Research Article

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Prevalence and Factors of Early Onset of Menarche among Adolescent Girls Studying in Selected Schools at Bagalkot-A Descriptive Study

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ABSTRACT

Background: Adolescence is the transition period from childhood to adult life, during which pubertal development and sexual maturation take place. The reproductive life span of a woman begins with the onset of menstruation. Menarche is the first periodic flow of blood from the uterus in all healthy. The main objective of the study was to explore the prevalence and factors of the early onset of menarche among adolescent girls. The prevalence &factors of early is estimated to be 72% of early menarche & 28% of normal menarche. The study was conducted at selected schools in Bagalkot, Karnataka. The present study aimed to find out the prevalence and factors of early onset of menarche among adolescent girls at selected schools of Bagalkot.

Methods: A descriptive survey design was used for the study. Simple random technique was used to obtain 100 samples from Basaveshwer New High School, Bagalkot. Data was collected using semi-structured questionnaire to assess the prevalence and factors of early onset of menarche among adolescent girls. The collected data were analyzed by using descriptive and inferential statistics.

Results: The study shows that the prevalence of early onset of menarche among 100 samples 72% adolescent girls are early menarche, 28% adolescent girls are normal menarche, majority have early onset of menarche. In this study shows that Sexual awareness ($p<0.023$), Vegetables ($p<0.029$) and Fast food ($p>0.008$) variables are associated with early onset ($p<0.05$) and remaining variables are not associated with early onset of menarche ($p>0.05$).

Conclusion: The total of 100 adolescent girls were included in the study. 72% adolescent girls have early menarche, 28% adolescent girls have normal menarche. So, in our study majority of adolescent girls attained early menarche (72%).

Key-words: Adolescent, Early, Factors, Girls, Menarche, Onset, Prevalence

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INTRODUCTION

Adolescents is a period, which is the transition from girlhood to womanhood & marked by with onset of menarche. First menstrual bleeding is called menarche[1] The first sign of puberty is breast budding & followed by the appearance of pubic hair, axillary hair and axillary odour. The average age of menarche, as per the studies, is 12.77 years. Several studies have reported age at puberty and 'Menarche' to have declined in developed countries and have also been noted in developing

countries.[2] Early menarche is usually defined as menarche before the age of 12 years. According to our study, early menarche is 78% & Normal menarche is 28%.[3]

Although some researchers set it at ≤10 or 11 years. In Korea, 21.4% of subjects experienced menarche before the age of 12 years in 2001 versus 34.6% in 2010/2011.[4] Its onset hormonal changes during puberty. The menstrual flow consists of a combination of fresh and clotted blood with endometrial tissue.[5] The initial flow of menarche is usually brighter than mature menstrual flow.[6] a number of factors, such as Nutritional, environmental, physical, and psychological factors, influence its timing. The age at menarche is not fixed and varies from population to population. It may also vary with race, size of the family and environmental factors.[7]

According to a WHO multicenter case-control study, the median age of menarche was 14 years, with a range of 13-16 years from the centre to center.[8] Studies done in Europe have put the mean age of menarche at 12.5-13.6 years, 12.2 years for African Americans, and 12.8 years for whites in the United States, while the mean menarche age among Asian girls is 13-13.5 years. There is also variation in the age at menarche noticed in studies done in Africa, with a range of 13.54-13.79 years reported.[9] A growing body of literature has reported a downward trend in the age at which menarche is attained across different populations.[10]

MATERIALS AND METHODS

A descriptive survey design was used for the study. A simple random technique was used to obtain 100 samples from Basaveshwer New High School, Bagalkot. Data was collected using semi-structured questionnaire to assess the prevalence and factors of early onset of menarche among adolescent girls. The collected data were analyzed by using descriptive and inferential statistics.

