IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 18, Issue 1 Ser. 11 (January. 2019), PP 17-25
www.iosrjournals.org

A Study on Physical Well-Being of Girls during Menarche.

Dr. Logeswari B M [1], Dr.N.Nikath Nasreen [2] ,Dr.Saraswathi K [3]
1.Senior Resident, Department of Obstetrics and Gynaecology,Sree Balaji Medical College and Hospital,Chrompet,Chennai.
2.Assistant Professor , Department of Obstetrics and Gynaecology,Sree Balaji Medical College and Hospital,Chrompet,Chennai.
3.Professor And Head, Department of Obstetrics and Gynaecology,Sree Balaji Medical College and Hospital,Chrompet,Chennai.
Corresponding Author: Dr. Logeswari B M

Abstract:
Background:
Physical well-being is closely related to menarche.The main purpose of this research was to assess the physical and emotional well-being of girls during menarche.The study was carried out in Chennai. The sample for the study comprised of 500 adolescent girls. Significant difference in physical well being was noted during menarche.
Aims and objectives:
1. To assess the physical wellbeing of school going adolescent girls during menarche.
2.To suggest recommendations based on study findings.
Materials and methods: Study design: simple descriptive study.
Results: *This study was conducted in 500 school going adolescent girls in Chrompet, Chennai-44. This study was conducted in 500 school going adolescent girls in the age group between 12-16 yrs. Dysmenorrhoea is the most common complaint in about 56.2 %.*
26 % of adolescent girls had menstrual irregularities. 15.8 % had oligomenorrhea, 0.4% had polymenorrhea, and 9.8% had menorrhagia.
38.2% of girls had pallor associated with menorrhagia. 13.2% of girls had Thyroid disorder associated with menstrual irregularities.
30.8% of girls had awareness about menstruation and menarche.Source of awareness by mother -74.6%, sister-13.8%, relatives - 7.8%, friends-3.8%.57.4% of girls had normal BMI. While 19.8% was underweight. 16.6% were overweight and 6.2% was obese. The mean age of menarche is 12.07 years. Age of menarche is inversely related to BMI.
Conclusion:
Physical manifestations are common and needs life style modifications to overcome obesity and menstrual problems related to high BMI.
Keywords: *Physical well being, Adolescence, Menarche, GHQ Scoring System, BMI.*

Date of Submission: 07-01-2019 Date of acceptance: 22-01-2019

I. Introduction

Puberty is a period during which secondary sexual characters develop and the capability of sexual reproduction is attained. According to Maranon and Crecimiento puberty implies a pluriglandular crisis affecting the entire body, marks the beginning of sexual life during which secondary sexual characters develop.

Adolescent age group defined by WHO is between 10-19 years for girls (WHO report series). A fifth of world's population is between 10-19 years. Adolescent girl constitute a vulnerable group, particularly in developing countries like India where female child is a neglected one. Adolescents constitute over 21.4 % of the population in India. This age group needs special attention because of the turmoil of adolescence which they face due to the different stages of development that they undergo, different circumstances that they come across, their different needs and diverse problems.Physical and emotional problems related to menstruation in adolescents occupy a special space in the spectrum of disorders of all ages. Various studies have focused on adolescent gynecological problems of which menstrual disorders were found to be the commonest one . Although menstrual irregularities maybe normal during the early post menarchal years, pathological conditions require proper and prompt treatment and emotional problems require proper treatment, counseling and education on psychological changes during puberty in all school health education programs.

Aims and objectives
To assess the physical and emotional wellbeing of school going adolescent girls during menarche.
To suggest recommendations based on study findings.

II. Materials and methods

Study design: Simple descriptive study.
Study period: Feb 2015 – August 2017
This study was conducted in 500 school going adolescent girls in Chrompet, Chennai-44 .This study was approved by the Ethical committee board.

INCLUSION CRITERIA:
Adolescent girls aged 12-16 yrs
Girls who attained menarche
Girls who has given consent for the study.

EXCLUSION CRITERIA:
Girls aged below 12 yrs and above 16 yrs
Girls not attained menarche
Physically challenged girls
500 school going adolescent girls who met the inclusion criteria were chosen. The purpose of the study was explained to the girls and an informed consent was obtained in their own language.

