Original Article

Exploring Maternal Practices and Perspectives on Complementary and Alternative Medicine (CAM) Efficacy in Pediatric Health Care

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Abstract

Background: The growing interest and practices of mothers towards Complementary and Alternative Medicine (CAM) have become a striking trend in pediatric health care.The rising predilection of CAM is driven by numerous factors e.g cultural beliefs, lack of satisfaction with conventional treatment modalities and urge for individualized approaches for health care

Objective: This study is carried out to explore the maternal practices and perspectives towards CAM in context to pediatric health care.

Methods: An analytical cross sectional study was carried out at Pakistan Air Force (PAF) Base Faisal Hospital, Karachi. Study participants were approached in pediatric OPD. A Simple random sampling method was employed. Inferential statistics (chi square test, $p < 0.05$) were used to assess the association among outcome and predictor variables. Binary Logistic Regression test applied to assess the association between sociodemographic characteristics and practices of CAM.

Results: A vast majority of mothers i.e 81.10% were consuming CAM therapies in children. Seventy seven percent (77.95%) mothers inform pediatrician regarding the use of CAM in children. A significant association was observed between employment status (p=0.002), ethnicity (p=0.004), level of education (p=0.042), religion (p=0.002) with the maternal use of CAM in children.

Conclusion: This study revealed a higher prevalence of CAM use among mothers in context with pediatric health care. The findings of this study provided a valuable insights for healthcare providers and pediatricians to better address the needs and preferences of mothers in promoting effective and safe healthcare practices related to CAM use for treating various ailments in children.

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Introduction

Complementary and Alternative Medicine (CAM) has become increasingly popular worldwide, with its use continuing to expand across various populations. In Switzerland, surveys have

reported that between 25% and 50% of individuals utilize CAM services, indicating its widespread integration into healthcare preferences.[1] Complementary and Alternative Medicine (CAM) encompasses a diverse medical practices, products and health care system that are not considered a part of conventional medicine. CAM therapies include herbal remedies, nutritional counselling, exercise, chiropractic care, Chinese or Oriental medicine, massage therapy and homeopathy. Complimentary Medicine is being used in concurrence with conventional medicine. Whereas alternative medicine practices are used instead of conventional medical care.[2]

Globally the highest prevalence of all types of CAM use was reported in India (89%) followed by Tanzania (78%), Srilanka (76%) and in Iran (75%).However the CAM use was found to be lowest in Jordan with a frequency of 17% followed by Israel (23%), USA and Saudi Arabia (26%) and Libya (29%).[3]

CAM therapies are being followed by 70-80% of rural population of Pakistan. Besides other systems of CAM e.g homeopathic and Ayurvedic, the Unani system has not only received acceptance but it has been integrated into Pakistan's national health system.[4] Among the Eastern Mediterranean regions, Pakistan is the only country where formal institutions of Unani teaching are recognized.[5]

Traditional medicine (TM) is an essential component of the healthcare system in many countries, including Pakistan, where it is widely used by more than half of the population. Even among emigrants, Pakistanis often continue to rely on TM, reflecting its deep cultural significance. However, limited access to public healthcare, financial constraints, and unequal resource distribution have led many individuals to seek alternative treatments, including self-medication, herbal remedies, and TM. TM encompasses a broad range of practices rooted in cultural traditions, aimed at maintaining health, preventing illness, and managing disease, often in conjunction with conventional medical approaches. In Pakistan, common TM practices include Tibb-e-Unani, homeopathy, mind-body medicine, and biologically based treatments such as dietary changes and home remedies. These practices are frequently used to treat conditions such as colds, coughs, and gastrointestinal issues.[6]

One factor contributing to the growing interest in CAM is the adverse side effects associated with prolonged use of synthetic drugs. In response to these concerns, CAM emphasizes the use of medicinal plants alongside modern treatments. Although medicinal plants cannot fully replace synthetic drugs, they are frequently used as supportive therapies. For instance, numerous plants, including Nigella sativa, ginger, saffron, pomegranate, curcumin, resveratrol, and ginsenoside, have been studied for their potential therapeutic effects on neurodegenerative conditions, such as multiple sclerosis (MS). Research indicates that these plants may help alleviate symptoms and slow disease progression, suggesting their value in complementing conventional treatment methods.[7]ne factor contributing to the growing interest in CAM is the adverse side effects associated with prolonged use of synthetic drugs. In response to these concerns, CAM emphasizes the use of medicinal plants alongside modern treatments. Although medicinal plants cannot fully replace synthetic drugs, they are frequently used as supportive therapies. For instance, numerous plants, including Nigella sativa, ginger, saffron, pomegranate, curcumin, resveratrol, and ginsenoside, have been studied for their potential therapeutic effects on neurodegenerative conditions, such as multiple sclerosis (MS). Research indicates that these plants may help alleviate symptoms and slow disease progression, suggesting their value in complementing conventional treatment methods.[7]

