ORIGINAL ARTICLE

Habits followed among adolescents and their families toward treatment of Amenorrhea at puberty

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Fouly H, Helmi S, Zaki N. Habits followed among adolescents and their families toward treatment of Amenorrhea at puberty. J Nurs Res Pract. 2018;2(2): 22-25.

ABSTRACT

Background: Adolescence is a time of enormous physical and psychological change for young females. Menstrual disturbances are not uncommon and may add further disruption to this difficult phase, so this is an opportunity for clinicians to advise the adolescent on abnormal conditions related to delayed menstrual cycle and its treatment.

Aim: To explore the habits followed among adolescents and families toward treatment of amenorrhea at puberty.

Methods: This is a cross sectional/ Quasi-experimental. The recruited 200 adolescent girls from two different localities: urban and rural preparatory schools in Asyut city, Egypt.

Statistical analysis: The data were tested for normality using the Anderson-Darling test and for homogeneity variances prior to further statistical analysis.
Results: Comparison between parents' habits based on locality revealed a statistical significant difference. Knowledge about causes of delayed menstruation among urban adolescent students revealed a statistically significant difference.

Conclusion: This study highlights an important theme of habits and knowledge about amenorrhea among adolescents and their parents.

Clinical implications: Further research should be done to figure out the relationship between knowledge and habits related to puberty abnormalities and its management. Moreover, to provide students in the preparatory phase with a simple guidance program.

Key Words: *Habits: Adolescents; Families; Delayed menstrual cycle; Puberty*

INTRODUCTION

There are multitude causes of menstrual absence (amenorrhea). The division into primary or secondary amenorrhea is somewhat arbitrary since any cause of secondary amenorrhea can cause primary amenorrhea (such as pregnancy) (1). Primary amenorrhea is defined as a failure to start menstruation by the age of 16 in the presence of normal secondary sexual characteristics or by 14 in the absence of secondary sexual characteristics. Primary amenorrhea is often the result of chromosomal abnormalities leading to primary ovarian insufficiency (e.g. Turner's syndrome) or anatomical abnormalities (2).

Adolescence is a time of enormous physical and psychological change for young females. Serious gynecological pathology is rare in this age group, but menstrual disturbances are not uncommon and may add further disruption to this difficult phase for adolescents and their families. It is likely that many adolescents with menstrual disturbances never present this to their family doctor or gynecologist (3).

This is an opportunity for clinicians to advise the adolescent on what is `normal' for girls of her age regarding pubertal development, menarche and menstrual cyclicity and would not normally include a pelvic examination. This anticipatory guidance and information to young girls and their parents may help ease the transition from childhood through puberty and a healthy adolescence (4).

Nooh, et al. study concluded that adolescents' menstrual cycles within abnormal range should be assessed for medical disorders or disease conditions. Adolescents should be learned how to map their menstrual periods from menarche time to next periods. So, they will be attentive on any abnormality and seek for medical assistance as early as possible. However, health education as well as school's curriculum on menstrual disorders can directed the adolescents and may assist them in early detection of these disorders (5).

Although, the importance for guiding adolescents and their families toward management of these disorders, there are limited studies have been conducted in Egypt on dysfunctional menstruation (6).

Research question

What are the habits of adolescent females and their families due to treatment for delayed menstrual cycle at puberty?

This study aimed to answer that question through:

- Exploring the habits followed among adolescents and families toward treatment amenorrhea at puberty.
- To increase knowledge about amenorrhea management through an educational program

METHOD

Study design

This is a cross sectional/ Quasi-experimental study.

Setting

Two different schools one located in Asyut city "Khadija Yousef Preparatory school" and the other school located in a village of Asyut governorate and called Nagaa Sabaa preparatory school".

Subjects

A total of 200 preparatory school girls of Asyut city. The data were collected by the investigator and based on 100 students from each school. The participants were volunteers, and each received an explanatory statement detailing the study parameters and were informed that all information collected would be anonymous, with no names attached to any data collected.

Administrative approval

Official approval for the study was obtained by permission from the Dean of

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Received: April 03, 2018, Accepted: April 14, 2018, Published: April 22, 2018

the Faculty of Nursing at Assiut University and both directors of preparatory schools in urban & rural districts.

Human subjects

The study protocol was approved by pertinent research and ethical committees at the faculty of nursing Assiut University. Informed consent was taken from every student before inclusion in the study. Participants were assured that all their data were highly confidential. Protection of identity was assured through assigning a code number for each student instead of names to protect their privacy. Data were only available to the researchers for analyses.

Data collection tool

The questionnaire consisted of four sections:

The first section: Included students' personal data e.g. age residence, educational level, and the parents' level of education and occupation.

The second section: Included menstrual cycle information e.g. causes of delayed menstruation,

The third section: Included the preferable methods of treatment for delayed menstruation, go to female or male physician for gynecology or followed family remedies. Also, asking about the agreement of adolescent if the doctor asked to examine her genital tract or different diagnosis as imperforated hymen and a surgical correction for it in addition to different diagnosis or solution offered by the physician

The fourth section: The family (Mother &Father) opinions if their daughter has an amenorrhea at puberty, what's the treatment from their point of view, their preference of female or male physician for gynecology, in addition to their agreement on the type of treatment decided by physicians e.g. if their daughter needs a surgical repair for her hymen with a signed report from the doctor they will agree or not, etc.

