



## Alternative Health Care among Type 2 Diabetes in Indonesia and Thailand: a Scoping Review

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### ABSTRACT

**Introduction:** The prevalent rate of diabetes is increasing among the world and ASEAN countries itself. The treatment using alternative health care (AHC) is one of exist medication among diabetes patients. In addition, the evidence on the management of diabetes through the use of traditional medicine has not been addressed before. **Objective:** The purpose of this scoping review was to review and summarize the AHC therapies in literature that are the most well-known and successful for glycemic control complication and the burden among diabetes patients in ASEAN countries. **Methods:** To access all studies and articles related to the scoping review's aim, seven databases were searched. The seven data based included PubMed, ProQuest, ScienceDirect, SCOPUS, Google Scholar, the Cochrane Library, and CINAHL unlimited until August 12, 2023. The search method used keywords "diabetes", "alternative health care", "ASEAN" and "Indonesia", modifying the search statements of these phrases so that they were compatible with the various databases. **Results:** The result of study after critical appraisal using JBI critical appraisal checklist for RCT were found three kinds of alternative health care for diabetes patients, first herbs or traditional medication which are herbal extract of cinnamon bark powder 3%, pandan leaf 6%, and bay leaf 9% and herbs extract of breadfruit life, second community care, there is CIIC (Community Integrated Intermediary Care), and third, mind and body therapies such as acupuncture, acupressure and message. **Conclusion:** The utilization of AHC (Alternative Health Care) has demonstrated its efficacy in the management of diabetes, leading to enhanced clinical outcomes and a decrease in both blood glucose levels and associated burdens. Despite the scarcity of empirical data, it is widely acknowledged that the recommended therapeutic interventions yield advantages in inducing relaxation, which subsequently contributes to the alleviation of stress.

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## 1. INTRODUCTION

Diabetes continues to be a serious medical problem due to the rising frequency of the condition across the world and the direct connection between persistently high blood sugar levels and obesity, liver disease, and a number of other cardiovascular problems (Dahlén et al., 2022). It is anticipated that the number of people living with diabetes would increase from 537 million in the year 2021 to 670 million in the year 2030 and 785 million in the year 2045 (Schwartz et al., 2023). Diabetes is a long-term condition that can be caused by either an insufficient amount of insulin being secreted by the pancreas or an inadequate amount of insulin being used by the body. The risk of type 2 DM is determined by interplay of genetic and metabolic factors. Patients with type 2 DM have a higher risk of death from cardiovascular causes compared with their nondiabetic counterparts (Fan, 2017). This chronic health problem damage organ functions and cause other serious chronic diseases, resulting in life threatening and burden health conditions.

The treatment of diabetes is fraught with a great number of difficulties (Whittemore et al., 2019). The growth in diabetes, particularly in developing nations, and the adverse effects associated with pharmaceutical antidiabetic treatments have highlighted the need for more effective, safer, and cheaper management techniques. Diet, exercise, and other lifestyle changes may postpone or prevent diabetes where only 50% of chronic illness patients follow lifestyle interventions, that is the growth in diabetes, particularly in developing nations, and the adverse effects associated with pharmaceutical antidiabetic treatments (Gupta et al., 2017). Antihyperglycemic medicine is the first-line treatment for diabetes mellitus; however, this traditional treatment has side effects; hence, alternative health care (AHC) is beginning to emerge as a therapeutic option for chronic disorders like metabolic disorder (Richter et al., 2023).

In the past ten years, there has been a considerable rise in the usage of alternative and complementary medicine around the globe for the treatment of diseases such as diabetes. According to statistics, as much as 72.8% of people who have diabetes have utilized herbal medication, nutritional supplements, and alternative and complementary medicine therapies (Gupta et al., 2017). Alternative health care is utilized instead of traditional treatment, whilst complementary medicine is used in conjunction with conventional treatment (Kemppainen et al., 2018). At least four billion people in poor countries utilize medicinal plants as a treatment for metabolic illnesses such as diabetes; hence, medicinal plants, vitamins, and vital components that possess anti-hypoglycemic effects continue to be necessary for the management of diabetes (Yedjou et al., 2023).