Data were collected through face to face interview and examination.

A proforma was used to collect information about a wide variety variables.
General: Demographic details including age, address, Religion, Education, father's occupation and socio Economic status was calculated according to the "Modified Kuppuswamy Scale".
Menstrual History: Age of menarche, duration of cycles, duration of flow, amount of flow, associated with clots, associated with pain, awareness about menarche and menstruation and source of awareness.
Past medical and surgical history: H/O diabetes, hypertension, Bronchial asthma, TB, epilepsy, thyroid disorders, mental illness, history of previous surgeries.
Personal history: Diet, sleep pattern, bladder and bowel habits.
General examination: Height, weight, BMI, Height was taken in standing position without footwear and heels placed together with medial malleolei touching and is measured in cm. Weight was recorded in Kg by a standard weighing machine. The BMI was calculated using QUETLET'S INDEX as follows

QUETLET'S INDEX: Weight in kg / height in sq.metre

According to Centers for Disease Control, BMI for children is calculated same way as for adults but compared to typical values for other children of the same age. Then the BMI percentile allows comparison with children of same age and sex55.

BMI PERCENTILE	CATEGORY
$<5^{th}$ percentile	Underweight
5 to 85^{th} percentile	Normal
85 to 95^{th} percentile	Overweight
$>95^{th}$ percentile	Obese

- Pallor and thyroid examination.
- Systemic examination done for CVS, RS, CNS and abdomen.

Finally the data were edited, processed and analyzed.

III. Results and analysis

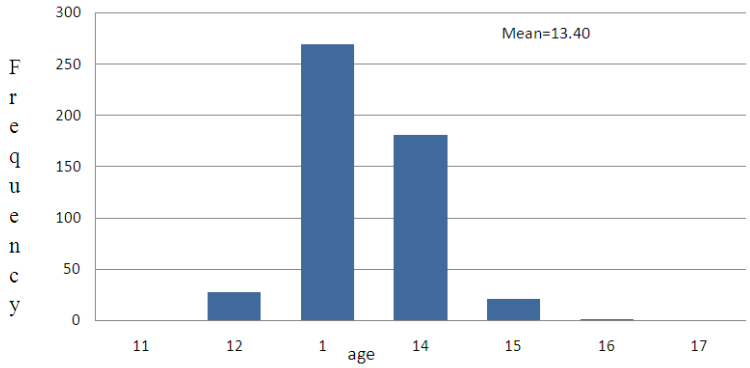
This study was conducted in school going adolescent girls in the age group of 12 to 16yrs. Total number of students involved in the study were 500. Maximum number was in the age group 13-14 years. The mean age of the study group was 13.40years.

Table 1: Age Distribution

AGE IN YEARS	*NUMBER OF STUDENTS*	*PERCENTAGE (%)*

12	27	5.4
13	270	54.0
14	181	36.2
15	21	4.2
16	1	0.2
Total	500	100

FIGURE 1: Age distribution



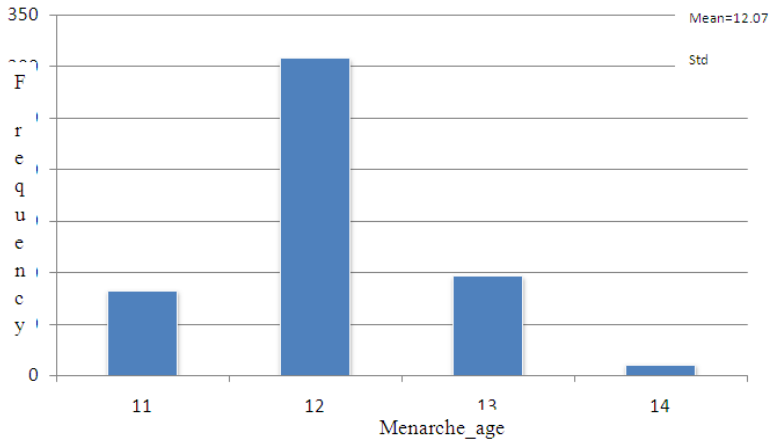
AGE OF MENARCHE

The age of menarche in the study group ranged from 11 – 14 years, maximum between 12 – 13 years and mean of 12.07 years.