Research Approach- The survey research approach is non-experimental research that focuses on obtaining information regarding the activities, beliefs, preferences, and attitudes of people via direct questioning of a sample of respondents. A descriptive survey approach is designed when the purpose of the study is to describe the prevalence or incidence of a phenomenon or to estimate the value of the phenomenon for a population. In the present study, the main aim is to assess the Prevalence and Factors of early onset of menarche among adolescent girls studying at Basaveshwar New High School in Bagalkot. A descriptive study and, hence, A descriptive survey approach design was used.

Research design- A researcher's overall plan for obtaining answers to the research question or for testing the research hypothesis is referred to as research design. A descriptive survey design was selected for the present study. A descriptive survey design is a study that involves a one-time assessment of data from adoloscent girls to determine the prevalence and factors of early onset of menarche and associated factors. The study design represents the population, sample size, variables, data collection tool and techniques and plan for data analysis.

Variables

Study variables 1- Prevalence and factors associated with early onset of menarche. It includes nutritional factors, environmental factors, physical factors psychological factors etc.

Study variables 2- Socio-demographical factors are Age, Standard, Place of residence, Monthly family income, Religion, Type of family, Education of father, and Education of mother.

Setting- The study was conducted in Basaveshwar New High School, Bagalkot, India.

Population- A population is a complete set of persons or subjects that possess common characteristics that is of interest to the researcher.

Target population- Target population of the present study consist the adolescent girls studying in various schools at Bagalkot.

Accessible population- The accessible population for the present study were adolescent girls studying in New Basaveshwar High school Bagalkot.

Sampling size- The total Sample size for the present study was 100, which comprises 72 early menarche and 28 normal menarche adolescent girls studying in the new Basaveshwar High School Bagalkot.

Sample Size Estimation- The sample size was estimated using the formula:

$$N = \frac{(Z)^2 (\delta)^2}{(E^m)^2}$$

Where,

Z value =1.96

δ =Standard deviation

E^m= Margin of error

E^m= Critical value + Standard error

Standard error = δ/√n

References- Based on the authors Dinesh Kumar Dhanwal and Mala Dharmalingam, in the year 2016, the estimated prevalence of hypothyroidism was 13% with 5% precision and 95% confidence, and the estimated sample size was 100. However, a sample size of 100 was taken for the main study due to time limitations.

Inclusion criteria

1. Age group 12 & below 12, 13 & above 13
2. Those who are willing to participate
3. Adolescent girls attained menarche age between 13 years

Exclusion criteria

1. Adolescent girls not attained the menarche
2. Absent at the time of data collection
3. Sick and unable to cooperate through the data collection procedure

Data collection tool- Data collection tools are the procedures or instruments used by the researcher to observe or measure the key variables in the research problem. A semi-structured questionnaire was used to collect the data in the present study.

Content validity- To ascertain content validity, a tool from the nursing discipline was given to 3 experts and two obstetricians for content validation. Based on the suggestion given tool was modified.

Reliability of the tool- The reliability of the tool was established by using the test-retest method. The tools were administered to 10 adolescent girls. The data was obtained. The same tools were administered to the same subject after ten subjects (Retest). Scores of both observations were organized and Karl Pearson's co-

efficient correlation 'r' was computed for finding out reliability.

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{[n(\sum x^2 - (\sum x)^2)][n(\sum y^2 - (\sum y)^2)]}}$$

The obtained value of 'r' was 1, indicating that the tool is highly reliable and feasible for the main study.

Procedure for data collection- Prior permission was obtained from Formal permission was obtained from Principal. Subjects who fulfilled the inclusion criteria were selected by using a simple random technique. The researcher explained the purpose of the study to the participants and Informed consent was taken from subjects. Data was collected from adolescent girls, who fulfilled the inclusion criteria. Prevalence was assessed by using semi-structured questionnaire. Approximately 10-12 subjects were assessed per day. Each respondent had spent approximately 35-40 minutes to complete the questionnaire.

