

## PHARMACY AND MIDWIFERY STUDENTS' ATTITUDES AND PERCEPTIONS OF COMPLEMENTARY AND ALTERNATIVE MEDICINES (CAM) DURING PREGNANCY

Farahdina Chairani<sup>1\*</sup>, Abdillah Mursyid<sup>1</sup>, Leni Halimatusyadiah<sup>2</sup>, Renditya Ismiyati<sup>1,3</sup>

<sup>1</sup> Program Studi S1 Farmasi, Sekolah Tinggi Ilmu Kesehatan Salsabila Serang, Indonesia

<sup>2</sup> Program Studi S1 Kebidanan, Sekolah Tinggi Ilmu Kesehatan Salsabila Serang, Indonesia

<sup>3</sup> Program Studi Magister Farmasi, Fakultas MIPA, Universitas Islam Indonesia, Indonesia

\*Corresponding Author: farahdinac@gmail.com

### Abstract

**Background:** The use of Complementary and Alternative Medicine (CAMs) is growing worldwide.

**Purpose:** This study aimed to determine midwifery and pharmacy students' attitudes toward CAMs, their safety, and efficacy during pregnancy.

**Methodology:** In April 2023, 151 midwifery and pharmacy students from Salsabila Serang College of Health Science were recruited using a total sampling method. Descriptive statistics were used to analyze the data.

**Results:** The vast majority of students (98.68%) believe that complementary and alternative medicines (CAMs) are useful and that they should have a better understanding of them (98.67%). While 70-90% of these students consider certain CAM therapies to be safe and effective, a large number of them recommend CAM therapies during pregnancy. A majority of midwifery and pharmacy students believe that CAM may pose a risk to public health (62.25%). Despite this, they view CAM as a useful tool in general and approve of the benefits of some CAM therapies during pregnancy. Given the strong interest in this field among students, it is recommended that training programs be developed in their curriculum studies to educate students on the benefits and side effects of CAMs.

**Keywords:** *complementary and alternative medicines, midwifery students, pharmacy students, attitudes, pregnancy*

## I. INTRODUCTION

The popularity of complementary and alternative medicine (CAM) is on the rise worldwide (1)(2)(3). CAM encompasses a range of non-conventional medical practices, systems, and products, as defined by the National Center for Complementary and Integrative Health (NCCIH) (5). In Indonesia, jamu and herbal remedies have been used for generations and remain widespread today. A Riskesdas survey from 2010 discovered that 55.3% of Indonesians consume jamu for the purpose of maintaining good health (4)

Indonesia is known for its various traditional practices, including herbal medicine, complementary therapy, and non-medical physical therapy, as noted in a study by Satria in 2013. Similarly, in Iran, traditional medicine is highly sought after by patients, with a survey of 5,000 individuals revealing that they seek such treatments six times a year. Meanwhile, in the United States, the use of herbal medicine has seen a significant increase from 3% in 1990 to 12% in 1997 and 19% in 2002. Interestingly, it has been estimated that 40% of CAM treatments are utilized in the US, while the UK's usage is comparatively lower at 20% (5)

Various studies have shown that around 60% of people who use complementary and alternative medicine (CAM) are women who use it when they are healthy and sick (6). Many women use CAM during pregnancy as they believe it is safe. The usage of CAM during pregnancy varies widely across the globe, with figures ranging from 1% to 87% (7). Two studies conducted in Iran found that 83.7% and 26.8% of pregnant women, respectively used CAM (6). The reasons for this fluctuation include

differences in knowledge and attitudes towards CAM among different populations, cultural differences, accessibility and availability of herbal medications, and differences in research methodologies (8)(6)(9). Most of the people who use CAM are women of reproductive age (10). Furthermore, a survey of healthcare professionals revealed that many of them support the use of CAM during pregnancy. A cross-sectional study examining pharmacy and obstetrics students' views on CAM during pregnancy found that most believed CAM was safe and effective. As healthcare providers have a significant impact on CAM use during pregnancy, they can also recommend and advise on its use. Although few studies have examined healthcare professionals' views of CAMs during pregnancy, a 2013 review revealed that 58.9% of Turkish midwives and 100% of German obstetricians who had used CAM to treat pregnant women had a positive attitude towards it (11)

The use of complementary and alternative medicines (CAMs) in maternity care is on the rise among midwives. However, concerns about their safety remain. A 2008 Canadian survey revealed midwives are more receptive to CAMs than other healthcare professionals. Additionally, a literature review from 2000 to 2009 discovered that 78% to 96% of midwives referred their patients to CAM practitioners (12). In Indonesia, there is a lack of research on the attitudes and practices of healthcare providers during pregnancy. Expectant mothers typically seek care from midwives as their primary healthcare providers, while pharmacists play a crucial role in assessing and monitoring medication and non-medication therapies for pregnant women.