Table 2: Distribution of Age of Menarche

AGE OF MENARCHE	*NUMBER*	*PERCENTAGE (%)*
11	83	16.6
12	309	61.8
13	97	19.4
14	11	2.2
Total	500	100

***Figure 2*: Distribution of Age of Menarche**



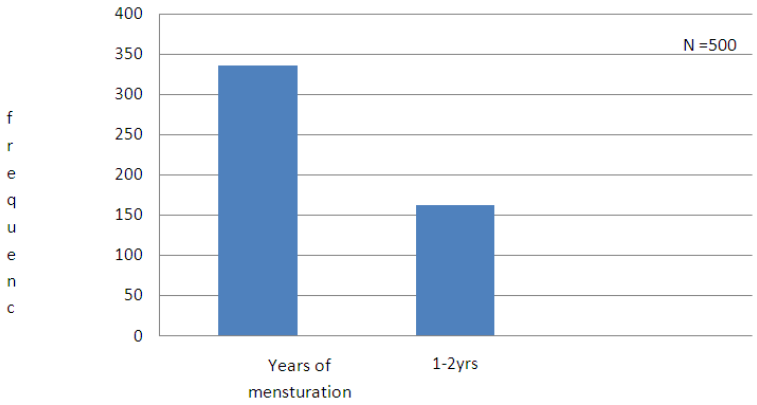
YEARS OF MENSTRUATION:

Among the 500 girls, majority of them (67.4%) were mensturating for less than a year. 29.4% were menstruating for past 1- 2 years.

Table 3: Years of menstruation

Years	Number	Percent
Less than 1yr	337	67.4
1-2yrs	163	32.6
Total	500	100.0

Figure 3*: *Years of menstruation



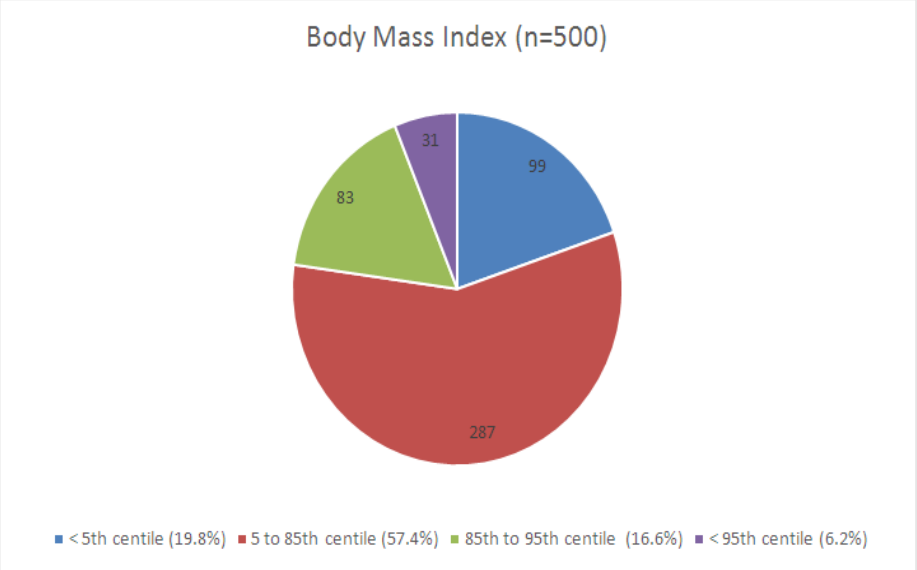
BMI DISTRIBUTION

Among the girls studied 57.4% had normal BMI between 5-85th percentile, 19.8% where underweight with BMI <5th percentile, 16.6 were overweight with BMI between 85-95th percentile and 6.2 % were obese with BMI >95th percentile.

