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Cultural Dietary Practices During Menarche Among Women In South India: A Cross-Sectional Study

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Abstract
Menarche, the first menstrual period, signifies the onset of reproductive maturity in adolescent girls, usually between 10-16 years. Globally, a declining trend in the age at menarche has been observed, attributed to factors like nutrition, BMI and physical activity. In southern India, menarche is not only a biological milestone but also a culturally significant event marked by distinctive rituals and dietary practices believed to influence long-term reproductive health. The study aimed to explore cultural dietary practices during menarche among women in South India and perceived benefits of these practices. A descriptive, cross-sectional study was conducted among 50 women (15-49 years) through random sampling, using a structured questionnaire. 98% belonged to the urban area with majority from upper-income, nuclear families and had completed higher education. 90% followed cultural rituals (sleeping separately, avoiding religious places, using separate utensils). All women followed some dietary practices and most consumed food groups included cereals, pulses, ghee, fenugreek seeds, edible gum and jaggery. 38% avoided combinations of sour and non-vegetarian foods and 36% consumed herbal remedies like fenugreek seeds water. 78% followed these practices for 1-2 weeks and 82% continued following them due to perceived benefits like reduced cramps and improved back strength. Traditional menarche-related practices remain prevalent in south India, driven by cultural beliefs. These may contribute to menstrual and reproductive well-being throughout a women's life, ensuring healthier offspring.
Keywords: *Menarche; menstruation cycle; cultural practices; dietary practices*

INTRODUCTION

"Menarche is defined as the first menstrual period in a female adolescent. Menarche typically occurs between the ages of 10 and 16, with the average age of onset being 12.4 years". It tends to be painless, with the first few cycle being anovulatory. It is the beginning of reproductive abilities for a girl/woman [1].

Globally, there has been a decrease in the age at menarche over recent decades. For instance, one international study found the average age at menarche dropped from 14.16 years in older generations to 13.40 years in younger women, a reduction of approximately 0.31 years per decade [2]. Furthermore, menarche averages vary worldwide, generally between 11 and 15 years, possible due to genetics, lifestyle, nutrition and environment. Additionally, Asian populations have a slightly later average than western populations, but they show a similar downward trend [3-5]. The average of menarche in India is 13-14 years [6]. In Karnataka the average age is 12-13 years [7]. The decline in the menarche age can be attributed to socio-economic changes, nutrition, BMI, lack of physical exercise and sleeping habits [8,9].

Cultural dietary practices play a significant role during menarche, especially in southern India where menarche is marked by distinctive rituals and food customs. It is regarded as a pivotal point in cultural and social life. Across south Indian states like Kearala and Tamil Nadu, families observe specific dietary changes and cultural traditions to commemorate this transition. For instance, it is customary in some regions to prove young girls with mildly roasted shallots and garlic on the first day, to symbolize health and auspiciousness [10,11].

Traditional, nutrient-rich diets are followed during menarche which vary from region to region. These diets include foods like milk, ghee, pulses, rice, eggs, fenugreek seeds, edible gum, etc. that support hormone balance, strengthen immunity and enhance general well-being [10,11]. In Tamil Nadu, dietary practices as a part of menstrual rituals include special foods and restrictions like avoiding tamarind and curd based on beliefs about menstrual purity [12].

Despite the modernizing influences and gradual decline of certain customs, some families still follow these rituals. Research has shown these practices may prevent gynaecological problems later in life, such as irregular menstruation, fertility issues or polycystic ovarian syndrome (PCOS) [12]. However, studies have also highlighted a trend towards westernized eating habits among younger generations, correlating with earlier onset of menarche and a shift in cultural practices [13].
Understanding these practices through cross-sectional surveys provides a valuable insight into public health and cultural practices followed in India. Hence, this survey was conducted to identify cultural practices during menarche among women in south India.

METHODOLOGY

A descriptive, cross-sectional survey was conducted among 50 women of reproductive ages (15-49 years) from South India. Participants were recruited through random sampling. A structured questionnaire was used to assess:

- Socio-demographic data
- Rituals during menarche
- Dietary inclusions and restrictions
- Herbal remedies
- Duration and perceived benefits

Data was analysed using simple frequency distributions and percentages.

Ethical Clearance:

Ethical clearance was obtained from the University Ethics Committee for Human Trials (Ramaiah University of Applied sciences, Bengaluru, India) (EC-23/01-PhD-FLAHS).

