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Basic Research Article

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The use of complementary and alternative medicine (CAM) during pregnancy

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Abstract

Background: Approximately one-third of the global population uses complementary medicine, as yoga and meditation, not endorsed by evidence-based conventional medicine and, with more difficulties in case of pregnancy.
Methods: Our study investigates the prevalence of Complementary and Alternative Medicine (CAM) usage in Novara (Italy) and its province through a survey to pregnant women at 36 gestational weeks.
Results: The sample consisted of 70 women, average age of 33 years, most Caucasian, highly educated, mostly employed, under private gynecological care, with a prevalence of CAM use of 24.3 % [95 % CI 14.83; 36.01]. Six women (35.3 %) did not inform their healthcare provider of using these medicines, 15 women (88.2 %) express willingness to use complementary medicine in their next pregnancy, while 2 (11.8 %) are uncertain. The study found a significant association between higher education and CAM usage among pregnant women. Other factors, including nationality, occupation, choice of private practice, parity, physical activity, diet, smoking, pregnancy complications, and vaccination status, did not show significant relationships with CAM usage.
Conclusions: Our objective is to delineate the characteristics of CAM users, explore the methodologies and motivations of their usage, and ascertain any correlations with the rejection of conventional vaccination practices. The analyzed population consists of 70 women aged 32.9 years in mean, mostly Caucasian, with a high level of education. Most women are under private gynecological care (84.3 %), half of the participants are experiencing their first pregnancy. Physical activity levels vary, with 34.3 % reporting high activity levels. Regarding diet, 77.1 % consider their eating habits moderately healthy, with a notable portion of smokers women (24.3 %); 20.0 % have experienced pregnancy complications. 17 participants utilized non-conventional or alternative medicine, with a prevalence of 24.3 [95 % CI 14.83; 36.01]. Six women (35.3 %) did not inform their healthcare provider about using CAM. Seven women (46.7 %) claim significant beneficial effects in most cases, while 8 (53.3 %) state this occasionally. Based on their experiences, 15 women (88.2 %) express willingness to use complementary alternative medicine in their subsequent pregnancy, while 2 (11.8 %) are uncertain. Only one person (11.1 %) used this type of therapy as a substitute for conventional treatment, but they informed their attending physician. The study seeks to enhance our understanding of CAM utilization in pregnancy, informing more comprehensive and evidence-based healthcare practices for expectant mothers.

Keywords: complementary and alternative medicine; integrative medicine; pregnancy

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Introduction

Pregnancy is a transformative period in a woman’s life, marked by various physiological and psychological changes. Expectant mothers often seek ways to enhance their well-being and alleviate discomforts associated with pregnancy and childbirth. In recent decades, Complementary and Alternative Medicine (CAM) has gained popularity among pregnant women, offering holistic approaches

beyond conventional medical interventions [1]. CAM encompasses a diverse range of practices and therapies, including herbal remedies, acupuncture, yoga, chiropractic care, and meditation, which are used alongside or instead of mainstream medical treatments. This trend has sparked considerable interest among researchers and healthcare professionals [1, 2].

Research about CAM approaches during gestations has grown substantially, reflecting the increasing interest in understanding its impact on maternal and fetal health. These investigations have shed light on the diverse reasons behind CAM choice, including a desire for natural and non-invasive treatments, dissatisfaction with conventional healthcare, cultural and traditional beliefs, and the perception of CAM to promote overall wellness [1–4]. For instance, acupuncture and acupressure have been investigated for their efficacy in managing gynecological conditions [5] and pregnancy-related nausea, pain, and stress. Herbal remedies, such as ginger and chamomile, have been explored for their potential in alleviating common pregnancy nausea [6]. Additionally, mindfulness-based practices, such as meditation and yoga, have been studied for their role in reducing stress and anxiety, enhancing maternal well-being, and positively influencing birth outcomes [7, 8]. However, literature also highlights the importance of approaching CAM use during pregnancy with caution [9]. Safety concerns, potential interactions with conventional medications, and limited regulation of CAM products underscore the need for rigorous research and informed decision-making. Furthermore, the socio-cultural context in which CAM is usually practiced adds complexity to understanding its use during pregnancy, emphasizing the significance of a multidisciplinary approach in studying this phenomenon [9, 10].

In this study, we will delve into the CAM usage during pregnancy within a Northern Italian province. This research aims to contribute to the existing knowledge, fostering a more informed and evidence-based approach to integrating CAM into prenatal care.

Materials and methods

Study design and study population

A cross-sectional study was performed using a questionnaire. The target population includes women attending health check-ups at 36 weeks gestation from April to July 2022 in the Department of Gynecology and Obstetrics at the Maggiore della Carità Hospital, Novara, Italy. It is an university public hospital with about 2,000 deliveries for years, very representative of the national and Western situation. Participants were provided with a pamphlet containing a link (QR code) to access a questionnaire to assess the use of CAM during their last pregnancy, along with additional information regarding the methods of usage. The sample consisted of women expecting to give birth between May and August 2022.