Table 4: BMI Distribution

BMI Percentile	*Number*	*Percentage (%)*
< 5	99	19.8
5 to 85	287	57.4
85 to 95	83	16.6
>95	31	6.2
TOTAL	**500**	**100**

Figure 4: BMI distribution



BMI AND AGE OF MENARCHE

Those with increased BMI had relatively early menarche and decreased BMI had relatively late menarche. 81.6% of girls with BMI >95th centile had menarche at 11 year of age.

Table 5: Correlation between BMI and age of Menarche

			Age at menarche				Total
			11	12	13	14	
BMI	(<5)	Count	12	64	21	2	99
		% within BMI	12.1%	64.6%	21.2%	2.0%	100.0%

	(6-85)	Count	37	186	57	6	286
		% within BMI	12.9%	65.0%	19.9%	2.1%	100.0%
	(86-95)	Count	8	53	19	3	83
		% within BMI	9.6%	63.9%	22.9%	3.6%	100.0%
	(>96)	Count	26	6	0	0	32
		% within BMI	81.3%	18.8%	0.0%	0.0%	100.0%
Total		Count	83	309	97	11	500
		% within BMI	16.6%	61.8%	19.4%	2.2%	100.0%

MENSTRUAL IRREGULARITY
26% of girls had irregular cycles. 74% had regular cycles.

Figure 5: Frequency of Menstrual irregularity

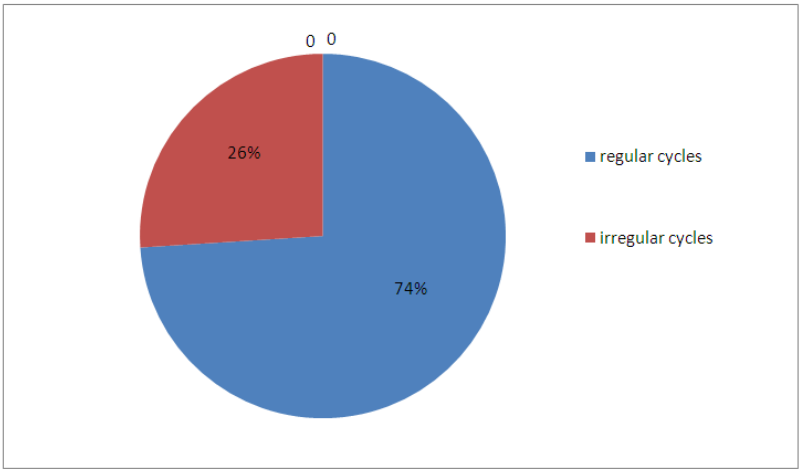


Table 6: Frequency of Menstrual irregularity

MENSTRUAL IRREGULARITY	**PERCENTAGE (%)**
Present	26%
Absent	74%
TOTAL	**100%**

In menstrual irregularities, 15.8 % had oligomenorrhea, 0.4% had polymenorrhea, and 9.8% had menorrhagia. On clinical examination students with menorrhagia had pallor.

Table 7: Frequency of AUB

AUB	***Frequency***	***Percentage***
Oligomenorrhea	79	15.8%
Polymenorrhea	2	0.4%
Menorrhagia	49	9.8%
Total	130	26%

MENSTRUAL IRREGULARITY AND BMI
Menstrual irregularity was associated with high BMI when compared to those with regular cycles. Almost 33.8% of overweight and 40.6% of obese girls had irregular menstruation compared to 22% with normal BMI.

Table 8 :BMI and menstrual irregularities

BMI			**Menstrual_irregularities**		**Total**
			Present	**Absent**	
BMI	(<5)	Number	26	73	99
		% within BMI	26.3%	73.7%	100.0%
	(5-85)	Number	63	223	286
		% within BMI	22%	78%	100.0%
	(85-95)	Number	28	55	83
		% within BMI	33.8%	66.2%	100.0%
	(>95)	Number	13	19	32
		% within BMI	40.6%	59.4%	100.0%

