Factors Predicting Self-Management Among Elderly Monks with Hypertension
ปัจจัยทำนายการจัดการตนเองในพระสงฆ์สูงอายุโรคความดันโลหิตสูง

Sutthinan	Codrington*	สุทธินันท์	คอดริงตัน*
Nattaya	Yakong**	นาตยา	ยาก่อง**
Kronthip	Inmueang**	กรทิพย์	อินทร์เมือง**
Manutsawee	Kanom**	มนัสวี	ขนอม**
Aphisit	Thananchai***	อภิสิทธิ์	ทะนันชัย***

Abstract

Self-management refers to actions taken by persons with chronic disease to improve their quality of life. This predictive correlational study aimed to describe self-management, health literacy, self-efficacy, and social support and to examine the factors predicting self-management in elderly monks with hypertension. A purposive sampling of 196 elderly monks with hypertension were recruited through health care services from the outpatient department of a university hospital. Participants responded to interview forms which included personal information and information on illness-related data records, self-management behaviors, health literacy, self-efficacy, and social support. Descriptive statistical analysis and stepwise multiple regression analysis were used to analyze the data.

The research findings indicated that the participants had self-management, health literacy, self-efficacy, and social support at a moderate level. Health literacy, self-efficacy, and social support collectively predicted self-management in the sample, accounting for 88.7% of the variance (β = 0.887, F = 15.578, $p < .001$). Health literacy was the highest predictor (β = .617, $p < .001$), followed by social support (β = .547, $p < .001$) and self-efficacy (β = .079, $p < .05$).

The findings provide foundational information to promote health literacy and social support enhancing self-management for elderly monks with hypertension.

Keywords: Self-management; Health literacy; Self-efficacy; Social support; Elderly monks; Hypertension

* Corresponding author, Lecturer, Faculty of Nursing, Chiang Mai University;
e-mail: sutthinan.cmu@gmail.com

** Lecturer, Faculty of Nursing, Chiang Mai University

*** Registered nurse, Maharaj Nakorn Chiang Mai Priest Hospital, Faculty of Medicine, Chiang Mai University

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บทคัดย่อ

การจัดการตนเอง เป็นการกระทำของบุคคลเมื่อป่วยด้วยโรคเรื้อรังเพื่อให้มีคุณภาพชีวิตที่ดี การวิจัยแบบหาความสัมพันธ์เชิงทำนายครั้งนี้ มีวัตถุประสงค์เพื่อศึกษาการจัดการตนเอง ความรอบรู้ด้านสุขภาพ การรับรู้สมรรถนะแห่งตน การสนับสนุนทางสังคม และปัจจัยทำนายการจัดการตนเองของพระสงฆ์สูงอายุโรคความดันโลหิตสูง กลุ่มตัวอย่างที่เลือกแบบเฉพาะเจาะจงเป็นพระสงฆ์สูงอายุโรคความดันโลหิตสูงจำนวน 196 ราย ที่มารับบริการแผนกผู้ป่วยนอกในโรงพยาบาลมหาวิทยาลัย กลุ่มตัวอย่างได้ตอบแบบสัมภาษณ์ประกอบด้วย แบบสัมภาษณ์ข้อมูลทั่วไปและข้อมูลความเจ็บป่วย แบบสัมภาษณ์พฤติกรรมการจัดการตนเอง แบบสัมภาษณ์ความรอบรู้ด้านสุขภาพ แบบสัมภาษณ์การรับรู้สมรรถนะแห่งตน และแบบสัมภาษณ์การสนับสนุนทางสังคม วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา และสถิติ stepwise multiple regression analysis

ผลการวิจัยพบว่า กลุ่มตัวอย่างมีการจัดการตนเอง ความรอบรู้ด้านสุขภาพ การรับรู้สมรรถนะแห่งตน และการสนับสนุนทางสังคมอยู่ในระดับปานกลาง ความรอบรู้ด้านสุขภาพ การรับรู้สมรรถนะแห่งตน และการสนับสนุนทางสังคมสามารถร่วมกันทำนายการจัดการตนเองในกลุ่มตัวอย่างได้ร้อยละ 88.7 (β = 0.887, F = 15.578, p < .001) โดยความรอบรู้ด้านสุขภาพสามารถทำนายการจัดการตนเองได้สูงสุด (β = .617, p < .001) รองลงมาเป็นการสนับสนุนทางสังคม (β = .547, p < .001) และการรับรู้สมรรถนะแห่งตน (β = .079, p < .05)