The Local Ethical Committee has approved this research study with protocol number 471/CE (4/2020), ensuring adherence to ethical standards and guidelines.

The questionnaire was administered to participants through an informational pamphlet, emphasizing the voluntary nature of participation. The pamphlet provided comprehensive details about the research objectives, interview procedures, and the type of information collected. Considering that the prevalence of use depends on the question asked in the questionnaire, participants were informed about data confidentiality and were given the option to access the questionnaire via a QR code on their smartphones. Explicit consent was obtained before proceeding, ensuring participants' freedom to refuse or discontinue participation. Upon completion, responses were submitted anonymously.

The inclusion criteria were to be ≥18 years and the willing to participate. Patients were excluded from the study if: experienced severe complications during pregnancy, not speak Italian, not provide consent to participate in the study, unable to access the questionnaire via the QR code.

Questionnaire development

The questionnaire, adapted from existing literature [11–14], explored various aspects, including CAM usage frequency, anamnestic-socio-professional profiles, common indications, specific ongoing therapies, motivations, perceived outcomes, side effects, and their correlation with COVID-19 vaccine hesitancy. Open-ended questions were included to avoid response biases, allowing participants to provide detailed information (Supplementary Material). The questionnaire design aimed to contribute valuable insights into CAM practices during pregnancy, addressing the existing literature gap.

Statistical analysis

We estimated the expected prevalence of CAM use during pregnancy from similar studies [1], where a variable prevalence was found, approximated to 80 %. For the convention, a confidence level of 95 % was chosen. Regarding

the desired absolute precision, we opted for an absolute precision of 0.07. Descriptive statistics were performed for the whole sample and separately for subject that use or not the CAM. Absolute and relative frequencies are reported for categorical variables while mean and standard deviations or median and interquartile ranges for numerical ones, as appropriate. First, to evaluate the association between demographic variables and CAM chi-square or Fisher and test T-test or non-parametric alternative were used. Then, univariate logistics models were performed considering the use of complementary and alternative medicine as outcome. Odds ratio and 95 % confidence intervals were reported. All the analysis were performed using SAS 9.4 and the significance threshold was set to 0.05 (two tailed).

Results

The sampling period ranged from April 2022, to July 2022. The questionnaire was offered to Italian-speaking women accessing the Department of Gynecology and Obstetrics, AOU Maggiore della Carità, Novara (Italy). The sample consisted of 70 women.

In Table 1, there is the Summary of Population Characteristics. The analyzed population consists of women aged 32.9 years, ranging from 22 to 41 years. The vast majority are Caucasian, Italian (95.7 %), and 60.0 % have a high level of education. Regarding occupation, 88.6 % are employed, with office workers being the predominant group. Most women are under private gynecological care (84.3 %), and only a minority (15.7 %) use public healthcare services. Approximately half of the participants are experiencing their first pregnancy. Physical activity levels vary, with 34.3 % reporting high activity levels. Regarding diet, 22.9 % consider their eating habits healthy.

A notable portion of women (24.3 %) smoke, while 20.0 % have experienced pregnancy complications. The majority (68.6 %) have received the Covid vaccine, indicating a good vaccination rate in the sample. 17 participants utilized non-conventional or alternative medicine, with a prevalence of 24.3 [95 % CI 14.83; 36.01]. Within this group, further inquiries were made and are reported in Table 2. Interestingly, six women (35.3 %) did not inform their healthcare provider about using CAM.

The primary reasons for their usage include considering these alternatives safe and non-harmful in pregnancy, sometimes even beneficial, and the perceived inefficacy of other methods. The self-reported beneficial effects of complementary medicine are not definitive: 7 women (41.2 %) claim significant improvements occurred in most cases, while 8 (47 %) state this happened only occasionally; 2 (11.8 %) of them did not respond. Based on their experiences, 15 women (88.2 %) express willingness to use complementary medicine in their subsequent pregnancy, while 2 (11.8 %) are uncertain.

Additionally, among the nine respondents, only one person (5.9 %) used this type of therapy as a substitute for conventional treatment, but they informed their attending physician (Table 2).

Association between CAM and other variables are reported in Table 3. The study found a significant association between higher education, older age and CAM usage in pregnant women. Other factors including nationality, occupation, gynecological assistance, parity, physical activity, diet, smoking, pregnancy complications, and vaccination status, did not show significant relationships with CAM usage.

Table 1: Sociodemographic characteristics of the sample (n=70).