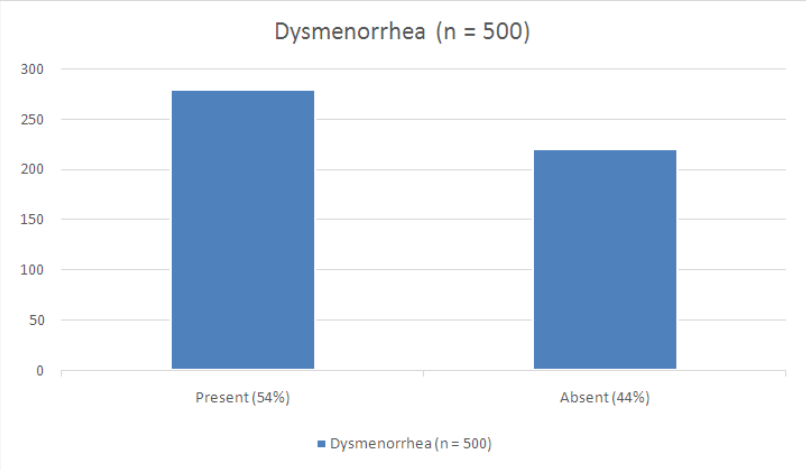
Total	Number	130	370	500
	% within BMI	26%	74%	100.0%

DYSMENORRHOEA
Dysmenorrhoea was present in 56.2% of girls

Table 9: Frequency of Dysmenorrhoea

Dysmenorrhoea	*Percentage*
Present	56.2%
Absent	43.8%
TOTAL	**100%**

Figure 6: Distribution of Dysmenorrhoea

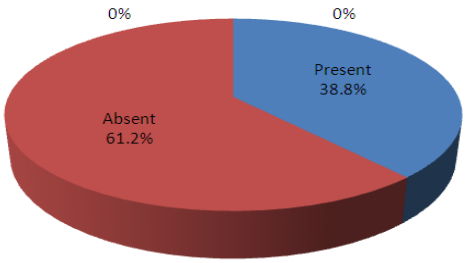


PALLOR:
Clinically anemia was present in 38.2% of them.

Table 10: Examination for pallor

Pallor	*Percentage*
Present	38.8%
Absent	61.2%
TOTAL	**100%**

Figure 7: Examination for pallor



THYROID SWELLING
Clinical thyroid swelling was noticed in 13.4% of girls. 86.6% were normal.

Table 11: Examination of thyroid swelling

Thyromegaly	*Percentage*
Present	13.4%
Absent	86.6%
TOTAL	**100%**

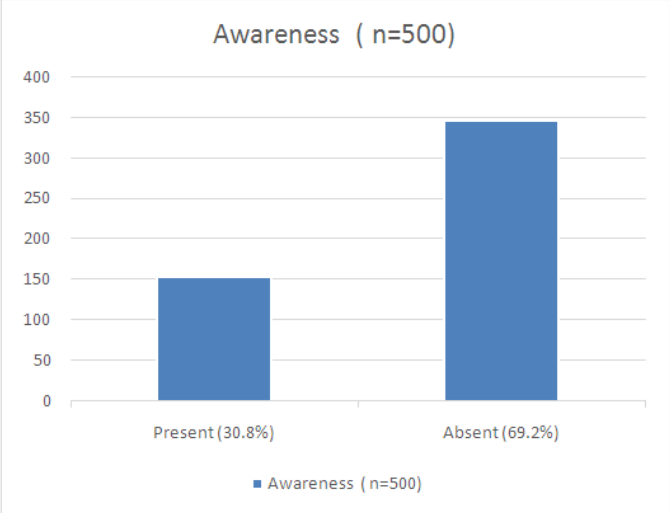
AWARENESS ON MENSTRUATION

Only 154 girls (30.8%) among 500 in the study group had awareness about menstruation before menarche. While others about 346 girls (69.2%) came to know about menstruation after attaining menarche only.

Table 12: Awareness on Menstruation

AWARENESS ON MENSTRUATION	*FREQUENCY*	*PERCENTAGE (%)*
AWARE	154	30.8
NOT AWARE	346	69.2
TOTAL	**500**	**100**

Figure 8: Awareness on Menstruation



SOURCE OF AWARENESS

The source of awareness was mothers in 74.6%, sisters in 13.8%, relatives in 7.8% and friends in 3.8%.

