



Menstrual Cycle Pattern in Adolescents Girls, in Relation to BMI, Food Habits and the Same in their Parents.

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ABSTRACT

Menstrual cycle function was closely associated with a women's ability to become pregnant. Various studies explain the possible relationship between menstrual cycle pattern and other reproductive outcome. Based on this background this study was designed to know the menstrual cycle pattern in adolescent girls and the same in their mother. The aim of the study is to assess the menstrual cycle pattern in relation to food habit, BMI and same as in their mothers. 185 adolescent girls (aged 17-22 years) and their parents (34-55) were included in this study. Age at menarche, menstrual cycle pattern, and religion and food pattern were asked as questioner. Height and Weight were measured. Body mass index were calculated by using (BMI; kg m) as an index relative weight. In 87.02% of adolescent girls and 84.86% mothers cycles were regular. Only a few cases both the mothers and daughters had irregular cyclical. The irregular cycle pattern in adolescent girls correlated with increased BMI. Menstrual cycle pattern is associated with the nutritional status and life style modification. Future research could build on this study by associations between parent and daughters cycle by their physical activity.

Keywords: Menstruation, mother, daughter and BMI.

INTRODUCTION

The menstrual cycle is the natural phenomena that occurs in the female reproductive system from menarche to menopause and is necessary for human reproduction^{1,2}. The menarche occurs at around the age of 12-13 years and menopause occurs between age of 45 and 55 years. The length of a menstrual cycle varies from 21 to 35 days and length of 28 days was considered as the average cycle³. If the length of the menstrual cycle was greater than 35 or less than 21, the cycle was considered as irregular and if the menstruation occurs less than nine the cycle is called Oligo menorrhoea. Women with PCOS are also likely to suffer from Oligo menorrhoea, which is one of the major causes of infertility^{4,5}.

It is well established that environmental factors, status of nutrition in childhood, nutritional status disorders such as overweight or obesity affect the regularity of menstrual cycle in women. The menstrual history of mother and their daughter have close cycle phase specific symptoms. Although the physiology of menstruation is easily explained, the variability within the menstrual experience (from cycle to cycle and woman to woman) is not easily understood. Moreover, the menstrual experience--as a bio psychosocial phenomenon--is influenced or mediated by internal and external factors, such as hormonal fluctuation, individual development, family pattern, stress and other factors. Based on the background, this study is designed to know the menstrual cycle pattern in adolescent girls and the same in their mother. It was

planned to observe the dietary pattern BMI and religion whether it influence the menstrual cycle pattern.

METHODS

Study population: The study was carried out in adolescent girl population and approved by institutional ethical committee. Informed consent was obtained from the participants.

This study included 185 girls (age group between 17 to 22 years) and their mothers (34 to 55 years). A personal interview and written questionnaire were given to them. The girls were asked their age, religion, food habit and menstrual cycle pattern.

The height and weight were measured. The BMI was Calculated on the basis of their height and weight (BMI=weight/height*height).

RESULT

Out of 185 adolescents' girls and mothers, 87.02% of girls and 84.86% of mothers had their cycle regularly. 13% of daughters and 8.64% of mother's cycles were irregular. 5.95% of mothers attained their menopause and 3.24% were underwent hystertomy. In this study population comparison between their mothers and daughters showed; 23 daughters had their cycles irregularly but their 21 mothers cycles were regular and 2 mothers either they attained their menopause or uterus removed. 9 mothers cycle were irregular and their daughter's cycles were regular. Only one daughter and mothers cycle were irregular. (G-I, TABLE-1)



According to their BMI

In the total number of subjects 50.81% daughters BMI were normal, 11.89% were overweight, 5% were obese and 32.43% were underweight. It was noticed in 44.86% were normal BMI, 8.10% of overweight, 4.86% of obese and 28.64% of underweight respectively had their cycles regularly. Rest all getting their cycles irregularly, In mothers it was observed, 45.94% were normal, 30.27% were overweight, 12.97% were obese and 10.81% were underweight. In mothers 37.83%, 25.94%, 9.18% and 9.18% subsequently getting their cycles regularly.

Under normal BMI limits 37.83% mother's cycle were normal and (3.7%) Cycles were irregular. In overweight 47(94%) were getting their cycles regularly and 03(6%) were getting their cycle irregular. In obese 17(70.83%) cycle were regular and 7(29%) cycle were irregular. Underweight 15(93.75%) were getting their cycle regularly and 01(6.25%) were getting their cycle irregularly. 17 mothers were reached their menopause or either their uterus removed. (G-II, TABLE-2)

Table 1: Shows daughters and mothers menstrual cycle comparison

Pattern of Menstrual cycle	Daughters (n=185)	Mothers (n=185)
Regular Menstrual cycles	161(87.02%)	157(84.86%)
Irregular Menstrual cycles	24(12.97%)	16(8.64%)

Table2: Shows menstrual cycle according to the Body Compositions (BMI)

BMI	Daughters (n=185)	Menstrual cycle pattern		Mothers (n=185)	Menstrual cycle pattern	
		regular	irregular		regular	irregular
Normal	94(50.81%)	83(44.86%)	11(5.94%)	85(45.94%)	70(37.83%)	07(3.7%)
Overweight	22(11.89%)	15(8.10%)	7(3.78%)	56(30.27%)	47(25.94%)	03(1.62%)
Obese	09(5%)	09(5%)	nil	24(12.97%)	17(9.18%)	7(3.7%)
Underweight	60(32.43%)	53(28.64%)	7(3.78%)	20(10.8%)	15(9.18%)	01(0.5%)

Vegetarians/Non Vegetarians

In total number of daughters 5.88% were vegetarians and their menstrual cycles were regular. Rest 97.29% were non vegetarians. In the non - vegetarians group 87.22% were getting their cycles regularly and others were getting their cycles irregularly.