ผลการวิจัยครั้งนี้ เป็นข้อมูลพื้นฐานเพื่อส่งเสริมความรอบรู้ด้านสุขภาพและการสนับสนุนทางสังคม ซึ่งจะช่วยให้พระสงฆ์โรคความดันโลหิตสูงมีการจัดการตนเองที่ดีขึ้น

คำสำคัญ: การจัดการตนเอง ความรอบรู้ด้านสุขภาพ การรับรู้สมรรถนะแห่งตน การสนับสนุนทางสังคม พระสงฆ์สูงอายุ โรคความดันโลหิตสูง

* ผู้เขียนหลัก อาจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่ e-mail: sutthinan.cmu@gmail.com
** อาจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่
*** พยาบาลวิชาชีพ โรงพยาบาลสงฆ์แห่งโรงพยาบาลมหาราชนครเชียงใหม่ คณะแพทยศาสตร์ มหาวิทยาลัยเชียงใหม่

วันที่รับบทความ 24 ตุลาคม 2566 วันที่แก้ไขบทความ 22 ธันวาคม 2566 วันที่ตอบรับบทความ 7 กุมภาพันธ์ 2567

Background and significance

Hypertension is a chronic illness which impacts people worldwide (World Health Organization [WHO], 2023). As many countries, including Thailand, transition to being aging societies, hypertension in advanced age is becoming more common. According to the 5th National Health Examination Survey, only 29.7% of Thai individuals aged 60 and over received treatment and could control their blood pressure. However, the trend of blood pressure control had decreased to 22.6% by the 6th National Health Examination Survey (Aekplakorn, 2016, 2021). Among monks and novices with illnesses, according to the annual 2022 report of the Priest Hospital Department of Medical Service, hypertension was the most prevalent chronic disease in the outpatient department, accounting for 11% of all chronic health conditions among monks. Inadequate blood pressure management can lead to significant complications in physical well-being, such as cardiovascular disease, stroke, and renal failure. As a result, it may increase dependency among patients, psychological impacts, depressive disorders, and an increased risk of suicidal tendencies (WHO, 2023).

Maintaining normal blood pressure levels can be achieved in two ways: 1) lifestyle modification and 2) pharmacological interventions (Thai Hypertension Society, 2019). Elderly monks with hypertension must modify their behaviors, even if it means refraining from certain practices that do not align with the principles of religious discipline and following the 227 principles of Patimokkha. Monks generally do not seek medical care or access to health information due to these activities not being a part of monastic customs (Jeamjitvibool et al., 2022). Moreover, the longer the ordainment period, the stricter elderly monks are in following religious beliefs which has effects via limited access to suitable and healthy foods due to the variety of foods provided by Buddhist laypersons. Additionally, monks need physical exercise, but this can conflict with monastic customs, resulting in minimal physical activity and fitness. The mostly elderly monks may take management positions in Buddhist temples which can result in psychological problems, including stress, anxiety, and inadequate relaxation due to the workload associated with organizing the Sangha (Jeamjitvibool et al., 2022; Phanthali, 2021). Elderly monks, thus, may have difficulty controlling blood pressure, leading to worse blood pressure levels and other health complications. Consequently, keeping blood pressure levels under control is essential.

Self-management promotes and sustains personal health outcomes, supporting individuals to live with chronic illnesses. It encourages individuals to take responsibility for their well-being by learning and practicing essential skills for addressing health issues (Lorig & Holman, 2003). In this study, self-management refers to a patient's ability to manage complex health issues and adhere to prescribed treatment regimens. According to Hibbard et al. (2005), self-management can be divided into four dimensions. Firstly, role management involves adapting responsibilities to align with monastic duties and patient obligations. Secondly, knowledge management pertains to confidence, understanding medical practices, and behavioral adjustments likelier to adhere to

monastic rituals and religious discipline. Thirdly, action management focuses on acquiring the necessary skills and engaging with diverse healthcare services. Elderly monks may need to consider dietary choices that suit their health conditions, adhere to medication schedules, and engage in physical activities. Lastly, stress management involves emotional adjustment and coping with lifestyle changes and stress.