Table 13: Source of Awareness

SOURCE OF AWARENESS	**PERCENTAGE (%)**
Mothers	74.6
Sisters	13.8
Relatives	7.8
Friends	3.8

IV. Discussion

This study included 500 adolescent school girls from Hilton matriculation Higher Secondary School, Chennai.

The age of menarche did not vary from that of other studies. The age of menarche ranged from 11- 14 years, maximum between 12 -13, with mean of 12.07 years. This is similar to study by Cakir Murat et al from Turkey (2006) which showed mean age of menarche is 12.8 +/- 1.3 years with range of 9-17 years.

Study conducted by Lee & Chen et al from Malaysia (2006) showed age of menarche ranged from 9-17 years with mean of 12.3+/- 1 year. Patil et al from Maharashtra (2009) found the mean age of menarche as 13.7 years in their study.

STUDIES	AGE OF MENARCHE in years
Cakir Murat et al, Turkey (2006)	12.8
Lee & Chen et al, Malaysia (2006)	12.3
Dasgupta et al, Kolkata (2007)	12.8
Patil et al ,Maharastra(2009)	13.7
Present study	12.07

Our study showed menstrual problems were present in 26 % of adolescent girls. Study conducted by Go swami et al from Kolkata (2005) showed menstrual disorders are the commonest gynaecological problems

present in 58.06 % of adolescent girls. Tehara et al from Bangladesh (2008) found menstruation related problems were present in 85% of adolescent girls. In our study group 15.8 % had oligomenorrhea ,0.4% had polymenorrhea, and 9.8% had menorrhagia. Study conducted by Anupriya et al from Singapore (2009) showed oligomenorrhea in 15.3% and polymenorrhea in 2%. Pallor associated with menorrhagia was found in 38.2 % in this study group but study conducted by Lee & Chen et al showed prevalence of anaemia in 0.4 % of students with heavy menstrual blood loss.

Our study showed menstrual irregularity was common with increasing BMI than with low BMI. This is comparable to study by Anupriya et al which showed oligomenorrhea was associated with increasing BMI and polymenorrhea was more prevalent in girls with low BMI.

In our study 56.2% of girls had dysmenorrhea and is the most common menstrual disorder which is similar to various studies as showed below.

STUDIES - Dysmenorrhoea	***Percentage***
Anupriya et al (2009)	83.2
Gilany et al (2005)	74.6
Cakir et al (2007)	89.5
Pragya Sharma et al (2008)	67.3
Tehara et al (2008)	60

In this study the prevalence of overweight and obese girls were 16.6% and 6.2 % respectively. Whereas study by CDC National Health Statistics of US (2006) on prevalence of overweight girls has showed 14% of white teens, 24% of black teens and 17% of Hispanic teens are overweight. Overall, Asian/ Pacific Islander and Black populations were more likely to be overweight or at risk than white population.

Our study showed only 30.8% of students had awareness on menstruation before menarche while study by DasGupta et al from Kolkata (2007) showed 67.5% of girls having awareness regarding menstruation before attaining menarche.

Source of information regarding menstruation was given by mothers in 74.6% of girls in this study which similar to study by Cakir Murat et al and Lee & Chen et al. Mass media was the source of awareness on menstruation in about 30% of girls in the study conducted by Lee & Chen et al. Whereas Media had no role as a source of menstrual awareness in this study.

V. Summary

The current study brings out various symptoms which are suggestive of physical wellbeing of girls during menarche.This study was conducted on 500 school going adolescent girls in the age group between 12-16 yrs. Dysmenorrhoea is the most common complaint in about 56.2 %.

26 % of adolescent girls had menstrual irregularities. 15.8 % had oligomenorrhea, 0.4% had polymenorrhea, and 9.8% had menorrhagia.

38.2% of girls had pallor associated with menorrhagia. 13.2% of girls had Thyroid disorder associated with menstrual irregularities.