The utilization of AHC as a therapy for diabetes has gained popularity in recent years as a result of the fact that it is associated with a low risk of complications and a low overall cost of treatment. Additionally, alternative health care is now an alternative that may be explored when cultural and psychological elements, health views, and religious values are taken into account (Y. Sari et al., 2022). Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam, all of which are members of the Association of Southeast Asian Nations (ASEAN), recently held conferences with the following goals in mind: first, to strengthen local or international collaboration in the areas of developing herbal medicines, ensuring the quality of alternative health care products and services, standardizing academic and skills pathways, and sharing information; and second, to share information to increase the number of people who have access to alternative health care (Pimentel-paredes, 2018).

In recent years, a growing number of researchers have been exploring more conventional methods of diabetes therapy in an effort to better control the condition. It has been observed that the use of herbs as part of a treatment plan for diabetes in persons living in the community can be effective (Kooti et al., 2016). The use of traditional medicine, on the other hand, is only supported by a limited amount of data and needs a great deal more research before it can be considered clinically effective. As a result of the fact that many researchers are still trying to determine the origin of diabetes as well as the appropriate therapy for it, there is currently a paucity of data about the many approaches for treating diabetes in general (Marín-Peñalver et al., 2016). In addition, the evidence on the management of diabetes through the use of traditional medicine has not been addressed before. The scoping review is needed to scope the part of alternative health care that can be used in diabetes people. ASEAN nations have a substantial capacity for research and development cooperation in the field of traditional medicine due to their shared medicinal culture, abundant medicinal biological resources, comparable geographical and natural environments, and complementary medicinal resources and consumption markets (Liu, 2021a). The purpose of this scoping review is to review and summarize the AHC therapies in literature that are the most well-known as part of AHC that can be classified to be AHC. This scoping review explained the kinds of AHC among diabetes in ASEAN countries.

## **2. METHODS**

### **Research Design**

A scoping review with narrative summary was undertaken. The authors conducted the review using the searching statement, screening, review, standardized critical appraisal. Our processes were started by formulating the review question and aim, defining the inclusion and exclusion criteria, keyword for databases, and identify the studies from databases. The protocol conduct the scoping review as published and have OSF registration with registration DOI <https://doi.org/10.17605/OSF.IO/R74G8>.

### **Search Strategy**

To access all studies and articles related to the scoping review's aim, seven databases were searched. The seven data based included PubMed, ProQuest, ScienceDirect, SCOPUS, Google Scholar, the Cochrane Library, and CINAHL unlimited until August 12, 2023. The search method used keywords "diabetes," "alternative health care" "ASEAN" modifying the search statements of these phrases so that they were compatible with the various databases. The detail keywords shown in the table 1.

### **Inclusion and Exclusion Criteria**

Cross-checking the reference lists of the studies that were qualified for inclusion and the reviews that were pertinent was also done in order to find other research that could be relevant. This research used empirical and research papers that were evaluated using PRISMA-ScR in order to improve the fidelity of the reporting and optimize the overall process. The publications that do not contain the whole paper will not be considered for inclusion in this review; however, this decision will be made only after the researcher has made every effort to acquire the full text. Only the English languages was considered for this investigation.

There are some criteria to include studies for this scoping review. There are some criteria for eligible articles, types of study: this study only included clinical study that is randomized controlled trials (RCTs) and quasi- experiment and/or experiment. Types of participants: the participants from studies are type 2 diabetes patient with or without diabetic foot ulcer (DFU) with aged more than 18 years old. Types of intervention and comparator: all type of alternative health care (AHC) such as herbs, mind-body therapies, model care were considered in this review. Co-intervention of conventional treatment was also eligible. There were no restrictions on the type of comparators if any. Outcome measures: all studies that reported the effect of intervention on the RCTs outcomes of type of AHC were.