RESULTS & DISCUSSION

The survey was conducted to identify cultural and dietary practices during menarche among women in South India. Following were the sociodemographic results obtained:
Based on the sociodemographic details, as seen in table 1, it was observed that 44% belonged to 26-35 years and majority (48%) belonged to 36-49 years. Majority of the women belonged to the urban region (98%) with 52% from Karnataka and 18% from Andra Pradesh. 84% of the women were Hindus and 58% had completed education up to the degree level while only 10% earned a PhD and 68% were government employees. 80% women stayed in nuclear families and 100% belonged to the upper income class.

Table 1: Sociodemographic parameters

Parameter	**Category**	**Number of respondents n** (%)
Age Group	15–25 years	4 (8%)
	26–35 years	22 (44%)
	36–49 years	24 (48%)
Place	Rural	1 (2%)
	Urban	49 (98%)
State	Andhra Pradesh	9 (18%)
	Tamil Nadu	7 (14%)
	Karnataka	26 (52%)
	Kerala	8 (16%)
Religion	Hindu	42 (84%)
	Christian	6 (12%)
	Muslim	2 (4%)
Education	1st–7th std (Primary education)	0 (0%)
	8th–12th std (Secondary education)	8 (16%)
	Degree	29 (58%)

	Postgraduate (PG)	8 (16%)
	PhD	5 (10%)
Occupation	Government employee	0 (0%)
	Private employee	34 (68%)
	Housewife	16 (32%)
Family Type	Nuclear	40 (80%)
	Joint	9 (18%)
	Extended	1 (2%)
Income	Upper class (≥ ₹8397)	100 (100%)

Cultural and dietary practices related to menarche:

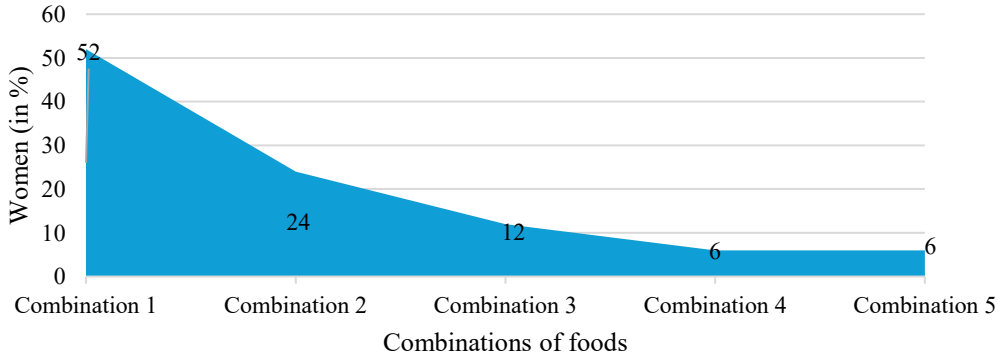
The survey revealed that 90% of women followed certain rituals during menarche. Among them, the majority (86%) adhered to practices such as sleeping on the mat or separately, avoiding temple visits or visits to other households, bathing with turmeric water and eating in separate utensils. Additionally, 4% observed these same rituals with the added custom of covering the girl with coconut leaves.

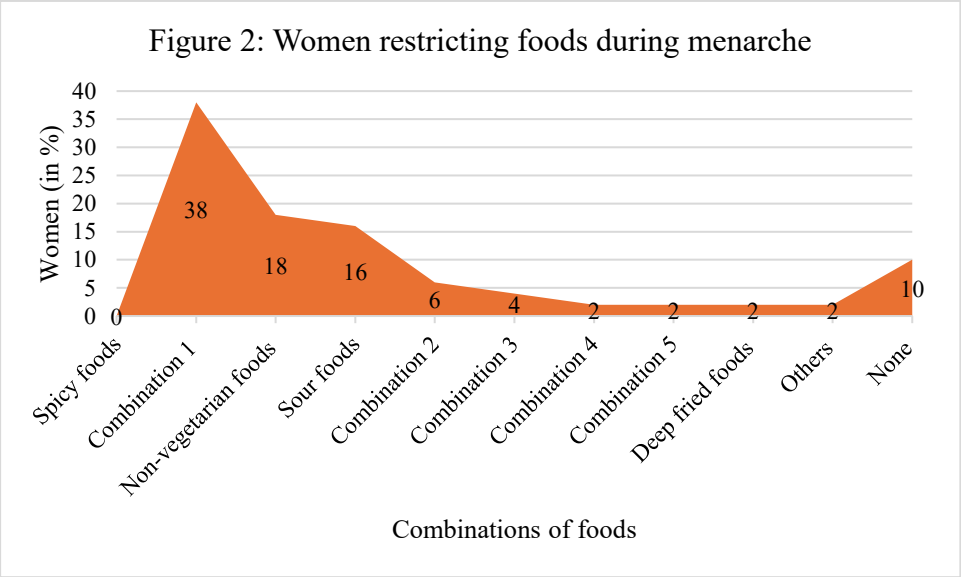
Additionally, all the respondents reported following certain dietary practices in relation to menarche. Among them, 92% adopted these dietary practices during menarche, 2% began them beforehand, another 2% after menarche and 4% initiated these practices both during and after menarche.