30.8% of girls had awareness about menstruation and menarche.Source of awareness by mother - 74.6%, sister-13.8%, relatives - 7.8%, friends-3.8%.57.4% of girls had normal BMI. While 19.8% was underweight. 16.6% were overweight and 6.2% was obese. The mean age of menarche is 12.07 years. Age of menarche is inversely related to BMI.

VI. Conclusion

It is found in our study that Physical manifestations are common and needs life style modifications to overcome obesity and menstrual problems related to high BMI. There is a need to educate adolescent girls about menarche and menstruation related problems. Besides, there is a need to emphasize education on changes during puberty in all school health education programs.

" Adolescence is the period of the decisive last battle fought before maturity. The ego must achieve independence, the old emotional ties must be cast off, the new ones created ".
Helene Deutsch.

Bibliography

[1]. Chamberlain g (Ed) Gynecology by Ten Teachers; 16th edition, 27-29. Edward Arnold, London 1995.
[2]. WHO Technical Report Series; 1984, 854: 263-311.
[3]. Patil S.N,Wasnik V,Wadke R, menstrual problems amongst adolescent girls, Journal of clinical and diagnostic Reserch,2009; 3:1784-1790.

[4]. Goswami Sebatini, Dutta Rekha, Sengupta Sibini, Profile of adolescent girls with gynecological problems. J Obstet Gynecol India volume 55, no.4 2005, pg 353-355.
[5]. Tanner JM, Growth at adolescence 2nd Ed, Blackwell scientific publications 1962.
[6]. Harlan WR, Harlan EA, Grillo GP, Secondary sexual characteristics of girls 12-19 years, US examination survey, J. Pediat. 19: 1074, 1980.
[7]. Speroff L, Glass RH, Kare NG, Clinical Gynecologic Endocrinology & Infertility. Baltimore MD; Williams & Wilkin's, 1989; 165-213.
[8]. Jeffcoate's principles of Gynecology, 7th edition, p 111.
[9]. Adair LS, Gordon Larseh P, Maturational Timings and overweight prevalence in US adolescent girls. Am. J. Public Health, 91; 642, 2001.
[10]. Kaplowitz PB, Slora EJ, Wasserman RL, Earlier onset of puberty in girls in relation to BMI and race. Pediatrics 2001, 108; 347-353.
[11]. Malhotra BD & Bhat Nagar s 1976, pattern and sequence of pubertal changes in semi urban girls of Haryana, J Obstet Gynecol India, 26; 128-132.
[12]. Vermesh M, Kletzlay OA, Longitudinal evaluation of the luteal phase and its transition into follicular phase. J Clin Endocrinol. Metab- 1987; 65: 653-658
[13]. Hoff JD, Quigley NE, Yen secondary sexual characteristics, hormonal dynamics in mid cycle: a reevaluation. J Clin Endocrinol metab- 1983; 57: 792 - 796.
[14]. Neinstein L.S, 1990, Menstrual problems in adolescent girls, Med. Clin. Of North America, 74; 118.
[15]. Adelantado J.M, Rees MC, Lopez A et al 1988, increased uterine prostaglandin E, receptors in menorrhagic women. Br .J. Obstet Gynecol 95; 162.
[16]. Lazar EL, Stolar CJ, Evaluation and management of pediatric solid ovarian tumors. Semin pediatric surg 1998; 10: 527-533.
[17]. Simmons PS, Common Gynecologic problems in adolescents. Prim Care 1998; 11; 629-642.
[18]. Hillard P, Menstruation in young girls, a clinical perspective Obstet Gynecol 2002; 19: 655 – 662.
[19]. Fraser IS, Mc Carron G, Markham R, A preliminary study of factors influencing perception of menstrual blood loss volume. Am J Obstet Gynecol 1984; 149: 788-793?
[20]. APGO Educational series on women's health issues. Clinical management of AUB. Association of Progress of Gynecology & Obstetrics, 2002
[21]. Elizabeth , H Quint, Yolanda R Smith, Journal of Midwifery Women's health AUB in adolescents, 2003.
[22]. Berek's & Novak's Gynecology 14th edition, p- 991.

Dr. Padma Badhe. "A Study on Physical Well-Being of Girls during Menarche." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 18, no. 1, 2019, pp 17-25.