**Table 1. Databases and Keywords**

No	Database	Keywords	Articles	Access Date
1	Pubmed	((((Diabetes Mellitus, Type 2 OR Diabetes Mellitus OR Lipoatrophic) AND (Alternative health care) AND (Diabetes medication) AND (Diabetes Intervention))))	662	July 13, 2023 V
2	ProQuest	diabetes AND alternative health care AND asean	410	August 12, 2023
3	Scient Direct	diabetes AND alternative health care AND asean	94	August 12, 2023
4	SCOPUS	(diabetes AND alternative AND health AND care OR traditional AND care OR complementary AND care AND a sean OR indonesia)	17	August 10, 2023
5	Google Scholar	"diabetes" OR "type 2 diabetes" OR "high blood sugar" OR "insulin insufficiency" AND "diabetes alternative health care" OR "diabetes traditional medication" OR "diabetes herbs" OR "diabetes traditional AND asean OR Indonesia	16	August 12, 2023
6	Cochrane Library	diabetes in Keyword OR "type 2 diabetes" in Keyword AND alternative health care in Keyword OR traditional medication in Keyword OR asean in Keyword	224	August 12, 2023
7	CINAHL	diabetes AND alternative health care OR complementary medication AND asean	579	August 12, 2023

### Study Selection and Quality Assessment

Two researchers conducted separate searches of the databases and read through all of the titles and abstracts of the studies to look for ones that could be relevant. It was decided to retrieve the full-text versions of the papers that could be suitable and then personally review them based on the inclusion criteria. To elevate the quality of final results, critical appraisal was applied to screen and assess the quality of selected studies. The JBI critical evaluation instrument was utilized by two researchers in an independent manner to evaluate the potential for bias in RCTs and experiments study. The writers of both of the featured pieces contributed to the conversation that followed. The authors conducted article screening and review. They began by assessing whether or not the studies satisfied the inclusion and exclusion criteria. The chosen articles were subsequently evaluated using their corresponding JBI criteria. In order for an item to qualify for review, the author assigned a minimum of 50% affirmative ratings (example "yes") to it (Banharak et al., 2021).

### Data Extraction and Analysis

Study design, sample size, age range, diabetes duration specifics of the interventions and/or comparators, intervention types (AHC type), duration or frequency AHC, dosages, outcome

measures, and adverse events were some of the data that were gathered from the included studies. During the data extraction process, a standard data extraction form was utilized, and the name of each study was listed after the last name of the first author along with the publication year. The analysis of the data was done wherever it was feasible. The calculation of the P values was included in the report. The tabular and narrative descriptions of the results come from the studies that were included. Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) was utilized in the reporting of this review.

### 3. RESULTS

#### Characteristics of Included Studies

The results of our search in the database were in the year 2014 are 1989 articles and we evaluated the full-text versions of six articles that could be relevant. The inclusion criteria are met by all six of the papers. Data extraction table (Table 2) provides extensive information on the features of the studies that were taken into consideration. All of the studies are randomized controlled trials, and the participants all had diabetes and were above the age of 18. Some reasons that study exclude from this study are there are not type 2 diabetes patients, the articles are not RCT or experiments or quasi experiment study, there are not provide full text study. The number of articles from initial searching, excluded articles with reasons, and final included studies for review, are demonstrated on the PRISMA Flowchart (Figure 1).