Pidotimod, a synthetic immune-enhancing molecule, is occasionally recommended for preventing recurrent respiratory tract infections (RRTIs). However, its use is not advised for routine prevention, and existing evidence supports its application only in children aged three years and older. To overcome the limitations of antibiotics and pidotimod, some healthcare providers incorporate traditional, complementary, and integrative healthcare (TCIH) approaches to prevent RRTIs in children. In Western countries, common TCIH practices include homeopathy, natural remedies, and phytotherapy, while pediatric Tuina is often used by Chinese medicine practitioners. Despite these practices, evidence supporting their effectiveness in preventing RRTIs remains limited.[8]

Finally, antimicrobial resistance (AMR) is a growing global health concern that contributes to the development of severe infections, complications,

longer hospital stays, and increased mortality rates. The increasing prevalence of AMR highlights the need for alternative strategies to address infections and improve patient outcomes.[8]

The growing interest and practices of mothers towards Complementary and Alternative Medicine (CAM) have become a striking trend in pediatric health care. Mothers seeking comprehensive and non invasive options of treatment for their children led to growing inclination towards CAM. The rising predilection of CAM is driven by numerous factors e.g cultural beliefs, lack of satisfaction with conventional treatment modalities and urge for individualized approaches for health care.[9]

Acknowledging maternal CAM practices and respecting parental preferences and values by health care providers can lead to better health outcomes and improved maternal satisfaction with pediatric care.[6]

This study is aimed to explore the maternal practices and perspectives towards CAM in context to pediatric health care.

Since there has been an increasing inclination of parents pursuing CAM treatments for their children, making it indispensable to apprehend these practices better. There remains scarce research on the patterns of CAM use particularly in pediatric populations despite its increasing popularity. Scrutinizing how mothers navigate between CAM approaches and conventional medicine can provide insights for healthcare providers on establishing more integrated and patient-centered care models. Moreover this study will bridge knowledge gaps and offer insights by addressing disparities and understanding maternal perception which could guide healthcare providers to communicate more effectively with mothers regarding CAM practices alongside evidence based medical practices.

Methods

An analytical cross sectional study was carried out at Pakistan Air Force (PAF) Base Faisal Hospital, Karachi. . The study population included mothers aged 15-45 years (reproductive age women) including the expectant mothers. The mothers who are not in their reproductive span older than 45 years of age and those who were not agreed to participate in the study were excluded. A Simple random sampling method was employed. Mothers who visited a pediatric OPD for their children were recruited in a study From a daily OPD register in which total 600 patients were enrolled and visited pediatric OPD for their children in hospital on July 8th, 2024.Since our sample size was 381, therefore out of 600 mothers we randomly selected 381 mothers from OPD register.A random number without repetition in Microsoft excel was drawn by applying excel formula =rand()*1000 to get the number below 1000.Then excel generated 381 random numbers/mothers out of 600.After that we recruited 381 random mothers through OPD register. Study participants were approached in pediatric OPD.A questionnaire was administered to study participants in pediatric OPD of PAF hospital through a face to face interview after written informed consent. Sample size was calculated through open epi software by keeping the CI 95% with 5% level of significance.The proportion of CAM use by the mothers of Pakistan is 55% taken from previous study[10]. By computing all the above mentioned values in the Open Epi software, sample size was estimated to be 381.A validated structured questionnaire used as a data collection tool administered on 381 mothers through face to face interview.Questionnaire comprises of two main sections including 19 items i.e demographic characteristics, awareness of CAM therapies for treating various illnesses in children, effectiveness of CAM therapies in children, practices of CAM therapies in children, reason for using CAM therapies in children.The questionnaire was designed to capture information regarding practices of CAM therapies for children's illnesses.The questionnaire was translated into study participants local languages. Prior to an interview, the participants were briefed about the purpose of study and confidentiality of patient record. A written consent was taken from mothers followed by signatures or thumb prints. Pilot testing of questionnaire carried out on 10% of study population. Data was entered and analyzed using SPSS version 25.Quantitative data analysis was performed on SPSS version 25.Descriptive statistics were expressed in frequencies and percentages for categorical variables and mean$\pm$SD for continuous variables. Shapiro Wilk test was performed to check the distribution of data.Association of demographic

characteristics with the practices of CAM therapies in children were assessed through chi square test. Binary Logistic Regression test applied to assess the association between sociodemographic characteristics and practices of CAM.

