Menstrual pattern and factors affecting among Egyptian adolescent females

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Abstract: Background: menstruation is a normal physiological phenomenon for females indicating her capability for procreation. However, this normal often associated with some degree of suffering and embarrassment. The prevalence of menstrual disorders has been recorded as high as 87%. **Aim and objectives**: to find out the mean age of menarche of adolescent girls 8 -18 years and to know menstrual pattern and to find out the prevalence and types of menstrual disorders. **Material and methods**: cross sectional study was carried out at Alsahel teaching hospital. Total 500 adolescent girls randomly selected from outpatient clinics of 8-18 years age and asked to complete an anonymous Arabic questionnaire included data on demographics, socioeconomic status, menstrual pattern, related menstrual symptoms and the impact of menstruation on daily life after verbal consent. **Results**: The mean age of menarche was found 12.5 ± 1.5 years. Regular menstrual cycles were found in 77% while 22% had irregular cycles. Oligomenorrhoea was found in 14.5%, polymenorrhoea in 14%. The mean duration of blood flow 4 ± 1.5 days. Average blood loss was found in 92%, heavy blood loss in 5%, scanty flow in 3%. Dysmenorrhoea was found 72% of girls. Limited social activities was found in 25% while school abstinence found in 10%.

1. Introduction

Menstruation is a normal physiological phenomenon for females indicating her capability for procreation. However, this normal often associated with some degree of suffering and embarrassment. The prevalence of menstrual disorders has been recorded as high as 87%. Adolescence is a period of rapid physical and mental growth during which pubertal development and sexual maturation takes place. During this period, sequential phases mark the maturation of the complex endocrinological system; the hypothalamus, pituitary gland and ovaries and their interactions where healthy reproductive function is the expected end point of this process (13).

Most of the females experience menarche at 10 to 16 years old. It varies from population to population according to different factors like nutritional, geographical and environmental conditions. Different studies have shown that 5% of the population reported ages of menarche before 10 or after 15 years old (1).

The most frequent menstrual disorders are polymenorrhoea, oligomenorrhoea and dysmenorrhoea. Menstrual abnormalities are more common among younger girls becoming less frequent as they grow older 3-5 years after menarche (7).

Regular menstrual cycles occur at interval 21-35 days with menstrual flow 3-7 days with an average blood loss 30-80 ml / cycle. Menstrual disorders is any deviation from normal. Menorrhagia denotes duration of blood flow more than 7 days or excessive bleeding more than 80 ml. hypomenorrhoea is scanty menstrual flow less than 2 days. In polymenorrhoea, the interval between two consecutive cycles is <21 day and in oligomenorrhoea, this interval may extend to>35 days. Dysmenorrhoea (mild, moderate or severe) is the commonest gynecological disorder with a prevalence of 60% to 93% (6).

Pre-menstrual syndrome encompasses a wide variety of cyclic, recurrent physical, emotional and behavioral symptoms occurring during late luteal phase of menstrual cycle and subsiding with the beginning of menses. These symptoms include weight gain, headache, fatigue, nervousness, irritability and mood swings (8)&(11).

The present study was planned to find out the menstrual pattern and age of menarche among adolescent girls in Egypt.

2. Material and methods

This is a cross sectional study conducted on 500 adolescent females (age 8 to 18 years) attending the outpatient clinics of Alsahel teaching hospital without other inclusion criteria. Only 79 girls (16%) were presented to gynecology clinic for complaints related to our study while most of them (421 girls =84%) were either accompanying their mothers or were

attending other different clinics for different reasons then invited to fulfill our questionnaire.