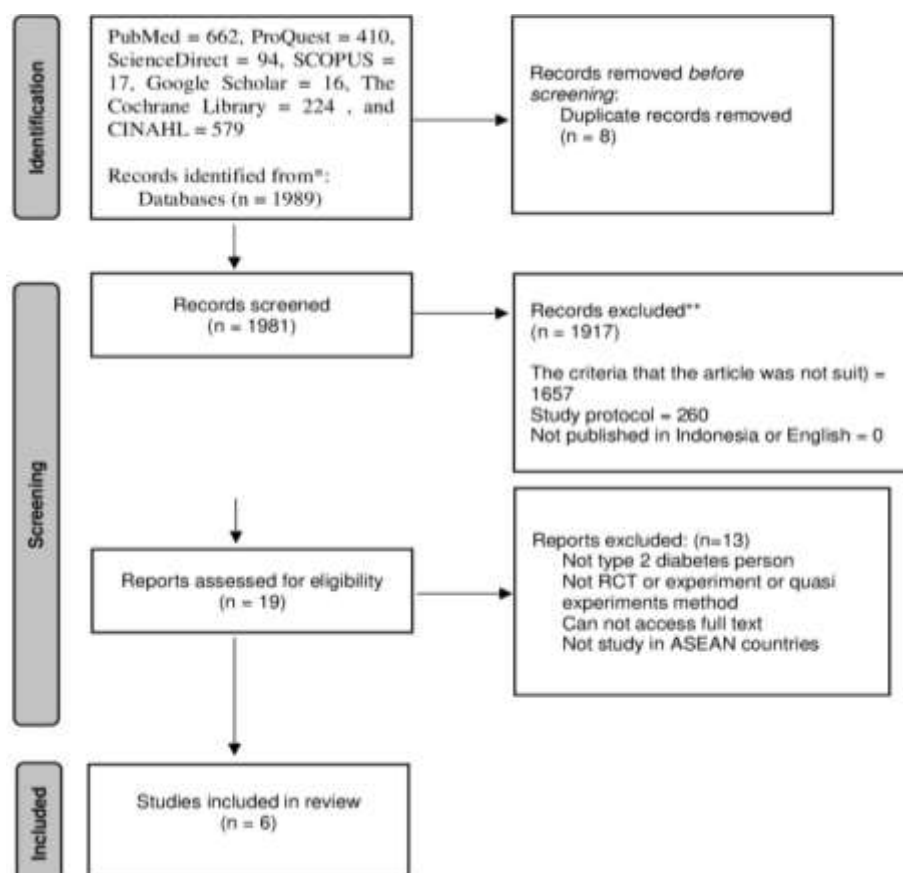


Figure 1. The PRISMA Flow Chart of the Review Process and Results

**Table 2. Data Extraction**

No	Author, Year, and Countries of Studies	Aim	Study Type	Sample Size (n)	Age	Sex (M/F)	Diabetes Duration	Intervention/Comparator Treatment	AHC type (Herbs)	Doses/Duration	Frequencies/Duration of Program	Outcome Measures	Results	Adverse Event
1.	Yulianto et al. (2018) Indonesia	To evaluate content of resistant starch, and glycemic index of Cr - fortified - parboiled rice (Cr-PR) coated with herbal extracts.	Quise experiment	5	NR	NR	NR	Herbal extracts/ Resistant starch	Traditional medication (Herbs)	Cinnamon bark powder 3%, pandan leaf 6%, and bay leaf 9%	Once in a day	Cr-PR coated with a herbal extract type of 3% had higher RS levels than the ones with herbal extracts of 6% and 9% (P <0.05). The highest RS content (8.84%) was attained by the rice which was coated with 3% cinnamon extract of 3%. The rice's GI ranged 29 - 40. The lowest GI (29-30) was attained by the Cr-PR coated with cinnamon extract of 6-9% The low GI of Cr-PR may be more influenced by the potential of polyphenolic compounds in the herbal extract than its RS levels.	Herbal extracts may be more influenced by the potential of polyphenolic compounds in the herbal extract than its resistant starch levels.  Cr-PR coated with extract of cinnamon, pandan and bay leaves can be used as an alternative diet food for diabetics, because it has low GI value or slowly increases blood sugar level.	Herbal extract have low glycemic Index and effect to lower blood sugar levels
2.	Ulandari et al. (2023) Indonesia	To assess the effect of giving Breadfruit Leaf Extract on reducing Fasting Blood Sugar among type 2 Diabetes Mellitus Patients.	Quise experiment	39	Average is about 46–55 for both group	10/29	1-4 years	Breadfruit life extract/ not give the herbs just health education	Traditional medication (Herbs)	500 mg per capsule	Once in a day	Effective effect	Significant effective in fasting blood sugar (FBS) P value= 0.000 The study found that the extract had a significant effect in reducing fasting blood sugar levels, suggesting its potential as an alternative treatment for diabetes	NR
3.	Tjipto, Saputra, and Sutrisno (2014) Indonesia	To evaluate the effect of acupuncture on insulin and blood glucose levels in patients with type 2 DM.	RCT	43	51-60/51-60	22/21	NR	Acupuncture	Acupuncture	20 minutes	Once per day	Laboratory examinations for Fasting Plasma Glucose (FPG) An oral glucose tolerance test (OGTT), Fasting plasma insulin	Both groups showed significant decreases in fasting plasma glucose and oral glucose tolerance test levels after 10 days of acupuncture.	NR