The study plan was approved by the Ethical Review Committee of Fazaia Ruth Pfau Medical College (FRPMC) Karachi, Pakistan (Ref: No : FRPMC –IRB-2024-56 (Dated: July 7th, 2024).

Results

Among 381 mothers, 37.80 % (n= 144/381) belonged to the age group of 31-40 years whereas 26.77% (n= 102/381) were in the age group of 41-45 years.

Table 1: *Socio-Demographic Parameters Of Respondents*

Variables	n	Percentage (%)
Age :		
15 - 20 years	4	1.05%
21 - 25 years	47	12.34%
26 - 30 years	84	22.05%
31 - 40 years	144	37.80%
41 - 45 years	102	26.77%
Mean Age ± SD		34.12 ± 7.22
Level of Education:		
Not able to read and write	97	25.46%
Primary	84	22.05%
Secondary	64	16.80%
Intermediate	3	0.79%
Graduate	96	25.20%
Post Graduate	37	9.71%
Monthly Household Income:		
<=PKR 50,000	50	13.12%
PKR.51,000 to 100,000	140	36.75%
PKR.101,000 to. 200,000	87	22.83%
PKR above 200,000	104	27.30%
No of children :		
2-Jan	149	39.11%
4-Mar	150	39.37%
6-May	55	14.44%
8-Jul	14	3.67%
10-Sep	3	0.79%
Others	10	2.62%
Ethnicity:		
Urdu Speaking	49	12.86%
Punjabi	92	24.15%
Sindhi	16	4.20%
Balochi	4	1.05%
Saraiki	174	45.67%
Pashto	23	6.04%
Others	23	6.04%
Religion:		
Islam	367	96.33%
Christian	11	2.89%
Hindu	2	0.52%
Other	1	0.26%
Socioeconomic Status:		
Lower Class	50	13.12%
Lower Middle Class	140	36.75%
Upper Middle Class	87	22.83%
Upper Class	104	27.30%
Employment status:		
Employed	82	21.52%
Self Employed	24	6.30%
Unemployed	253	66.40%
Housewives	22	5.77%

Around 25.46% (n= 97/381) of respondents were unable to read and write whereas 22.05% had primary education. Around 36.75% had a monthly household income of PKR.51,000 to 100,000. Around 39.37% (n= 150/381) of respondents reported that they have 3-4 children. Less than half of respondents were found to be Saraiki. Around 24.15% were Punjabi. (Table- 1)

Majority of mothers i.e 81.10% (n=309/381) were consuming CAM therapies in children. Around 12.60 % reported that CAM therapies are more effective than medical treatment. However 15.22% (n= 58/381) reported that they are using oil rub/essential oils for treating various illnesses in children. Around 71.13% (n=271/381) mothers were of the view that CAM is safer for children than medication prescribed by doctors in hospitals (Table-2).

A statistically significant association was observed

Table 2: *Practices and perspectives of mothers regarding CAM therapies in children*

Variables	n	Percentage (%)
Do you use CAM in children ?		
Yes	309	81.10%
No	72	18.90%
If yes then for what purpose do you use CAM in your children?		
Using because of no side effects/ complications	34	8.92%
More effective than medical treatment	48	12.60%
Better pain reliever	26	6.82%
Eye infection	37	9.71%
Sore throat	35	9.19%
Improved well-being	19	4.99%
For preventing diseases	39	10.24%
All of the above	35	9.19%
Others	36	9.45%
Don't Know/Not Applicable	72	18.90%
Which of the following CAM therapies do you use for treating various illness in children ?		
Herbal medicine	27	7.09%
Chinese medicine	12	3.15%
Oil rub/ Essential oils	58	15.22%
Honey	22	5.77%
Listening Quran	18	4.72%
Massage	23	6.04%
Vicks vaporub	35	9.19%
Homeopathy / Homeotherapy	30	7.87%
Gripe water	45	11.81%
Ginger	19	4.99%
Pepper mint	6	1.57%
Chiropractic	16	4.20%
Vitamin/ Supplements	23	6.04%
Others	5	1.31%
All of the above	25	6.56%
Don't know	17	4.46%
Do you inform child's physician / pediatrician regarding the use of CAM in children ?		
Yes	297	77.95%
No	84	22.05%
Do you think CAM therapies are better and safer for children than medication prescribed by the doctors in clinics and hospitals?		
Yes	271	71.13%
No	110	28.87%
Does your child physician prescribe CAM to your children alongside medical treatment?		
Yes	273	71.65%
No	108	28.35%
Do you think that CAM therapies should be prescribed by pediatrician alongside allopathic medical treatment in children?		
Yes	302	79.27%
No	79	20.73%

between employment status (p=0.002), ethnicity (p=0.004), religion (p=0.002) with the use of CAM in children (Table-3)

