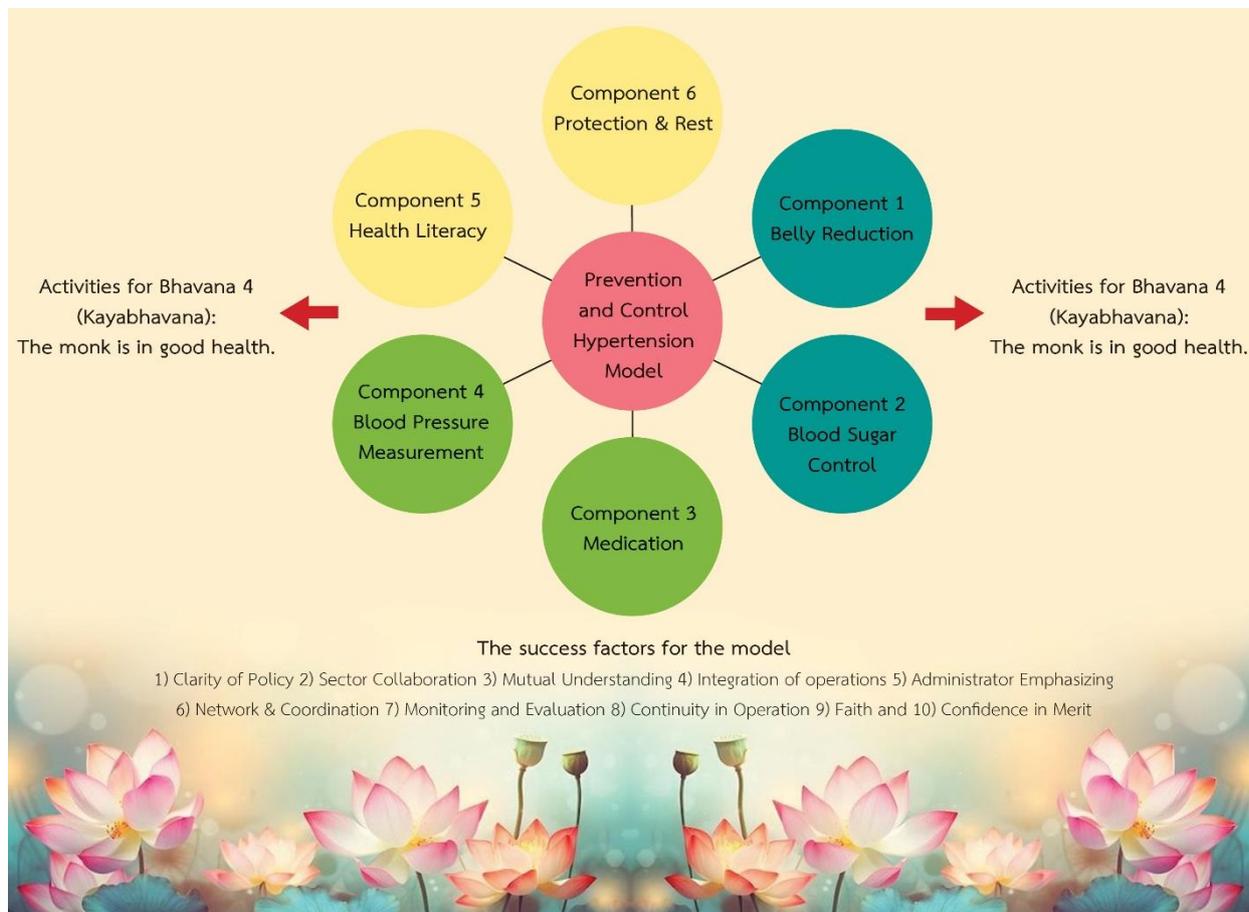


Figure 1 The prevention and control hypertension model among monks in Nong Khai Province

Conclusions and Recommendations

This research revealed the application of Buddhism in relation to Buddhist innovations for the achievement of "Healthy Monks." In addition to providing a model for promoting health for monks, it also promoted the development of monks according to the Bhavana 4 (Kayabhavana) in terms of physical development. This research concluded that risk behaviors about hypertension, such as smoking and consumption of sugary drinks and dietary intake primarily comprising starchy foods, sugar, coconut milk, and fatty foods obtained through alms, exacerbate health concerns. Moreover, many monks do not avail themselves of annual health screening services, further complicating their health status. The Prevention and Control Hypertension Model among Monks represents a pivotal intervention aimed at reshaping health behaviors to foster improved well-being among monks. Following an extensive After-Action Review involving researchers and 31 expert stakeholders, critical success factors for implementing hypertension control guidelines among monks in Nong Khai Province have been identified. These factors include establishing clarity of policy, sector collaboration, mutual understanding, integration of operations, administrator emphasizing,



network and coordination, monitoring and evaluation, continuity in operation, faith, and confidence in merit. Summary of the main points discussed regarding the evaluation of the health promotion project among monks in Nong Khai Province: Context Evaluation: The project was well-understood by relevant departments, aligned with policies, and addresses community needs. Input Evaluation: Strong support and resources are provided for project implementation, including knowledge dissemination, health screenings, and various activities. Process Evaluation: The project implementation process involved clear procedures, community involvement, and continuous training and knowledge dissemination. Product Evaluation: The project has resulted in tangible products such as health screenings, treatments, behavior change initiatives, and community participation. Impact Evaluation: Positive impacts are observed, including improvements in monk health and well-being, community engagement, and public health outcomes. Effectiveness Evaluation: The project is perceived to be effective in meeting its objectives and improving the quality of life for monks. Sustainability Evaluation: The project demonstrates the potential for sustainability through continued community involvement, organizational support, and capacity building. Transmission Evaluation: The successful transmission of the project's principles to other provinces highlights its replicability and scalability. By focusing on training in health behaviors and expanding knowledge exchange, the project had the potential to positively impact a broader population of monks.

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