According to the literature review, the general elderly and elderly monks with hypertension engage in self-management variable factors, in addition to individual factors which do not change, such as age, education, location, year of ordination, and an individual's position in a temple (Jeamjitvibool et al., 2022). However, they are also affected by factors that can be adjusted, such as interpersonal and societal factors. The adjustable factors that relate to capacity for self-management are influenced by several variables, including 1) health literacy, 2) self-efficacy, and 3) social support. According to the literature, health literacy has been shown to have a positive correlation with self-management ($r =. 552$, $p < .001$) (Codrington et al., 2019). In addition, self-efficacy (Chasuwann et al., 2023) and social support (Jandeekaewsakul et al., 2018) were found to be factors that predicted self-management ($\beta = .386$, $p < .001$; $\beta = .368$, $p < .001$, respectively). Consequently, these three factors can help elderly monks with hypertension access health information more effectively and apply it to their self-care practices. Furthermore, these beneficial factors can contribute to the monks developing confidence in making health-related decisions, having faith in their health-related skills, and becoming proactive regarding their health. As a result, they can look for support or solutions when faced with health issues beyond their independent management, ultimately leading to more successful self-management.

Nevertheless, regarding the review of the literature, no comprehensive research explores or explains predictive self-management factors that cover key variables (health literacy, perceived self-efficacy, and social support) in the specific group of elderly monks with hypertension. This high-risk group may be more susceptible to complications than the general elderly population. Moreover, for studies related to predictive factors of self-management, it is found that most of these have been conducted with general adults and elderly populations with hypertension. This study aims to investigate predictive factors of self-management in elderly monks with hypertension.

Research objectives

1. To describe self-management, health literacy, self-efficacy, and social support among elderly monks with hypertension.
2. To examine predictive factors (health literacy, self-efficacy, and social support) of self-management in elderly monks with hypertension.

Conceptual framework

Self-management based on Hibbard's model was used to guide this study which was divided into four dimensions: 1) role management, 2) knowledge management, 3) action manage-

ment, and 4) stress management. In this study, the adjustable factors were used to predict factor variables that relate to capacity for self-management. Firstly, health literacy skills enable patients to access health information, comprehend it, and apply it to self-care, and help individuals seek methods to analyze and make informed decisions, choosing appropriate solutions to address their problems (Nutbeam, 2000). Secondly, self-efficacy of one's personal competence enhances confidence in decision-making skills and drives changes in self-management behaviors (Bandura, 1977). Furthermore, social support factors are related to the accessibility of assistance resources and partnerships with healthcare personnel (Cobb, 1976; Schaefer et al., 1981). All three factors positively correlate with self-management behaviors and may predict or jointly predict self-management behaviors among elderly monks with hypertension.

Methodology

This predictive correlational research was designed to examine the predictive factors of self-management among elderly monks with hypertension.

Population and sample

The population included elderly monks aged 60 years and above diagnosed with hypertension.

The research sample, likewise, included elderly monks aged 60 years and above diagnosed with hypertension, and was determined through power analysis, setting a power value of 0.80. The effect size was derived from Chasuwann et al. (2023), in which a similar population of elderly with hypertension and three predicting factors, including health literacy, self-efficacy, and social support, reported an R Square value of 0.696 ($F = 9.324$, $p < .001$). The effect size was subsequently calculated to be 2.289 using the G* power software. However, this effect size was too large for the new study. Hence, this study used a medium effect size of 0.15 for nursing research (Gray & Grove, 2021). The statistical test chosen for analysis was the test family F-test within the framework of linear multiple regression, with a fixed model and R^2 deviation from zero. The significance level (alpha) was set at 0.01, the power was set at 0.95, and the number of predictors was three. Finally, the sample size calculated by the G* power software was 157, with 25% added to the calculated sample size (Gray & Grove, 2021), resulting in a total sample size of 196 people who were recruited from the Priest Hospital in Chiang Mai with purposive sampling.

The inclusion criteria consisted of people who were elderly monks diagnosed by a physician for at least six months who had taken antihypertensive medication, demonstrated the ability to perform daily activities independently, had intact cognitive abilities, were able to be understood and communicate in Thai, and were willing to participate in this research study.