Table 3: *Association between sociodemographic characteristics and practices of CAM*

Variables (n=381)	Yes Frequency (%)	No Frequency (%)	χ^2	p value
Level of education			10.11	
Not able to read and write	86(86.7%)	11 (11.3%)		
Primary	69 (82.1%)	15(17.9%)		0.072
Secondary	48 (75%)	16(25%)		
Intermediate	1 (33.3%)	2 (66.7%)		
Graduate	76 (79.2%)	20 (20.9%)		
Post graduate	29 (78.4%)	8 (21.6%)		
Employment status			11.11	
Employed	63(76.8%)	19 (23.2)		0.011
Self employed	14 (58.3%)	10 (41.7%)		
Unemployed	214(84.6%)	39(15.4%)		
Housewives	18 (81.8%)	4 (18.2%)		
Religion			14.97	
Islam	33(90.2%)	36(9.8%)		
Christian	8(72.7%)	3 (27.3%)		0.002
Hinduism	1	1		
Others	0(0.0%)	1		
Ethnicity			19.3	
Urdu speaking	44(89.8%)	5 (10.2%)		
Punjabi	67 (72.8%)	25(27.2%)		
Sindhi	11 (68.8%)	5 (31.3%)		
Balochi	3 (75%)	1 (25%)		0.004
Saraiki	153(87.9%)	21 (12.1%)		
Pashto	15 (65.2%)	8 (34.8%)		
Others	16 (69.6%)	7 (30.4%)		
Monthly household income			2.7	
PKR.50,000	37(74%)	13(26%)		
PKR51,000 to 100,000	118(84.3%)	22 (15.7%)		0.44
PKR Rs.101,000 to 200,000	71 (81.6%)	16 (18.4%)		
PKR > 200,000	83 (71.8%)	21 (20.2%)		

Table 4: *Association between sociodemographic characteristics and practices of CAM*

Variables	Odd ratio Exp(B)	95% CI		p value
		Lower bound	Upper bound	
Age	0.347	0.034	3.535	0.371
No of Children	3.136	0.432	22.761	0.258
Level of education	0.256	0.069	0.95	0.042
Employment status	0.118	0.023	0.594	0.01
Monthly income	1.892	0.838	4.27	0.125
Ethnicity	2.967	0.642	13.723	0.164
Religion	2.303	1.026	5.16	0.043
Socioeconomic status	0.994	0.771	1.281	0.964

p-value significant at α<0.05; Binary Logistic Regression test applied

Discussion

This study explores maternal practices and perspectives on the efficacy of complementary and alternative medicine (CAM) in pediatric healthcare .The present study reported higher prevalence of use of CAM therapies among mothers in children. Approximately 77.95% mothers inform their child physician regarding the use of CAM in children. Around 10.24% replied that they are using CAM therapies for preventing diseases in children. Whereas 7.09% and 6.04% were consuming herbal medicine and massage therapies respectively for treating various ailments among children. Around 9.19% and 4.99% mothers were consuming CAM therapies in children for treating sore throat and improved well being respectively. Around 71.13% were of the view that CAM therapies are better and safer for children than medication prescribed by doctors in clinics and hospitals.A statistically significant association was observed between employment status (p=0.002), ethnicity (p=0.004), religion (p=0.002) with the practices of CAM.