Nationality	Italian	67 (95.7 %)
	Other	3 (4.3 %)
Educational level	High (university or higher degree)	42 (60.0 %)
	Low (other than universitary degree)	28 (40.0 %)
Occupation	Housewife	8 (11.4 %)
	Employed	62 (88.6 %)
Work	Healthcare sector	15 (21.4 %)
	Employee	27 (38.6 %)
	Other	28 (40.0 %)
Gynecologist	Private	59 (84.3 %)
	Public	11 (15.7 %)
Parity	Primaparous	38 (54.3 %)
	Pluriparous	32 (45.7 %)
Physical activity	Frequent (>3 h/week)	24 (34.3 %)
	On average (3 h–30 min/week)	20 (28.6 %)
	Rare (<30 min/week)	26 (37.1 %)
Diet	Healthy	16 (22.9 %)
	Not healthy	54 (77.1 %)
Smoke	Not	53 (75.7 %)
	Yes	17 (24.3 %)
Complications in pregnancy	Not	56 (80.0 %)
	Yes	14 (20.0 %)
Covid vaccine	Not	22 (31.4 %)
	Yes	48 (68.6 %)
Use of complementary medicine	Not	53 (75.7 %)
	Yes	17 (24.3 %)
Alternative/complementary medicine[a]	Yoga	11
	Massage	10
	Meditation	5
	Other	0
Age, Years	Mean (SD) 32.9 (22–41)	

[a]More than one option.

Table 2: Focus on women who have used CAM (n=17).

Have you informed your doctor?	Yes	11 (64.7 %)
	Not	6 (35.3 %)
Why did you decide to use complementary medicine?	Considered safe and not harmful to the pregnant woman and the baby	8 (47.0 %)
	Ineffectiveness of other methods	2 (11.8 %)
	Considered beneficial during pregnancy	2 (11.8 %)
	No answer	5 (29.4 %)
Have you noticed any beneficial effects?	In most cases	7 (41.2 %)
	Some time	8 (47 %)
	No answer	2 (11.8 %)
Would you recommend it?	Yes	15 (88.2 %)
	Don't know	2 (11.8 %)
Used as a replacement for prescribed therapies?	Yes, by informing the doctor	1 (5.9 %)
	Not	8 (47 %)
	No answer	8 (47 %)
Recommended by whom?	Pharmacist	3 (17.6 %)
	Gynecologist	2 (11.8 %)
	Midwife	2 (11.8 %)
	Personal decision/ recommended by non-medical personnel	9 (52.9 %)
	No answer	1 (5.9 %)
Which method would be ideologically preferred?	Osteopathy	3 (17.6 %)
	Acupuncture	2 (11.8 %)
	Other	0 (0 %)

Table 3: Predictive factors for the use of CAM.

	Not-CAM users (n=53)	CAM users (n=17)	p-Value	OR [95 %CI]
Nazionality			<0.999	–
Italian	50 (94.3 %)	17 (100 %)		
Other	3 (5.7 %)	0 (0 %)		
Educational level			0.0455	4.17
High	28 (52.8 %)	14 (82.3 %)		[1.07; 16.21]
Low	25 (47.2 %)	3 (17.7 %)		
Occupation			0.1850	–
Employeed	45 (84.9 %)	17 (100 %)		
Housewife/ unemployed	8 (15.1 %)	0 (0 %)		
Gynecologist			<0.999	0.83
Public	8 (15.1 %)	14 (82.3 %)		[0.19; 3.56]
Private	45 (84.9 %)	3 (17.7 %)		
Parity			0.5804	0.68
Pluripary	23 (43.4 %)	9 (52.9 %)		[0.23; 2.04]
Primiparity	30 (56.6 %)	8 (47.1 %)		
Physical activity			0.3630	1.67
Frequent	16 (30.2 %)	8 (47.1 %)		[0.48; 5.79]
On average	17 (32.1 %)	3 (17.6 %)		
Rare	20 (37.7 %)	6 (35.3 %)		0.59 [0.13; 2.72]
Diet			0.7440	0.66
Healthy	13 (24.5 %)	3 (17.6 %)		[0.16; 2.66]
Not healthy	40 (75.5 %)	14 (82.4 %)		
Smoke			<0.999	0.95
Not	40 (75.5 %)	13 (76.5 %)		[0.26; 3.42]
Yes	13 (24.5 %)	4 (23.5 %)		
Complications in pregnancy			0.4917	0.46 [0.09; 2.78]
Not	41 (77.4 %)	15 (88.2 %)		
Yes	12 (22.6 %)	2 (11.8 %)		
Covid vaccine			0.5531	1.67
Not	18 (34.0 %)	4 (23.5 %)		[0.48; 5.82]
Yes	35 (66.0 %)	13 (76.5 %)		
Age, years				
Mean, SD	32.19 (4.6)	35.23 (3.8)	0.0158	1.19 [1.03; 1.37]

Discussion

The main finding of this study is that a significant percentage (24.3 %) of pregnant women reported using CAM during pregnancy.