Statistical Analysis- The study has used SPSS 25 for effective analysis. The data were analyzed using descriptive statistics and inferential statistics. Descriptive statistics were used to describe the participants' demographic characteristics and their knowledge about UTIs at both time points. Inferential statistics were used to compare the knowledge of the intervention and control groups at both time points. MS Excel was used for creating graphs and other calculations. the continuous data were expressed as mean±standard deviation while the discrete data were expressed as frequency and its respective percentage. The study used ANOVA as the statistical tool for comparing the variables. The level of significance was considered to be $p<0.05$

Ethical Approval- Ethical clearance has been obtained from the institutional ethical clearance committee, BVVS Sajjalashree Institute of Nursing Sciences, Bagalkot.

RESULTS

The study shows the prevalence of early-onset menarche among 100 samples. Total 72% adolescent girls have early menarche, 28% of adolescent girls have normal menarche, and the majority have early-onset menarche. This study shows that Sexual awareness ($p<0.02$), vegetables ($p<0.02$) and fast food ($p>0.01$) variables are

associated with early onset (p<0.05) and the remaining variables are not associated with early onset of menarche (p>0.05).

Demographic Variable- Table 1 represents the overall socio-demographic of early onset menarche in this study. Was majority (54%) of adolescent girls belong to the age group of 13 years. 35% of adolescent girls are studying in 7th standard of education, 79% of adolescent girls belong to an urban area, 36% of adolescent girls have 10-15,000 monthly family income, 85%b of adolescent girls belong to the Hindu Religion, 58% of adolescent girls belong to the nuclear family, 40% of adolescent girl's fathers having primary education, 57% of adolescent girl's mothers having primary education.

Table 1: Description of Socio-demographic Variable

Socio-demographic variables	Frequency (f)	Percentage (%)
Age (year)		
12 years	11	11
13 years	54	54
14 years	35	35
Standard of education		
6th	11	11
7th	35	35
8th	54	54
Place of residence		
Rural	21	21
Urban	79	79
Monthly family income		
Below 10,000	24	24
10-15,000	36	36
15-20,000	19	19
Above 20,000	21	21
Religion		
Hindu	85	85
Muslim	9	9
Christian	1	1
Others	3	3
Type of family		
Nuclear	58	58
Joint	42	42
Source of information regarding early onset of menarche		
Yes	17	17
No	83	83
Education of Father		
Non-formal	5	5
Primary	40	40
Secondary	35	35
Above secondary	20	20
Education of Mother		
Non-formal	10	10
Primary	57	57
Secondary	21	21
Above secondary	12	12

A total of 100 adolescent girls were included in the study. 72% of adolescent girls have early menarche, 28% of adolescent girls have normal menarche (Table 2).

Table 2: Description of Prevalence of early onset of menarche

Prevalence of menarche	Frequency	Percentage (%)
Early onset of menarche	72	72
Normal menarche	28	28
Total	100	100

There is no significant association between variable factors and early onset of menarche (Table 3).

Table 3: Association between Variable factors and early onset of menarche

Variables	B	SE	p-value
Residence	-.43	0.61	0.47*
Income	-.03	0.23	0.89*
Religion	0.53	0.38	0.16*
Father Education	.62	0.34	0.06*
Mother Education	-.28	0.35	0.41*
Information	0.15	0.68	0.81*

B: Unstandardized beta; SE: Standard Error; *All the values are statistically non-significant

There is no significant association between physical factors and early onset of menarche (Table 4).

Table 4: Association between Physical factors and early onset of menarche

Variables	B	SE	p-value
Exercise	-.31	0.65	0.63*
Medication	20.30	1.96	0.99*
Child illness	-1.46	0.93	0.11*
Dance	-.51	0.51	0.32*

Play	-.34	0.82	0.67*
Bicycle	-.47	0.60	0.43*
Reading	-.51	0.63	0.41*
Sleep	0.50	0.69	0.46*

B: Unstandardized beta; SE: Standard Error; *All the values are statistically non-significant

There is a significant association between sexual awareness and early onset of menarche (Table 5).