Research instruments

1. The personal information and illness-related data record included items on age, years being a monk, formal education, and religious educational levels, temple location, healthcare service sources, health-related information sources, and medical history. This tool also gathered information regarding the duration of hypertension diagnosis, co-existing medical conditions,

medications used for blood pressure control, previous blood pressure levels (three most recent times), and hypertension-related complications.

2. The self-management behaviors interview form for elderly monks with chronic disease consisted of 13 questions and was developed from the Patient Activation Measure (PAM) developed by Hibbard et al. (2005) and translated into Thai by Pidet et al. (2019). Some modifications were made in terminology and content to make them more appropriate for elderly monks. This questionnaire used a 4-point rating scale for the 13 questions with a total possible score between 13 to 52. The questionnaire's content validity index (CVI) was found to be .93, and internal consistency, measured by Cronbach's alpha coefficient, was calculated as .80.

3. Regarding the health literacy interview form for elderly monks with chronic diseases, the researchers adopted this questionnaire by modifying the term "hypertension" to "chronic diseases." The tool was derived from the health literacy interview for elder monks with hypertension conducted by Codrington et al. (2019), based on Nutbeam's health literacy concept (2000). This questionnaire is a 4-point rating scale of 14 positive and negative practice questions with a possible score between 14 and 56. This questionnaire's content validity index (CVI) was .97, and its internal consistency, measured by Cronbach's alpha coefficient, was .81.

4. The self-efficacy interview form for elderly monks with chronic diseases was developed from the self-perceived efficacy questionnaire for self-management behavior of elderly individuals with hypertension created by Thatseng et al. (2012) which, in turn, was based on Bandura's concept (1977). The researchers adapted and modified terminology and content for some questions to be more suitable for elderly monks. This questionnaire used a 10-point rating scale for 10 questions with a possible score between 10 to 100. This questionnaire's content validity index (CVI) was .93, and its internal consistency, measured by Cronbach's alpha coefficient, was .82.

5. The social support interview form for elderly monks with chronic diseases was adapted from the Social Support Questionnaire for Elderly Members of the Elderly Association, created by Wongsuwan et al. (2020), based on the social support concepts of both Cobb (1976) and Schaefer et al. (1981). The researchers modified terminology and content for some of the original questions to better suit elderly monks. A 4-point rating scale was used for the 16 questions with total possible scores between 16 to 64. The questionnaire's content validity index (CVI) was .91, and its internal consistency, measured by Cronbach's alpha coefficient, was .80.

Ethical considerations

Researchers carried out protection of the sample group's rights by obtaining approval from the Research Ethics Committee of the Faculty of Nursing, Chiang Mai University, with reference numbers 082/2566, and from the Research Ethics Committee of the Faculty of Medicine, Chiang Mai University, with reference numbers 327/66. Documents were processed to ask for permission to collect data from Maharaj Nakorn Chiang Mai Hospital. Before collecting data, the researchers had the participants sign informed consent forms before participating in the study. The partici-

pants could withdraw from the study without any impact on their healthcare or services, and the collected data would be kept confidential and anonymous.

Data collection

The researchers collected data by obtaining permission from the Dean of the Faculty of Nursing at Chiang Mai University and the directors of Maharaj Nakorn Chiang Mai Hospital. After that, the head of the outpatient department at Priest Hospital in Chiang Mai was appointed to meet to clarify research objectives and provide approval for data collection. In this study, research assistants who were trained by the primary investigator were responsible for screening and collecting the questionnaire data.

These research assistants were selected based on predefined qualifications. They received training on the data collection process, which included piloting and return demonstrations of the interview to ensure accurate data collection. After meeting with participants, eligible and potential participants were approached to explain the research objectives and benefits of the study. After the informed consent form was sent and signed, the participants were invited to have a 30-minute interview privately, using various prepared questionnaires. All data was kept securely and could be accessed only by the research team. After finishing all data analysis, all documents will be destroyed two years after publication.