Our results are encouraging about an increment of utilization, but still not sufficient: in recent data, the prevalence rate of CAM use in pregnant women reaches the 89.4 % with the commonest practice of spiritual healing (65.2 %) and herbal supplement (51.8 %) [15, 16].

This empirical observation underscores the significance of exploring unconventional therapeutic possibilities in maternal healthcare, hinting at a potential paradigm shift in the approach to prenatal well-being. The widespread adoption of CAM in this specific sample requires comprehensive investigation, delving into the underlying motivations, efficacy, and safety considerations associated with these unconventional practices [17].

The study identified a significant association between CAM usage and higher level of education and age, with those older and more educated being more likely to use CAM during pregnancy. Pregnant women opted for CAM due to the perception of safety, believing these treatments were not harmful to themselves or their babies. Some even considered CAM beneficial during pregnancy. Where conventional

methods seemed ineffective, CAM was chosen as an alternative solution.

A particularly intriguing aspect of our outcomes was that a substantial subset (35.3 %) of CAM users refrained from disclosing their consumption to their healthcare providers. This phenomenon raises critical questions about the communication dynamics between patients and medical practitioners and underscores the need for fostering open dialogues within the doctor-patient relationship [18, 19]. Addressing this underreporting trend is pivotal for ensuring comprehensive and accurate medical histories, enabling healthcare providers to make well-informed decisions concerning patient care.

The motivations driving pregnant women to opt for CAM therapies, including the perceived safety and potential benefits during pregnancy, constitute a significant area of interest for researchers and healthcare professionals. Exploring the psychological factors, socio-cultural influences, and perceived efficacy of these alternative therapies can provide valuable insights into the decision-making processes of expectant mothers [20, 21].

The identified correlation between CAM usage and the educational background of pregnant women accentuates the nuanced interplay between socioeconomic factors and healthcare choices. Investigating the socio-economic disparities in CAM utilization can offer a comprehensive perspective, guiding healthcare policies and interventions tailored to diverse demographic groups [22].

Another interesting point is that an officially validated questionnaire has yet to be established to address this subject. This gap can likely be attributed to the relatively recent scientific emergence of the topic and the challenge in defining which approaches qualify as CAM, considering the substantial international variation in this concept.

The study utilized an innovative QR code-based data collection method. While promising, the innovative QR code-based data collection method encountered notable challenges during implementation. These methodological challenges is imperative for ensuring the reliability and validity of research outcomes, thereby enhancing the robustness of scientific investigations in maternal healthcare practices.

Despite the innovative and exciting topic for daily clinical practice and the diffuse use of survey in reproductive topics [23–25], we highlight some limitations: the sample size to be increased with the subsequent studies, the possible difficulty of using the QR code, the decreased participation in the survey for women less familiar with technology or CAM, and this could be unfavorable for women enrollment.

Conclusions

This study deepens our understanding of CAM utilization during pregnancy and focuses on bridging the gap between traditional medicine and patient beliefs, revealing the widespread use of CAM among the interviewed pregnant women. The analyzed population consists of 70 women aged 32.9 years in mean, mostly Caucasian, with a high level of education. Most women are under private gynecological care (84.3 %). Physical activity levels vary, with 34.3 % reporting high activity levels. Regarding diet, 22.9 % consider it healthy, 24.3 % of women smoked. 20.0 % have priorly experienced pregnancy complications. 17 participants utilized non-conventional or alternative medicine, with a prevalence of 24.3 [95 % CI 14.83; 36.01]. Six women (35.3 %) did not inform their healthcare provider about using CAM. Seven women (41.2 %) claim significant beneficial effects in most cases, while 8 (47 %) state this occasionally. Based on their experiences, 15 women (88.2 %) express willingness to use complementary alternative medicine in their subsequent pregnancy, while 2 (11.8 %) are uncertain. Only one person (5.9 %) used this type of therapy as a substitute for conventional treatment. Our findings underscore the need for open dialogues between patients and healthcare providers. The used innovative methodology, with QR codes for data collection, presents challenges and opportunities for future research. The correlation between CAM usage and educational backgrounds emphasizes the socio-economic dimensions.

The healthcare community must embrace the evolving landscape of patient choices. By fostering transparent communication and acknowledging the intricate socio-economic factors, we pave the way for a more comprehensive and compassionate approach to maternal healthcare.

Research ethics: The Ethical Committee has approved this research study with protocol number 471/CE (4/2020) on date 27/01/2020, and with amendment of use for further studies on 28/03/2024 by the Hospital Commettee of AOU Maggiore della Carità, Novara (IT).
Informed consent: Informed consent was obtained from all individuals included in this study, or their legal guardians or wards.
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