Dietary practices reported by the respondents indicated a variety of food combinations that were encouraged during or after menarche. As seen in figure 1, majority of them (52%) reported consuming combination 1 (cereals, pulses, fats, meat and other foods like jaggery, fenugreek seeds, edible gum, neem leaves, dry ginger, dates, flax seeds and garden cress seeds). Around 24% encouraged intake of combination 2 (seeds, pulses, fats, other foods and meat). Only 12% reported consuming combination 3 (bovine colostrum along with cereals, pulses, fats, fruits, meat and other foods). Lastly, 6% each included either combination 4 (fruits, cereals, pulses, meat, fats, seeds, and other items) or combination 5 (herbs, fruits, cereals, seeds, pulses, other items, and fats).

A seen in figure 2, food restrictions reported by 38% of the respondents included combination 1 (sour items with non-vegetarian foods), followed by non-vegetarian foods alone (18%) and sour items alone (16%). A small proportion did not follow any food restrictions (10%). A smaller proportion (6%) avoided combination 2 (spicy foods, sour items, and non-vegetarian foods), combination 3 (spicy foods with deep-fried foods and sour items) was avoided by 4% of the respondents, 2% avoided combination 4 (spicy foods, deep-fried foods and non-vegetarian foods), and 2% avoided combination 5 (spicy foods with deep-fried foods). Deep-fried foods alone and other unspecified foods were also each restricted by 2% of respondents. None of them reported restricting only spicy foods, indicating that spiciness alone was not viewed as a significant dietary concern during this time.

Figure 1: Women consuming combinations of foods during menarche





It was also observed that herbal remedies or traditional drinks were encourages by 36% of the respondents, among which 24% encourage having fenugreek seeds water, 6% milk with turmeric, 4% guar gum water and 2% jaggery water (Table 2). 64% did not encourage having any herbal remedies or traditional drinks. Additionally, as seen in the table 3, majority of women (78%) said the duration of the dietary practices was 1-2 weeks and only 4% opted for these for a month.

Table 2: Intake of herbal drinks during menarche

Response	Percentage (%)	If Yes, Specify	Percentage (%)
Yes	36%	Fenugreek seeds water	24%
		Milk with turmeric	6%
		Guar gum water	4%
		Jaggery water	2%
N	64%	Not applicable (NA)	64%

Table 3: Duration, beliefs and continuity of following dietary practices during menarche

Parameter	**Category**	**Number of respondents n (%)**
Duration of Dietary Practices	Less than 1 week	12%
	1–2 weeks	78%
	1 month	4%
	More than 1 month	6%
Belief in Health Benefits of Dietary Practices	Yes	86%
	No	2%
	Not sure	12%
Continue to Follow Them	Yes	82%
	No	18%
	Supports the reproductive system	4%

If Yes, Why Do They Continue	Back strengthening	16%
	Lesser cramps	10%
	Supports the reproductive system + Back strengthening	12%
	Back strengthening + Lesser cramps	2%
	Good for the reproductive system + Lesser cramps	2%
	NA	18%

Furthermore, majority of the women believed in the positive effects of following the dietary practices and 82% continue to follow these practices now. Among the respondents who continued following the practices, various reasons were cited for doing so. 16% said that these practices helped with back strengthening and 10% reported experiencing lesser cramps. 4% believed the practices supported the reproductive system. A combined benefit of reproductive system support and back strengthening was reported by 12%, while 2% each cited back strengthening with lesser cramps and reproductive support with lesser cramps as reasons and 18% did not provide any specific reason.

DISCUSSION:

It was seen that 90% of women followed certain rituals during menarche, of which 86% adhered to practices such as. Additionally, 4% observed these same rituals with the added custom of covering the girl with coconut leaves.