Data analysis

Statistical analysis uses descriptive statistics to analyze personal and illness-related data. Furthermore, all variables were examined for normal distribution of social support, health literacy, self-efficacy, and self-management before the data analysis. The results of normality distributed testing using Kolmogorov-Smirnov shows Asymp Sig (2-tailed) at .409, .259, .084, and .196 respectively. Moreover, checking the initial assumptions for stepwise multiple regression analysis with multicollinearity of health literacy, self-efficacy, and social support with tolerance values showed .879, .814, and .921 (not lower than .208). Furthermore, the scatter plot showed homoscedasticity, and the regression standardized residual showed a normal probability plot. Hence, they all met the initial assumptions according to Gray and Grove (2021). This study used a statistical significance level of .01.

Results

In this study, the mean age of the participants was 69.5 years (SD = 7.77) with an age range between 60 and 69 years constituting 45.4% of the total participants. The majority had a secondary school educational level (n = 68; 34.7%). Most participants had between a 1- and 5-year duration of hypertensive diagnosis (n = 75; 38.3%). Most elderly monks (n = 164; 83.7%) could manage their blood pressure levels effectively. The mean scores for self-management, health literacy, self-efficacy, and social support were moderate (Table 1).

Table 1: Interview Scores, Score Ranges, Distribution, and Levels of Self-management Behaviors, Health Literacy, Self-efficacy, and Social Support in the Sample Group (n = 196)

Variable	Scores	Ranges	M	SD	Levels
Self-management	13-52	18-52	35.45	6.87	Moderate
Health literacy	14-56	17-48	33.40	6.59	Moderate
Self-efficacy	10-100	38-88	61.06	11.24	Moderate
Social support	16-64	18-64	44.09	10.75	Moderate

Variable correlation of self-management with health literacy, self-efficacy, and social support in elderly monks with hypertension showed .683, .446, and .612 ($p < .001$), respectively. The multiplicative interaction coefficient (R^2) was 0.887, indicating that these variables jointly predicted self-management by 88.7%, a statistically significant finding ($p < .05$). When considering the standardized regression coefficients of predictors, health literacy was the highest potent predictor of self-management at 61.7% ($\beta = .617$, $p < .001$), followed by social support at 54.7% ($\beta = .547$, $p < .001$), and self-efficacy at 7.9% ($\beta = .079$, $p < .05$) (Table 2).

Table 2: Raw Score Factor Correlation (r) Regression Coefficients (b) and Standardized Coefficients (β), Constants, and Standard Error of Prediction for Self-Management Prediction

Variable	r	b	Std. Err	β	t	p
Health literacy	.683*	.644	.037	.617*	17.572	.000
Self-efficacy	.446*	.048	.022	.079**	2.158	.032
Social support	.612*	.349	.022	.547*	15.933	.000

*$p < .001$, **$p < .05$ $R^2 = .887$, $F = 15.578$

Discussion

1. The study's findings regarding self-management among elderly monks with hypertension reveal that most of the sample group demonstrated a moderate level of self-management in four key dimensions: 1) roles, 2) knowledge, 3) practices, and 4) coping with stress. Most had completed secondary school. However, even though they had studied more in-depth on topics such as the advantages of medication or the mechanics of illness, their additional knowledge regarding self-care needs to be improved. This is because monks who adhered to their beliefs lacked the necessary resources for self-care which is partly attributed to the fact that participants had an average age of 69.5 years. They believed in the facts and the nature of aging and illnesses, while at the same time aiming to lead a simple life.

Furthermore, elderly monks strongly believed in adhering to medical treatment plans and managing problems or stress. In this study, participants' average duration of illness was 1-5 years, which allowed them to adapt their health behavior to a treatment plan without conflicting with their monastic obligations. Additionally, when receiving food from Buddhists or practicing religious rituals on different occasions, they had to eat the food attentively, making it difficult for them to decline any offerings (Codrington et al., 2019). In a study of 88 participants, it was found that the self- management of elderly monks with hypertension was at a moderate level, revealing limitations in their self-management since monks have to follow a collective monastic schedule, making it difficult for them to select their own food choices (Codrington et al., 2019).