**Table 2. Data Extraction (Continued)**

No	Author, Year, and Countries of Studies	Aim	Study Type	Sample Size (n)	Age	Sex (M/F)	Diabetes Duration	Intervention/Comparator Treatment	AHC type	Doses/Duration	Frequencies/Duration of Program	Outcome Measures	Results	Adverse Event
4.	Aung et al. (2022) Thailand	To evaluate the effectiveness of the community integrated intermediary care (CIIC) CIIC model in Chiang Mai, Thailand.	RCT	2,788	More than 60 years	NR	NR	This community-integrated intermediary care (CIIC) model/regularly care	Community model care	NR	NR	The primary outcome measured in this study evaluating the CIIC model was the family caregiver's burden at the 6-month follow-up. The Caregiver Burden Inventory (CBI) was used to measure the caregiver burden	The effectiveness of the CIIC model in reducing family caregiver burden was demonstrated in the study. The proportion of families with reduced caregiver burden at the 6-month follow-up was higher among the intervention group compared to the control group. However, specific statistical measures of effectiveness, such as effect size or p-values, were not provided in the study report.	NR
5.	Chatchawan et al. (2015) Thailand	To investigate the effects of Thai foot massage on balance performance in diabetic patients with peripheral neuropathy.	RCT	60	40 – 70 years	30/30	7 – 8.5 years	Thai foot massage/foot self-care	Massage	30 minutes	Each 2 or 3 weeks	The effects of Thai foot massage on balance performance, range of motion, and foot sensation in diabetic patients with peripheral neuropathy. The results showed that Thai foot massage led to significant improvements in these areas compared to a control group.	The main findings of the study were that Thai foot massage had immediate and long-term effects on balance performance in diabetic patients with peripheral neuropathy.	NR
6.	Fitrullah and Rousdy (2017) Indonesia	To evaluate the effectiveness of Acupressure at the Zusanli (ST-36) Acupoint as a Comfortable Treatment for Diabetes	RCT	30	NR	6/14	NR	Acupressure/none	Acupressure	30 minutes	1 – 3 times in a week	Effective rate	Acupressure at ST-36 was effective in reducing blood sugar (P Value= 0.000)	NR

NR: Not Reported

## Details of Intervention

Interventions in this study included 1) herbs or traditional medicine such as first, herbs extract of Cinnamon bark powder, pandan leaf, and bay leaf, second, Breadfruit life extract. The herbs of breadfruit life extract use in 500mg per-capsule that consume in once in a day without comparison. 2) Community care such as CIIC, The other is community care that use integrative system of community which is effective care than regular care where provide to decrease time dependence burden, developmental burden, physical burden, social burden and emotional burden of diabetes patients. 3) Mind and Body therapies such as acupuncture, acupressure and massage. In herbs of herbs extract of cinnamon bark powder compare with resistant starch for once in a day. The last type of intervention is mind and body therapy include acupuncture for 20 minutes intervention of once in a day without comparison, acupressure without comparison for 30 minutes per intervention and can be done 1 – 3 times in a week. Massage compared with self-care that can be done around once in 2 or 3 weeks with 30 minutes massage intervention. The summarized details of all study were provided (Figure 2). Moreover, details of each intervention are demonstrated as following

### Herbs (Traditional Medication)

The widespread belief that herbal medicines are devoid of adverse effects has resulted in an increase in their utilization as a substitute for conventional medicine. Diabetic patients may employ herbal medicine and traditional medicine as forms of complementary and alternative medicine. This is due to the fact that traditional medicine provides a multitude of benefits, such as reduced exposure to adverse effects associated with pharmaceutical medications, efficacy in managing chronic ailments, increased accessibility, affordability, and cultural legitimacy (Utomo et al., 2022). From this study, explained two kinds of herbs that can help to decrease blood glucose number.