In order to equip midwifery and pharmacy students with the skills necessary to evaluate the use of complementary and alternative medicine (CAM) during pregnancy, it is essential that they first grasp how CAM can complement traditional therapy. This study aims to explore the opinions of midwifery and pharmacy students on CAM use during pregnancy, encompassing their beliefs regarding its efficacy and safety, as well as their referral practices. By gaining insight into the outlooks of these students, we can identify methods for enhancing their knowledge and comprehension of CAM. This project expands upon prior research pertaining to midwifery and pharmacy students' attitudes and perceptions surrounding maternal and child health.

## II. METHODOLOGY

### Study design

A cross-sectional study was carried out at Salsabila Serang College of Health Sciences in Banten Province to evaluate the attitudes and perceptions of pharmacy and midwifery students towards Complementary and Alternative Medicine (CAM) during pregnancy.

### Sampling

The study included a sample population of 151 midwifery and pharmacy students in their final year of studies. A convenient sampling method was used to invite participants, and all those invited agreed to take part in the study. The study objectives were explained in detail to the participants, and they were given questionnaires to complete via a Google form. Participants who provided written, signed consent were asked to fill in the questionnaire. The recruitment of participants continued until the desired sample size was achieved. The study was conducted from April to August 2023, and participation was voluntary. Ethical approval for the study was granted by the Health Research Ethics Commission of the Faculty of Health Sciences at Respati University of Yogyakarta.

### Instruments

A self-administered questionnaire was used to determine midwifery and pharmacy students' attitudes and perceptions of CAMs, including their views on safety and efficacy during pregnancy. To examine the attitudes toward CAMs in general, the five-point Likert questionnaire from "Absolutely Agree" to "Absolutely Disagree" was administered to the samples by asking if they agreed with each item. The above questionnaire is made up of eight questions. This is a part of the CAM Health Belief Questionnaire (CHBQ) (13). The internal consistency of the tool was estimated as good (the Alpha Cronbach = 0.75). In the current study, the Alpha-Cronbach was found to be 0.76.

With respect to the safety of CAMs during pregnancy, the responses are categorized as safe, harmful, safety not being established, and no opinion. The samples' perceptions were assessed in terms of the 16 most widely used CAMs in Indonesia, namely, massage therapy, yoga/tai chi, aromatherapy, prayer, spiritual healing, acupressure, meditation, acupuncture, herbal/botanical therapies, chiropractic, Indonesian traditional therapy (Jamu), homeopathy, cupping and non-herbal supplements (except vitamins and minerals).

### Data analysis

The statistical analysis was conducted using SPSS 20 software in Chicago, IL, USA. All variables were analyzed descriptively, including the attitudes of the participants towards the use of complementary and alternative medicines (CAMs) during pregnancy, as well as their perceptions of the safety and effectiveness of such treatments.

## III. RESULTS AND DISCUSSION

### Results

The survey was successfully completed by 151 participants, whose average age was 20 years. The age range of the respondents was between 18 to 23 years. The participants belonged to different study programs, with the majority (63.58%) being undergraduate midwifery students, followed by 19.20% diploma III midwifery students and 17.22% pharmacy students at the undergraduate level.

### 3.1 Attitude toward CAMs in general

According to Table 3.1, Complementary and Alternative Medicine (CAM) is considered a non-conventional treatment that can be useful in addition to conventional treatment by 64.24% of respondents. The majority of respondents (50.99%) believed that medical personnel should have knowledge of CAM and should be able to recommend it to their patients (60.26%). A significant number of respondents (63.58%) agreed that they should be aware of the CAM treatment methods available in their geographic area. The research results showed that respondents' attitudes towards the actions and effectiveness of CAM vary. The majority of respondents (69.54%) stated that CAM works through the placebo effect, and some respondents (66.89%) agreed that it stimulates the body's natural healing powers. However, a small proportion of respondents (45.03%) consider CAM a threat to public health. Additionally, some respondents (49.01%) suggested that health practitioners should not discuss CAM with patients, as it might encourage them to use it.