Our study observed that 90% women followed rituals during menarche such as sleeping on the mat or separately, avoiding temple visits or visits to other households, bathing with turmeric water and eating in separate utensils which were in line with studies from Chennai, Tamil Nadu and Malaysia [14-16]. Similar observations were made in a study conducted by Garg and Anand where women are not allowed in religious places [17]. Another study from Kerala has results in line with the present study where women had bath with oils like sesame seed oil, coconut oil, etc. [10]

Additionally, in the present study, all the respondents reported following certain dietary practices in relation to menarche. A study conducted in Kerala had similar observations where 69% of the women followed certain restrictions during menarche [10].

The present study had dietary practices with a variety of food combinations that were encouraged during or after menarche. These included a mix of cereals, pulses, fats, meat, jaggery, fenugreek seeds, edible gum, neem leaves, dry ginger, dates, flax seeds and garden cress seeds, bovine colostrum, fruits and herbs. A descriptive study conducted in Kulathur, Tamil Nadu had similar observations where women consumed raw eggs, sesame oil, ghee, amaranth seeds, raw cow milk, fenugreek seeds, ragi, pearl millet, foxtail millet, green gram, mutton, etc for the first 3-15 days of their first menstrual period [15]. Another study conducted in Kerala had similar results where foods like black sesame seeds, raw eggs, bovine colostrum, tapioca, meat soup, herbs, etc were encouraged during menarche [10].

Food restrictions were also reported in our study. These included sour items, non-vegetarian foods, spicy foods and deep-fried foods which were in line with a review study where women were not allowed to consume sour, spicy and salty food during menstruation [18]. A study conducted in Haryana had similar beliefs where buttermilk/curd, pickles, sour foods like tamarind, spicy foods and non-vegetarian foods were restricted with the belief of increasing cramps during menstruation [19]. Another study conducted in Malaysia had results in line with the present study where food restrictions included non-vegetarian foods, glutinous rice, salt, Monosodium glutamate (MSG) and cooking oil [16]. A study conducted in Fiji had similar observations where meat, fish and other proteins were avoided as they made they blood 'smellier' [20].

It was also observed that herbal remedies or traditional drinks were encouraged. These included fenugreek seeds water, milk with turmeric, guar gum water and jaggery water. These were in line with a study from Haryana where it was believed that tea with clarified butter helped to reduce cramps [19].

Furthermore, most women in our study (78%) said the duration of the dietary practices was 1-2 weeks which were in line with a study from Malaysia, where the cultural practices were typically followed for a

week or until the bleeding stopped [16]. Another study conducted in Chandigarh reported following the practices for at least 2 weeks to help with reduction cramps [21].

Majority of the women in our study also believed in the positive effects of following the dietary practices and 82% continue to follow these practices now. Among the respondents who continued following the practices, various reasons like back strengthening, experiencing lesser cramps, support to the reproductive system were cited. A community-based, cross-sectional study conducted in Haryana had similar results where practices like consuming clarified butter, tea and ample water were believed to provide strength to the body and relieve cramps [19]. Another study from Kerala had results in line with the present study where the cultural practices were believed to reduce pain, increase haemoglobin levels, reduce premenstrual symptoms (PMS), protect from infections and strengthen the reproductive system [10].

Thus, based on the survey, majority women continue to follow these practices and find them to be beneficial.

CONCLUSION

This study was undertaken to examine cultural dietary practices observed during menarche in South India. The study observed specific food inclusions, restrictions and herbal remedies followed in south India during menarche. Most women perceived these practices as beneficial for reproductive and general health. These findings can guide the development of culturally appropriate nutrition programs and adolescent health education. Adolescence is a critical phase for girls as they are the future mothers to the next generation. Thus, their health and wellbeing play a crucial role. Ensuring proper care during menarche and throughout life through each menstrual cycle is essential for a healthy life in women. The study highlighted dietary customs, offering valuable ancient wisdom while respecting cultural values.

Limitations and future recommendations

The study majorly includes urban, higher-income women which may limit the generalizability of the findings. Cultural dietary practices can vary significantly across rural, less educated and lower-income populations. Thus, future research should aim to include a more diverse and representative sample across various states in India.

Additionally, the study relied on self-reported data, making it susceptible to recall bias. To enhance reliability, future studies could conduct longitudinal or mixed-method studies, including qualitative and observational components.

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Conflict of interest

The authors declare no conflict of interest. The authors alone are responsible for the content and writing the paper.

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