Religion vice Comparison

When we compare the cycle according to their religion. Out of 185 girls- 156 (84.32%) were Hindus, 10 (5.40%) Muslims and 19 (10.27%) girls were Christians.

Out of 156 (84.32%) - Hindus 135 daughters and mothers cycles were regular. Rest of the 21 daughters and 13 mother's cycles were irregular. 8 mothers either uterus removed or they reached their menopause. It was noticed that the mothers who all getting their cycles irregularly out of all only one daughters cycle were irregular. But in 15 daughters 1 mother's cycle were regular.

Out of 10 Muslim community daughters 2(28%) were getting their cycle irregular, but it was noted none of the mother's cycle were irregular.

In 19 Christian community students 1(0.52%) daughter and mother were getting their cycle irregular.

DISCUSSION

The purpose of this work is to associate the length of the menstrual cycle with religion, BMI, food habits and to assess the status of menstruation in women and their

daughter to highlight the genetic link between the mother and their daughter menstrual status. Researchers have identified that genetic factor as the most influential factor on the length of menstrual cycle. The comparison of cyclic pattern of daughter with their mother is concomitant in our study. The other factors which affect are nutritional pattern, body mass index and mental factors which is taken into account in our study.

The pattern of consumption of food – the vegetarian and Non vegetarian also affect the menstrual history of the women. This study also correlates the body mass, religion and nutritional pattern on the menstrual cycles of daughters and compare the history of their mothers.

Several literature suggests that regular and irregular cycles based on the obesity⁶⁻⁸. However there was no clear information based on religion and food habits comparing with their mother. Ours is one of the first studies to show relation between mothers and daughters menstrual cycle based on BMI, religion and food habit.

The menstrual cycle is influenced by body fat and obesity can lead to irregularities in the menstrual cycle. This Study shows 11.89% and 5% were overweight and obese daughters; 30.27% and 12.97% of mothers were overweight and obese. In this 3.7% of daughters and mothers cycles were irregular. The parental obesity which may lead to obesity in their children later in their life. Several studies show that obesity in young adult is associated with increased morbidity^{9,10}. The daughters who obese and overweight may lead to ovulatory

dysfunction and menstrual irregularity. Obesity is found to be markedly influenced by genetic factor. It is noticed if the both the parents are obese the possibility of obesity in the child will be more¹¹. In this study compare to obese the overweight daughter's cycles were irregular¹². The quality of life style, health care are indicator for increase the BMI level, which develops cardiovascular risks diabetes and gallbladder diseases later in their life. If BMI was below the normal level it leads into decreased vitality, increase tiredness and poor mental health. In this 60 (32.43%) daughters were underweight out of 7 (3.78) daughters cycle were irregular. 15 mothers were underweight and in this 7 were getting their cycles irregularly. So, it shows that minimum proportion of body fat also require for regular menstrual cycles. As BMI increases, chances of irregular cycle is more. Further if the mother had irregular cycle, the daughter also had irregular cycle. These all point towards a possible genetic back ground. It was noted that persons not used to junk food and had however proper nutritional diet had regular cycle than those who had the habit of taking junk food in which case had irregular cycles. In a comparative analysis Muslim community had regular cycle compared to Christian community which may be possibility of more non-vegetarian diet is the cause.

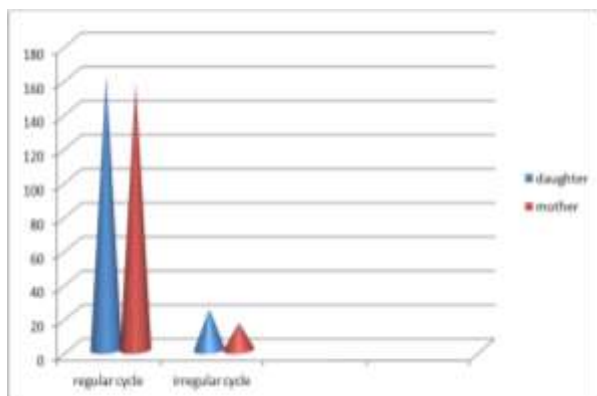


Figure 1: Graphical representation of number of daughters and mothers having regular and irregular menstrual cycle.

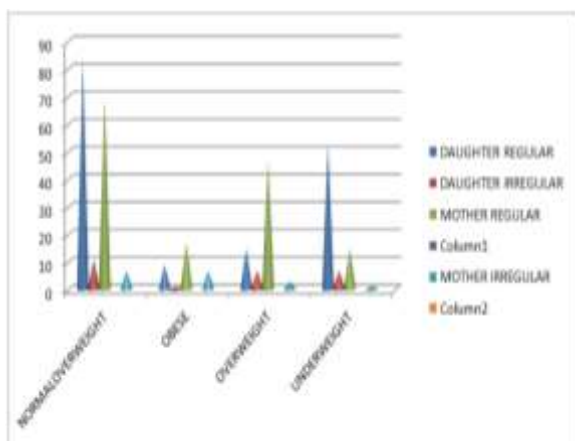


Figure 2: Graphical representation of BMI of daughters and mothers with their menstrual cycle pattern

CONCLUSION

As BMI increases the chances of irregularity was observed to be more. Similarity between the menstrual cycle pattern though regular or irregular, suggest the possibility of genetic background. Proper nutritional status as associated with regularity of cycle. Irregular pattern noticed in adolescent girls with increased BMI definitely insists the need for lifestyle modification. Future research could build on this study by associations between parent and daughters cycle by their physical activity.

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