The study also revealed that most participants viewed traditional medicine as inherently safe due to its natural origin. This strong belief system and learned behavior may indirectly limit their capacity to make informed healthcare decisions. Moreover, participants exhibited limited knowledge of interactions between conventional drugs and herbal remedies. These findings emphasize the need to educate mothers on the safe and effective use of CAM in pediatric healthcare management, supporting prior research on women's perceptions of herbal medicine.[6]

According to a study conducted in Malaysia, 85.5% of mothers were consuming CAM therapies. Approximately thirty three (33%) were using Herbal medicine. Mothers who had used CAM reported improved overall physical health (61.8%). Around 80.3% of mothers were satisfied with the CAM therapies. However, 3.5% reported that modern medicines have side effects as reason for consuming CAM. Moreover, those women who had tertiary level of education were 2.56 times more likely to practice CAM than those who had below secondary level of education.This difference could be due to large family size, family influence having their recommendation, positive results, experiences of other CAM users and difference in level of education. This could be due to the fact that women having tertiary education have higher probabilities of being employed and more earnings which enables them to afford CAM. Moreover, those with a tertiary level of education have an extensive knowledge of CAM enhancing their self-empowerment in making own decisions regarding their health.[11]

Dilek et al reported in his study that 15.3% of mothers were using herbal products whereas 37.2% were consuming multivitamins. Around 68.5% and 22.4% reported that for healing illness of child as the reason of using CAM. More than half of mothers reported that they inform health care providers of usage of CAM.A vast majority of mothers reported that CAM therapies have no side effects.[12]

Another study carried out in Jordan reported that majority of mothers were using olive oil for overall well being and body massaging in children.More than half of mothers with a higher educational level reported that CAM therapies could have side effects.[13] These findings are consistent with the present study. Moreover in this study 59.58% mothers reported that CAM therapies have side effects as compared to medical treatment prescribed by clinicians in hospitals.

According to a study conducted in Turkey reported

that massage was found to be most commonly used alternative methods consumed by 10.1% of respondents whereas 6.2 % of respondents were using herbal treatments followed by vitamins/ minerals (8.7%).[14] These findings were consistent with the present study. However studies conducted at New Zealand and Ethiopia reported that herbal supplements massage and religious therapy were used by 35%, 23% and 11.8% of respondents respectively.[15,16] This difference could be due to smaller sample size in those studies as compared to present study.

A study conducted in Italy reported that 68% of participants were consuming natural remedies followed by vitamins (54.8%) and minerals (38.5%). It was worth noting that participants who had lack of confidence in health professional were more likely to use herbal and homeopathic remedies. This difference was because of trust in traditional system of health care as it was correlated with linguistic compatibility and higher education.[17]

Another study conducted in Pakistan reported that majority of Pakistani population were more inclined towards using alternative medicine therapies for treatment of diseases such as depression, epilepsy etc.[18,19]

Hussain Tahir et al reported in his study that approximately more than half population of Pakistan (59%) consuming CAM therapies for numerous health concerns.[20,21,22] Owing to its widespread CAM use, it has become a point of convergence by health policy makers for the CAM integration into the health sciences curriculum.[23]

According to study conducted in Australia, it was reported that lower education ($p < 0.001$), parity ($p = 0.029$), age ≥ 35 years ($p < 0.001$), and lower income ($p = 0.013$) were associated with use of traditional medicine.[24] According to a study carried out in Vietnam reported that approximately half of the respondents were consuming herbal medicine i.e honey, ginger for treatment of nasal congestion, cough, fever and sore throat. Majority of the respondents were of the view that herbal medicines had less side effects as compared to conventional medicines.[25] This difference could be due to difference in geographical location.

Asrat et al reported in his study that 71% of mothers were consuming traditional medicine for treating various illnesses in children.[26] These findings are consistent with the present study.

The present study revealed high prevalence of CAM practices by mothers related to pediatric care.There is a need to establish clear guidelines for health care providers to address the needs and preferences of mothers related to safe use of CAM for pediatric care alongside allopathic medicine.

Since CAM practices varies across different cultures, religion and ethnic groups which cannot be completely captured in this single centered study. Probable limitations of the study include recall bias, as participants may not accurately remember past experiences with CAM therapies. The findings of this single centered study cannot be generalized at population level.

Conclusion

The prevalence of CAM use among mothers was found to be quite high. The findings of this study provided a valuable insights for healthcare providers and pediatricians to better address the needs and preferences of mothers in promoting effective and safe healthcare practices related to CAM use for treating various illnesses in children. However a further in-depth longitudinal studies are needed to investigate the use of CAM for specific diseases among children.

Ethical Approval: The Institutional Review Board, Fazaia Ruth Pfau Medical College (FRPMC), Karachi, approved this study vide Ref No: FRPMC-IRB-2024-56.

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Authors' Contribution:

FS: Conception & design, analysis & interpretation of data, manuscript writing, revising it critically for important intellectual content. Final approval of the version to be published

HAJ: Conception & design, acquisition of data, drafting of article

MM: Acquisition of data, drafting of article

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