#### Herbal Extract of Cinnamon Bark Powder 3%, Pandan Leaf 6%, and Bay Leaf 9%

Research on medicinal plants' potential to develop new drugs and treat diabetes is growing. Synthetic medication side effects include severe hypoglycemia, abdominal pain, and lactic acidosis are the main worry (Nazareno et al., 2022). Cinnamon extracts have dose-dependent anti-diabetic effects in animal models of type 2 diabetes mellitus. Its anti-diabetic effects include multiple mechanisms. Cinnamon extract is tested as an anti-diabetic drug in diabetes rat models. The study explored that herbal extracts may be more influenced by the potential of polyphenolic compounds in the herbal extract than its resistant starch levels (Yulianto et al., 2018). The study used herbs extract that give to patients once in a day and potential to decrease the blood glucose number.

#### Breadfruit Life Extract

Breadfruit leaves extract contains polyphenols which can increase antioxidant activity by increasing levels of cellular antioxidant enzymes, such as superoxide dismutase (SOD), catalase and glutathione peroxidase (D. R. A. P. Sari et al., 2020). The study explained that herbs extract of breadfruit life is effective for blood sugar that contain 500 mg per capsule and consume for



once in a day (Ulandari et al., 2023). The other study supported that the addition of powdered leaves of breadfruit into cooking oil Mandar influential in glucose levels and normalize blood cholesterol levels in mice (Mu'nisa et al., 2018).

### Community Care

Having diabetes and its adverse effects on problems across all emotional questions (EQ) dimensions is an important and alarming feature for public health practitioners, not only to prevent complications of Non-Communicable Diseases (NCDs) but also to promote active and healthy aging with increased healthy life expectancy (Aung et al., 2022). The study explained that the effective care for diabetes patients were using community care such as CIIC that helps to decrease time dependence burden, development of complication burden, physical burden, social burden, and emotional burden with is potential to be used in long time care (Aung et al., 2022). The CIIC service intervention model is a combination of formal care and informal care in a subdistrict setting consisting of three components: (1) care prevention delivered as community group exercise and home exercise; (2) care capacity building of the family caregiver; and (3) community respite service. The primary outcome was family caregivers' burden at 6-month follow-up, and secondary outcome was activities of daily living.

### Mind and Body Therapies

Diabetes causes severe mental anguish. It is crucial to prioritize the physical, emotional, and psychological well-being of individuals with diabetes. Meditation practices have been assessed for their complimentary function in treating chronic illnesses such as depression, anxiety, obesity, hypertension, cardiovascular disease, and diabetes. The meditation reduces stress and negative emotions and improves patient attitude, health-related behaviour and coping. Reduced sympathetic vascular tone, stress chemicals, and enhanced parasympathetic activity with inflammatory markers (Priya & Kalra, 2018). This study found that three kinds of mind and body therapies such as effective of mind and body therapies included acupuncture, acupressure, and massage that significant effective for decreasing blood glucose number and complication.

### Acupuncture

Numerous patients treat diabetes with a combination of conventional medication and acupuncture. Acupuncture offers distinct benefits. For instance, its holistic approach is predicated on the notion that the human body functions as a unified organic entity, primarily interconnected via the meridian system (Sui et al., 2020). This study showed that acupuncture effective for decreasing blood glucose number for diabetes patient which did 20 minutes per day (Tjipto et al., 2014). Acupuncture may provide health benefits for individuals with diabetes. Research suggests that acupuncture may regulate diabetes by addressing insulin resistance, while other studies suggest it may prevent problems associated with diabetes (Wong, 2015).

### Acupressure

Based on the research results, it was found that the application of acupressure can reduce levels blood glucose in patients with diabetes mellitus. this is supported by several results research

that shows changes in blood sugar levels in sufferers diabetes mellitus before and after applying acupressure (Afrianti & Dewiyuliana, 2021). This result of study showed that acupressure effective for decreasing blood glucose number which intervention 30 minutes in 1 – 3 times in a week (Fitruallah & Rousdy, 2017). Acupressure can help lower blood glucose by activating an enzyme carbohydrate metabolism and can have an effect on the hypothalamus and work deeply increases the synthesis of insulin in the pancreas, increasing one of the receptors target cells, and increases the use of blood sugar in cells, resulting in blood sugar levels blood will also decrease (Afrianti & Dewiyuliana, 2021).