The study was carried out between January 2015 and December 2015 after taking a verbal consent from each participant girl's responsible adult after explanation the purpose of the study as it is for analytical use. A self anonynamous questionnaire in Arabic language included data of age, weight, Hight, Socioecconomic status, practice of regular physical exercise. Detailed menstrual history (age of menarche, regularity of cycles, menstrual intervals (≤ 14, 15-20, 21-25, 26-30, 31-35, 36-40, 41-45, >46), duration of blood flow (1-2, 3-4, 5-6, 7-8, ≥ 9), amount of flow (by number of pads; ≤ 3, 4-7, > 7 per day), Presence of premenstrual symptoms(headache, irritability, mastalgia and exhaustion, dysmenorrhoea (duration, severity, impact on school attendance need for analgesics, hospital treatment), associated symptoms with menstruation (nausea, diarrhoea, anorexia, acne, exhaustion, depression, aggression, irritability).

Data were collected and analyzed to recognize the most found pattern of menstruation among Egyptian girls and associating factors, then the results were discussed in comparison to similar studies.

3. Results

Out of 500 girls, 80 girls (16%) did not yet experience their first menstruation at the time of study.

The mean age and standard deviation of menarche was 12.5 ± 1.5 years. Early menarche (8-11 years) was found in 15 out of the 420 girls (3.6%),

Menarche within the mean age and standard deviation (11-14 years) was found in 360 girls (85%). Late menarche (14-18 years) was found in 45 out of 420 girls (10%).

Out of the 420 girls, menstrual cycles were irregular in 95 girls (22%) while were reguler in 325 girls (77%).

Table (1) showing menstrual intervals

Menstrual intervals(days)	No. of girls	% of total (n=420)
≤ 14	3	0.7%
15-20	32	7.6 %
21-25	24	5.7 %
26-30	256	60 %
31-35	44	10 %
36-40	16	3.8 %
41-45	19	4.5 %
>46	26	6.1%

The menstrual intervals were found ≤ 14 days in 3 girls (0.7%), 15-20 days in 32 girls (7.6%), 21-25

days in 24 girls (5%), 26-30 days in 256 girls (60%), 31-35 days in 44 girls (10%), 36-40 days in 16 girls (3.8 %), 41-45 days in 19 girls (4.5%), >46 days in 26 girls (6%). (Table 1)

The mean duration of menstrual blood flow was 4 ± 1.2 days. It was 1-2 days in 12 girls (2.8 %), 3-4 days in 180 girls (42 %), 5-6 days in 213 girls (50 %), 7-8 days in 11 girls (2.6%), ≥ 9 days in 4 girls (0.9%). (Table 2)

Table (2) showing duration of menstrual blood flow.

Duration of menstrual flow	No. of girls	% of total (n=420)
1-2	12	2.8 %
3-4	180	42 %
5-6	213	50 %
7-8	11	2.6 %
≥ 9	4	0.9 %.

The amount of menstrual flow was average (2-3 pads /day) in 386 girls (92 %) while in 13 girls (3 %) it was scanty (< 2 pads /day) and in 21 girls (5 %) was heavy (> 3 pads /day). (Table 3)

Table (3) showing amount of menstrual blood flow.

Amount of menstrual flow	No. of girls	% of total (n=420)
Average (> 3 pads /day)	386	92%
Scanty (< 2 pads /day)	13	3%
Heavy (2-3 pads /day)	21	5%

Out of the 420 girls who achieved the menarche, 303 girls (72 %) were having dysmenorrhoea, but out of them only 56 girls (13.3%) needed analgesic drugs (self medication) and 5 girls (1.2%) almost needed hospital medication.

Premenstrual symptoms was found in 168 girls (40%) of the menstruating girls (n=420) in the form of headache in 134 girls (32%), irritability.

in 164 girls (39%), mastalgia in 205 girls (49%), exhaustion in 256 girls (61%). (Table 3)

Table (3) showing distribution of premenstrual symptoms.

Premenstrual symptoms	No. of girls	% of total (n=420)
Symptoms as a whole	168	40 %
headache,	134	32 %
irritability,	164	39 %
mastalgia	205	49 %
exhaustion	256	61 %

One or more of symptoms associating menstruation was found in 378 girls (90%) of the menstruating girls (n=420) including nausea in 34

girls (8%), diarrhea in 51 girls (12%), anorexia in 21 girls (5%), acne in 55 girls(13%), exhausion in 126 girls (30%), depression in 93 girls (22%), aggression in 17 girls (4%) and irritability in 168 girls (40%). (Table 4)

Table (4) showing distribution of Symptoms associating menstruation.