**Table 1**

Midwives' Attitude Toward CAMs in General

Statement	Strongly agree N (%)	Agree N (%)	Uncertain N (%)	Disagree N (%)	Strongly Disagree N (%)
CAMs are a useful supplement to regular medicine	52 (34.44)	97 (64.24)	1 (0.66)	0	1 (0.66)
Medical practitioners should have some knowledge about the most common CAMs	72 (47.68)	77 (50.99)	2 (1.32)	0	0
CAMs stimulate the body's natural healing power	45 (29.80)	101 (66.89)	4 (2.65)	1 (0.66)	0
Medical practitioners should be able to advise their patients about the most commonly used CAMs	56 (37.09)	91 (60.26)	2 (1.32)	1 (0.66)	1 (0.66)
Medical practitioners should be aware of which CAMs are available in their geographical area	51 (33.77)	96 (63.58)	4 (2.65)	0	0

The results of CAM are, in most cases, due to the placebo effect	33 (21.85)	105 (69.54)	11 (7.28)	2 (1.32)	0
CAM is a threat to public health	26 (17.22)	68 (45.03)	18 (11.92)	37 (24.50)	2 (1.32)
Medical practitioners should not discuss CAMs with their patients since it may prompt them to use it	31 (20.53)	74 (49.01)	19 (12.58)	24 (15.89)	3 (1.99)

### 3.2. Opinions about CAMs' usefulness during pregnancy

According to the majority of students, various complementary and alternative medicine (CAM) therapies are considered useful during pregnancy. These include massage (99.34%), yoga (99.34%), tai chi (96.69%), aromatherapy (100%), prayer (100%), acupuncture (91.39%), acupressure (97.35%), spiritual healing (94.70%), herbal therapy (98.67%), traditional Indonesian medicine (96.69%), meditation (100%), chiropractic (92.71%), non-herbal supplements (86.09%), cupping (90.07%) and homeopathy (94.04%).

### 3.3 Opinions about CAM-induced safety during pregnancy

Based on a recent survey, a majority of students expressed confidence in the safety of practicing various alternative therapies during pregnancy. These therapies include yoga (99.34%), massage (89.40%), tai chi (88.74%), aromatherapy (96.03%), prayer (100%), acupuncture (77.48%), acupressure (91.39%), spiritual healing (88.74%), herbal therapy (85.43%), non-herbal supplements (70.86%), hypnotherapy (79.47%), traditional medicine (92.71%), chiropractic therapy (81.46%), meditation (92.71%), cupping (76.16%), and homeopathy (80.13%).

**Table 2**  
Midwives' Perception of CAM's Usefulness during Pregnancy

Therapy	Usefulness			Safety			
	Useful N(%)	Not Useful N(%)	No Opinion N(%)	Safe N(%)	Not safe N(%)	Safety not established N(%)	No Opinion N (%)
Massage Therapy	150 (99.34)	0	1 (0.66)	135 (89.40)	0	14 (9.27)	2 (1.32)
Yoga	150 (99.34)	0	1 (0.66)	150 (99.34)	0	1 (0.66)	0
Tai Chi	146 (96.69)	1 (0.66)	4 (2.65)	134 (88.74)	1 (0.66)	7 (4.63)	9 (5.96)
Aromatherapy	151 (100)	0	0	145 (96.03)	0	5 (3.31)	1 (0.66)
Prayer	151 (100)	0	0	151 (100)	0	0	0
Acupuncture	138 (91.39)	1 (0.66)	12 (7.95)	117 (77.48)	1 (0.66)	26 (17.22)	7 (4.63)
Acupressure	147 (97.35)	4 (2.65)	0	138 (91.39)	0	7 (4.63)	6 (3.97)
Spiritual Healing	143 (94.70)	1 (0.66)	7 (4.63)	134 (88.74)	0	11 (7.28)	6 (3.97)
Herbal/ botanical therapies	149 (98.67)	0	2 (1.32)	129 (85.43)	0	17 (11.26)	5 (3.31)
Non Herbal	130	7	14	107	1	38	5

Supplements	(86.09)	(4.63)	(9.27)	(70.86)	(0.66)	(25.16)	(3.31)
Hypnotherapy	131 (86.75)	7 (4.63)	13 (8.61)	120 (79.47)	6 (3.97)	14 (9.27)	11 (7.28)
Indonesian traditional therapy (Jamu)	146 (96.69)	2 (1.32)	3 (1.99)	140 (92.71)	1 (0.66)	6 (3.97)	4 (2.65)
Chiropractic	140 (92.71)	1 (0.66)	10 (6.62)	123 (81.46)	2 (1.32)	12 (7.95)	14 (9.27)
Meditation	150 (99.34)	0	1 (0.66)	140 (92.71)	1 (0.66)	6 (3.97)	4 (2.65)
Cupping	136 (90.07)	3 (1.99)	2 (1.32)	115 (76.16)	5 (3.31)	22 (14.57)	9 (5.96)
Homeopathy	142 (94.04)	0	9 (5.97)	121 (80.13)	0	20 (13.24)	10 (6.62)

### 3.3 Approach to CAM during Pregnancy

According to the latest research findings, the most highly recommended therapy for pregnant women is yoga, with a staggering 58.28% of expecting mothers opting for this form of CAM therapy. Furthermore, the research reveals that the most compelling reason for using CAM therapy during pregnancy is its proven ability to improve the birthing process, as highlighted by 28.48% of participants surveyed (Table 3).