### Massage

The result of review in this study showed that message effective to help diabetes patient with 30 minutes intervention in 2 – 3 times in a week (Chatchawan et al., 2015). Massage therapy is a therapeutic approach that involves the application of external pressure to induce vasodilation, hence enhancing blood circulation and meeting metabolic demands in those diagnosed with type 2 diabetes. Massage therapy has been found to provide potential benefits for those with diabetic neuropathy, including pain reduction and improvement in impaired feeling. These positive effects can be attributed to the enhancement of blood circulation, skin sensitivity, and joint flexibility facilitated by massage (Chatchawan et al., 2020).

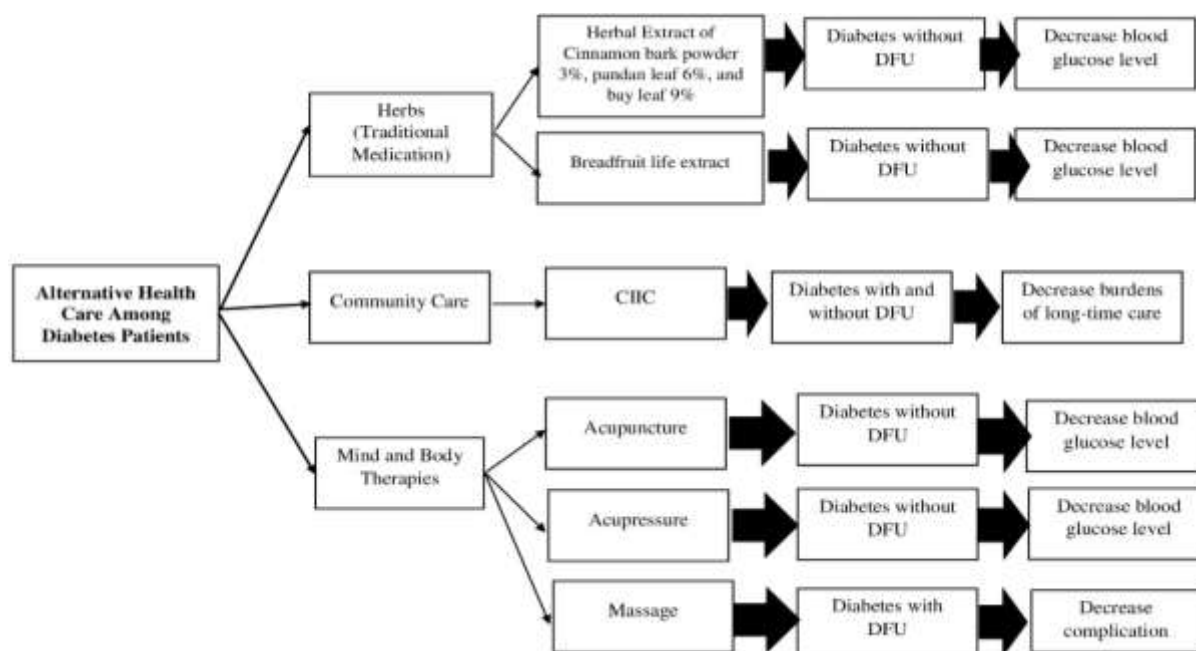


Figure 2. Result of Scoping Review

## 4. DISCUSSION

The scoping review represents to our knowledge, the first comprehensive overview of all AHC interventions specifically undertaken with diabetes patients in ASEAN countries. The researchers conducted this review to (1) better understand the AHC that used among diabetes patients, (2) assess the quality of RCTs to determine whether adequate details were present to

interpret result and minimize bias, and (3) quantitatively synthesize the results to inform future research.