Symptoms associating menstruation	No. of girls	% of menstruating girls (n=420)
Symptoms as a whole	278	90 %
Nausea	34	8 %
Diarrhoea	51	12 %
Anorexia	21	5 %
Acne	55	13 %
Exhausion	126	30 %
Depression	93	22 %
Aggression	17	4 %
Irritability	168	40 %

The impact of menstrual irregularity and dysmenorrhoea on daily life activities in the form of limited social activities was found in 105 girls (25%) school absence in 42 girls (10%) and poor classroom concentration in 160 girls (38%). (Table 5)

Table (5) showing impact of menstrual irregularity and dysmenorrhoea on daily life activities.

The impact of menstrual irregularity and dysmenorrhoea	No. of girls	% of menstruating girls (n=420)
Limited social activities	105	25 %
School absence	42	10 %
Poor classroom concentration	160	38 %

4. Discussion

Menarche is an index of female physical maturation occurs during puberty when the female becomes capable to reproduce.

The mean age of menarche in the current study (12.5 ± 1.5 years) is comparable with other reports where it is (13.85 ± 1.2) years in Khartoum, Sudan (5). In Nigeria it is (13.40 + 1.6) years (14) and in Mozambique it is 13.91, years (Padez, 2003).

In neighboring Ethiopia and Tanzania the age of menarche by the recall method was 14.3 ± 1.1 and 15.8 ± 1years respectively (20)&(21).

However, age of menarche is lower in most developed countries and seems stabilized at 13 years with 0.5 year variations between countries and this low age of menarche is important because of its potential impact on early mature girls' behaviors (12) & (15).

Most adolescents in our study (78%), as in previous studies (3, 4 and 18) had regular menstrual cycles while a minority (22%) experienced irregular menstruation This is considered as normal event due to the ovulation in the first two years after menarche (2).

In our study, the common patterns of menstrual irregularity included polymenorrhea, oligomenorrhea and menorrhagia (14%, 15% and 5% respectively).

Polymenorrhea and oligomenorrhoea were explained by an anovulatory cycle, commonly found during adolescence (10). Thus, a relatively high prevalence of menstrual disturbances was found among girls in our study (14% and 15%), but still lower than the 29.7% and 32.8% reported by (19)&(21).

The prevalence of menorrhagia or hypermenorrhea in our study was 5%, which was less than the 21.2% reported from Brazil (19) probably due to the climatic difference.

Dysmenorrhea and premenstrual symptoms are the most common menstrual disorder in our study with prevalence of 72% and 40% respectively, and dysmenorrhea was the cause of school absences for 10% of the affected girls.

Dangal (2004) reported that dysmenorrhoea and premenstrual symptoms affects more than 50% of the menstruating women.

In Nigeria, the prevalence of dysmenorrhoea was 76.3% and the normal activity was affected by dysmenorrhoea in 35% of under-graduates girls (14).

In the neighboring Ethiopia and Tanzania, prevalence of dysmenorrhoea and premenstrual symptoms was 72.0 and 75.4%, respectively, however only 20.3% of the dysmenorrheic girls were reported to be absent from the schools (21).

In Mexico dysmenorrhea had much lower prevalence (48.4%) but it was the cause of school absences for 24% of the affected students (16).

Conclusion

In adolescent Egyptian girls, the mean age of menarche is 12.5 ± 1.5 years., regular menstrual cycles were found in 78% of them while irregular in 22%. Polymenorrhea, oligomenorrhea and menorrhagia were found in 14%, 15% and 5% respectively. Dysmenorrhea and premenstrual symptoms are common menstrual disorders with prevalence of 72% and 40%, respectively and dysmenorrhea was the cause of school absences for 10% of the affected students.

Recommendations

Egyptian girls at adolescence need more knowledge about, physiology, normal and abnormal

patterns of menstruation and when they shoud seek medical consultation.

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