**Table 3**

Type of Therapies Recommended by Midwives and Reason for Recommendation.

Type of Therapies Recommended	N	%	Reason for Recommendation	N	%
Aromatherapy	32	21.19	Sexual Comfort	2	1.32
Hypnotherapy	3	1.99	Accelerate Labor	43	28.48
Meditation	1	0.66	Increase intelligence	5	3.31
Herbal Therapy	5	3.31	Maintain vitality and youth	9	5.96
Massage Therapy	22	14.57	Pain	5	3.31
Yoga	88	58.28	Labor pain	10	6.62
			Treatment	26	17.22
			Stress	14	9.27
			Maintaining Health	37	24.50

### Discussions

This study provides midwifery and pharmacy students' views on CAM use during pregnancy at Salsabila Serang College of Health Science. CAM is part of the social framework of health care and is now considered an important branch of the health care system (14). The results of the study revealed that the majority of students viewed Complementary and Alternative Medicine (CAM) as a beneficial treatment option. It was suggested that medical professionals should stay informed about the various CAM options available and recommend the most commonly used ones to their patients. Only a small percentage of students expressed concern about the potential risks CAM may pose to public health and medical personnel. Recent literature studies indicate that 65% and 100% of healthcare workers recommend CAM, which aligns with our results from midwifery and pharmacy students' perspectives (12). Additionally, a significant number of midwives in Canada and New Zealand, around 71.5%, view

CAM as an essential component of midwifery practice (15). The growing interest in CAM among midwives and pharmacists suggests that implementing CAM-oriented educational programs in midwifery and pharmacy curricula could be more effective in preparing graduate students to perform CAM when working as healthcare professionals.

A recent study found that many people believe complementary and alternative medicines (CAMs) can be beneficial during pregnancy. The study identified a wide range of CAMs, including massage, yoga, tai chi, aromatherapy, religious practices, acupuncture, acupressure, spiritual healing, herbal therapies, traditional Indonesian medicine, meditation, chiropractic care, non-herbal supplements, cupping, and homeopathy, as the most commonly preferred options from students perspectives. Interestingly, the majority of respondents in New Zealand and Canada tend to favor homeopathy (40-62%) and acupuncture (45-55%), while American gynecologists generally have a positive view of biofeedback (73.8%), chiropractic care (65.6%), and acupuncture (62.4%).

Based on a study conducted with healthcare practitioners in Australia, a majority of midwives consider massage therapy, yoga/chi/dance therapy, and meditation/relaxation techniques to be safe for pregnant women. Similarly, prayer/spiritual healing is viewed as safe in Indonesia because of the country's religious and spiritual beliefs. Overall, physical therapy, such as massage, is preferred over treatments that involve intervention or ingestion, such as herbal medicines or acupuncture, as the latter may carry potential risks for both the mother and fetus (1).

There are still some students who are hesitant to incorporate CAM (Complementary and Alternative Medicine) into their therapy when working. This could indicate a lack of knowledge about CAM among students, healthcare professional, or women. In some cases, the woman herself may suggest or request CAM therapy. However, many medical professionals have a negative attitude towards CAM, which may reflect poor knowledge or conflicting views about its role in obstetric care. A recent study revealed that the majority of students expressed interest in learning more about CAM. It's important to note that there are currently no educational programs on CAM for midwives and pharmacists in Indonesia. Therefore, it's crucial to provide educational programs about CAM for healthcare professionals to equip them with the knowledge and skills necessary for CAM therapy. Some medical professional groups even offer a specific curriculum that provides sufficient information about CAM (16).

According to the study, students who will become a healthcare professionals in the future and working in community health centers are receptive to the use of Complementary and Alternative Medicine (CAM) for their patients. This may be attributed to their limited understanding of CAM's benefits during pregnancy, diverging opinions on its role in obstetric care, or the limited research on its effectiveness and safety. The study emphasizes the necessity for educational initiatives to educate pharmacy and midwifery students on CAM, particularly with the increasing use of CAM among the public and the insufficient documentation on its safety and effectiveness during pregnancy. The significant level of participation from study participants underscores the pressing need to address this issue.

#### IV. CONCLUSIONS AND NEWNESS

This study showed that most students believe complementary and alternative medicines (CAMs) are useful. However, some midwifery and pharmacy students think that CAM may pose a risk to public health. It is recommended that training programs be developed to educate students on the benefits and side effects of CAMs.

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