Only six studies met our inclusion criteria. From these we learned that some type of AHC appear in this review, there are herbs, community care and mind body therapy. Two kinds of herbs or traditional medicine, one kind of community care and three kinds of mind and body therapy have been tested in these population of diabetes using RCTs. The evidence of scoping review indicated that many measures from these 6 studies address effect to blood glucose level and effect to decrease the effect for future complication. There is no scoping review study before for exploring kinds of AHC for diabetes mellitus. There is study about a scoping review on complementary and AHC and the mass media with the result variety of discourses within media representations of CAM are apparent that each appeal to a specific audience through resonance with their specific concerns (Weeks & Strudsholm, 2008). It is different kind of study that exploring of kinds of AHS for specific have not been studied yet.

AHC for diabetes have grown increasingly popular over the past several years, and AHC with antidiabetic activity have been explored very thoroughly, notably in India. Nevertheless, ideal treatments should have a similar degree of efficacy without bothersome side effects (Pandey et al., 2011). Historically, there existed a convergence between Traditional Chinese Medicine (TCM) and Thai medicine (TM), with the latter being influenced by the Indian medical system. In contemporary times, traditional Thai medicine has been recognized as an integral component of the Thai traditional medical cultural framework. Traditional Thai medicine incorporates elements from Indian Buddhism, Vedic philosophy, traditional Chinese medicine, astrology, supernatural beliefs, and other concepts. It places significance on the interrelation and equilibrium of the four elements, namely "wind," "fire," "water," and "Earth," in order to promote human well-being. In addition to its core principles, traditional Thai medicine encompasses other supplementary notions, including a belief in the supernatural (Liu, 2021b). Thai medicine uses plants, animals, and minerals. Based on importance, they are divided into primary, auxiliary, control, and toner and taste agents. Thai non-communicable disease (NCD) patients are likely to undergo integrative care, which combines Western and Thai traditional medicine. About 60% of NCD patients received primary care integrative medicine treatment (Jirratsatit & Samakkeekarom, 2020). In terms of TM education, some measures have also been taken to promote the inheritance and revival of TM (Liu, 2021b). One study of massage come from Thai massage.

The authors had to apply judgment to consolidate and present numerous major findings from the six publications due to their variance. The lack of publications in languages other than English and Bahasa Indonesia suggests that our review applies only to nations whose journals were investigated by English- and Indonesian-speaking scholars. Thus, the journals found are mostly from outside ASEAN. The conclusions of our research may be cautiously interpreted for Indonesia and Thailand. The geographical and natural environments, abundant medicinal biological resources, shared medicinal culture, and potential for traditional medicine research and development collaboration among ASEAN countries have not yet been fully examined (Liu, 2021b). This study has few study because there is few journal that explore about AHC that using RCTS method. There is many journal explore about AHC but in case study, correlation or review. Mostly study of AHC in out of ASEAN countries and published in their local languages.

This study explored the kinds of AHC and their details of intervention of each kind of intervention. This kind of AHC can be chosen by people living with diabetes to cure their diabetes, prevent their complications and decrease their burden and their family burden by using some types of AHC.

Given this concern, the researcher advocate the following four AHC research suggestions to enhance ASEAN diabetic patient health: More study should be done on AHC most commonly offered but understudied, such as yoga, and manipulation therapy, relaxation techniques, and meditations. Mix method study designs that assess AHC efficacy and implementation will reveal real-world consequences and help translate AHC practice into diabetic patients. Pragmatic trials, which test interventions in the full range of everyday clinical settings to maximize applicability and generalizability, will allow for real-world AHC assessment and increase data collection and policy transparency. AHC researchers should utilize more evidence-based therapies as comparison or control groups. Future research should examine diabetic patients' AHC experiences using qualitative methods.

## 5. CONCLUSION

The important things of this study are to know about kind of AHC among diabetes patients that can help diabetic patients for helping in diabetes management, leading to enhanced clinical outcomes and a decrease in both blood glucose levels. It is possible to consider integrating both traditional medicine and Western medicine as a viable approach for individuals with diabetes in order to choose the best suitable course of therapy. Therefore, it is imperative to prioritize research on AHC in the management of diabetes in order to achieve improved clarity and practical implementation in everyday medical practice.

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## 7. AUTHOR CONTRIBUTION

This paper is part of dissertation of first author. Both of author doing reviews and develop manuscript together.

## 8. CONFLICT OF INTEREST

There is no conflict of interest

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