2. In this study, health literacy was moderate, unsurprisingly, as the monks' average age was 69.5 years with the formal education of secondary school. They had no communication limitations regarding writing, seeing, or hearing and could understand and follow medical professionals' advice to promote behavioral change. However, there were still constraints in data analysis due to limited access to credible information sources. The participants received health-related information primarily through word-of-mouth conversations. Furthermore, elderly monks, who are devout in adhering to the principles of Buddhist ethics, strictly follow the monastic discipline. In cases where medical advice contradicts these principles, they willingly leave any treatment plan without negotiation or collaborative planning with medical professionals (Atijitta, 2020).

These findings align with Codrington et al. (2019) which investigated self-management among 88 elderly monks with hypertension receiving outpatient care in hospitals in Chiang Mai province and found that the health literacy of elderly monks with hypertension fell within the moderate range, demonstrating limitations in their health literacy and their level of rationality due to their reliance on health information from experts or non-standard health sources. However, since these activities are not significant for monks in terms of their monastic duties or obligations, they do not express concern about them. This lack of consideration for the credibility of health information received hampers their decision-making process regarding behavior change (Codrington et al., 2019).

3. The self-efficacy of the elderly monks in this study was moderate. This is possibly due to the fact that monks generally have to accept food choices provided by Buddhist laypersons although they may prefer to have healthier foods. Additionally, they have limitations on their physical exercise because they have to follow monastic rituals (Jeamjitvibool et al., 2022; Srimantayamas et al., 2020).

4. The monks in this study had a moderate level of social support. This support primarily came from their immediate social circle, including fellow monks and relatives, and it was characterized by consistent care for their health status, regular expressions of concern, and continuous acceptance and respect. Elderly monks were consulted as advisers for temple activities and religious functions, and they consistently received support in the form of the Four

and Eight Requisites and appropriate material items, as per monastic discipline. However, despite this solid social support network, elderly monks with hypertension lacked active engagement in health management due to a lack of confidence in the information they possessed (Jeamjitvibool et al., 2022).

Elderly monks also had limitations on their access to various sources of assistance if they had health-related questions and had to wait for someone to accompany them to medical appointments (Srimantayamas et al., 2020). These findings align with a study by Yossongkram et al. (2021) which investigated factors influencing health promotion among monks under the jurisdiction of Phibun Rak district, Udon Thani province. Creating agreements shared with the community to promote healthier behaviors can dramatically enhance monks' health.

5. Health literacy, self-efficacy, and social support could predict self-management in elderly monks with hypertension; if monks diagnosed with hypertension possess basic health knowledge, enhance their self-efficacy levels, and have a good social support system, they might better manage caring for themselves. In this study, health literacy was the strongest predictor for self-management, meaning that good self-management requires having good health literacy. Elderly monks can enhance their health literacy by searching for helpful health information via trustworthy web sources (Thammarot et al., 2021).

Furthermore, social support is also a good and strong predictor of self-management in elderly monks. This is an interesting point regarding Buddhists' awareness in providing various kinds of food to monks, especially elderly monks. In terms of social support, Buddhist laypersons should consider the types of food they offer to monks. This will help improve monks' self-management behaviors, especially for elderly monks. A previous Thai study reported that better social support could predict health-promoting behaviors (Sukrueangkul et al., 2017), implying that good social support might be helpful for self-management in elderly monks.

While health literacy was the strongest predictor of self-management behavior in elderly monks with hypertension, this variable depended on the individual elder monk. Social support seemed to be an interesting predictor of self-management behavior to facilitate health behavior change along with health literacy to help control blood pressure levels more effectively despite being a weaker predictor than health literacy. Although self-efficacy in this study was a good predictor for self-management under some limitations in the monks' context, it should be promoted in this population to encourage better self-management behaviors.

Application of research findings

Healthcare professionals can encourage the self-management of personal and interpersonal skills among elderly monks through health literacy enhancement. In addition, healthcare practitioners taking the role of social support could share helpful information with Buddhist laypersons living close to the temple to raise awareness of providing various kinds of food to benefit elderly monks' health. This not only helps Buddhists gain more nutritional knowledge when providing food to elderly monks but also facilitates elderly monks diagnosed with

hypertension with good health literacy to have better self-management behaviors to better control their blood pressure.

Recommendations for future research

This study did not cover elderly monks with other chronic health conditions, such as diabetes or other comorbidities. Factors influencing self-management in elderly monks having other chronic health conditions should be further explored to develop better approaches resulting in benefits to elderly monks' health.

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