Table 5: Association between environmental factors and early onset of menarche

Variables	B	SE	p-value
Newspaper	-.10	0.56	0.85*
Sexual awareness	-1.38	0.60	0.02*
Migration	.70	1.34	0.60*
TV	-1.59	1.32	0.22*
Internet	1.33	0.88	0.13*
Mobile	-.01	0.90	0.98*

B: Unstandardized beta; SE: Standard Error; *All the values are statistically non-significant

There is no significant association between family factors and early onset of menarche (Table 6).

Table 6: Association between family factors and early onset of menarche

Variables	B	SE	p-value
Family Members	-.16	0.11	0.14*
With Parents	-.05	1.30	0.96*
Parents separated	-.90	0.76	0.23*
Elder sister	0.56	0.58	0.33*
Father concern	0.65	0.74	0.37*
Mother concern	0.48	0.89	0.58*

B: Unstandardized beta; SE: Standard Error; *All the values are statistically non-significant

There is significant association between Nutritional factors such as vegetables and fast food with early onset of menarche (Table 7).

Table 7: Association between Nutritional factors and early onset of menarche

Variables	B	SE	p-value
Vegetables	1.58	0.72	0.02*
Milk	-.70	0.51	0.17
Fast food	1.66	0.62	0.01**
Skip dinner	-.84	0.50	0.09*
Sweets	.11	0.54	0.83*
Diet	-.41	0.50	0.40*
BMI	-.37	0.44	0.40*

B: Unstandardized beta; SE: Standard Error; *All the values are statistically non-significant

DISCUSSION

Percentage-wise distribution of adolescent girls refers to those who all are studying in 6th, 7th and 8th standard at Basaveshwar new high school, Bagalkot. According to their age groups reveals that out of 100 subjects, the majority (54%) of adolescent girls are in the age group of 13 years, and (11%) of adolescent girls are in the age group of 12 years. In a similar study majority of adolescent girls, 36% were in the age group of 20 years [11]. The majority (54%) of adolescent girls are in the standard of 8th and (35%) of the adolescent girls are in the standard of 7th. As compared to the previous study majority, 30% of adolescent girls are in the 9th standard [12].

The majority (79%) of adolescent girls are in the urban, and (21%) of the adolescent girls are in the rural. In a similar study majority of adolescent girls 76% in urban areas [13]. The majority (36%) of adolescent girls are in the 10-15,000 income and (24%) of the adolescent girls are in the <10,000 income. In a similar study, 74.5% of adolescent girls had an income between 10,000-20,000 per month [14]. A majority (85%) of adolescent girls are in the Hindu religion, and (9%) of the adolescent girls are in the Muslim religion. In comparison to the previous study, 91% of adolescent girls were Hindu.[15]

The majority (58%) of adolescent girls are in the nuclear family and (42%) of the adolescent girls are in a joint family. In a similar study, 83.5% of them were in a nuclear family. [16] The majority (83%) of adolescent girls do not know the information, and (17%) of adolescent girls do know the information. In a previous study

majority of adolescents, 50% of girls, do not know the information [17]. The majority (40%) of adolescent girl's fathers have primary education, and (35%) of adolescent girl's fathers have secondary education. In a similar study majority, 37.5% of adolescent fathers had agriculture as an occupation [18]. The majority (57%) of adolescent girl's mothers have primary education and (21%) of adolescent girl's mothers have secondary education. In a previous study, 29% of adolescent mothers had secondary education [19-25].

CONCLUSIONS

A total of 100 adolescent girls were included in the study. 72% of adolescent girls have early menarche, and 28% of adolescent girls have normal menarche. So, in our study majority of adolescent girls attained early menarche (72%).

Some of the factors that influence early menarche for that give health education like diet, exercise and, advice to avoid bad habits for adolescent girls, awareness about menstrual hygiene and prevention of the occurrence of diseases. It is helpful to prevent further complications.

CONTRIBUTION OF AUTHORS

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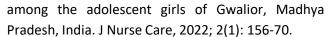**Critical review:** Kamala K.N, Deelip S Natekar

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