Scoring system of the participants' knowledge

The scoring system is only done for knowledge items were separated into a multiple-choice question and included "don't know" replies to indicate a lack of knowledge. Reponses to opinion of treatment items/ options were separated into multiple choices and "don't know" replies were analyzed as missing.

The questionnaire developed by the investigators based on literature reviews (1,2) and cultural values. The reliability has done through reviewing by five experts from women's health nursing and community health nursing departments at the faculty of nursing, Assiut University. The validity has done through pilot testing of the questionnaire on 10 students from both schools, then the corrections has been done based on the pilot test and the cases has been excluded from the study.

Procedure

The investigator conducted the study by interviewing students for data collection and each questionnaire included a cover letter indicating the aim of the study. Then a self-directed, questionnaire was administered in the Arabic language to the students who agreed to participate in the study.

The questionnaires were completed in the classroom. Any clarifying inquiries by students about the questionnaire were answered by the investigator in each school while the questionnaire was being completed. As students completed the questionnaires, and the investigator asked them to take the questionnaire with them to their homes to get answers from their parents to complete the parents' section. Then after two days, the investigator went again to collect the questionnaires that were completely answered. After that, the data was coded and entered SPSS software 20 version by the investigators themselves.

Intervention

The investigators used the same questionnaire twice. Once it was used as a pretest for the participants' knowledge about the meaning and causes of amenorrhea, and the opinions of the students and their parents toward treatment choices. Then the investigators used the simple structured booklet as a tool for improving the adolescents and parents background knowledge of amenorrhea and its treatment choices. The booklet explained each cause simply and options for treatments in simple Arabic language. After that the investigator re-used the same questionnaire as a posttest to evaluate the level of participants' background related to amenorrhea similarly to the procedure followed in the pretest.

Statistical analyses

The data were tested for normality using the Anderson-Darling test and for homogeneity variances prior to further statistical analysis. Categorical variables were described by number and percent (N, %), whereas continuous variables were described by mean and standard deviation (Mean, SD). Chi-square and Fisher exact tests were used to compare categorical variables, while comparisons between continuous variables were made by use of t-tests. A two-tailed p-value of <0.05 was considered statistically significant. All analyses were performed using SPSS 20.0 software.

RESULTS

A total of 200 female students participated in this study; their age range was 13-16 with mean +SD 13.4+0.7. They were recruited equally (100 for each) from urban & rural schools. Comparison between the parents' habits based on locality revealed a statistical significant difference at (P=0.001). Regarding parents' agreement for treatment decisions taken from the physician, the data revealed 70% *vs.* 22% of urban *vs.* rural respectively with a statically significant difference at (P=0.001). There is a statistically significant difference at (P=0.006) regarding parents' preference of marriage for their daughters to solve a problem of imperforated hymen. For hormonal treatment, more than 50% *vs.* more than 75% urban and rural parents respectively disagree with the use of contraceptive pills as a treatment for delayed menstruation with a statically significant difference at (P=0.002). Regarding plastic surgery of imperforated hymen 74% *vs.* 14% of urban & rural parents respectively agree with that treatment (Table 1).

Findings of rural parents' opinions before and after the orientation program. It was revealed that 28% *vs.* 44% would seek for a male physician with a statistically significant difference at (P=0.027). Regarding the type of treatment decided by physicians 22% *vs.* 44% before and after the program respectively agreed with a statistically significant difference at (P=0.001). Regarding hormonal treatment, 24% *vs.* 46% with a statistically significant difference at (P=0.036). Regarding a plastic surgery 24% *vs.* 58% with a statistically significant difference at (P=0.001) (Table 2).

TABLE 1

Parents' habits toward delayed menstruation

Parent's view	Urban No.	%	Rural No.	%	P. value
If your daughter has an amenorrhea during puberty, what are the measures/treatments from your point of view?					
Go to male physician for gynecology examination	76	76	28	28	0.001**
Go to Female physician for gynecology	24	24	72	72	
Do you agree with the type of treatment decided by physicians?					
Agree	70	70	22	22	0.001**
Disagree	30	30	78	78	
If your daughter needs a surgical repair for her hymen with a signed report from the doctor					
Agree	36	36	26	26	0.168
Disagree	64	64	74	74	
If the problem can be solved by marriage in the case of an Imperforated hymen which treatment do you prefer?					
Surgical intervention	34	34	16	16	0.006**
Marriage	66	66	84	84	
If your daughter needs hormonal treatment like contraceptive pills					
Agree	46	46	24	24	0.002**
Disagree	54	54	76	76	
If your daughter needs a plastic surgery					
Agree	74	74	14	14	0.001**
Disagree	26	26	86	86	

Chi-square test used
***Statistically significant difference (p<0.05)**
****Statistically significant difference (p<0.01)**

TABLE 2

Habits of Urban vs. rural parents toward delayed menstruation after orientation program

	Urban Post-test No.	%	Rural Post-test No.	%	P. value
If your daughter has an amenorrhea at the puberty. What's the measures/treatment from your point of view?					
Go to male physician for gynecology	66	66	44	44	0.027*
Go to Female physician for gynecology	34	34	56	56	
Do you agree on the type of treatment decided by physicians?					
Agree	52	52	46	46	0.001**
Disagree	48	48	54	54	
If your daughter need a surgical repair for her hymen with a signed report from the doctor					
Agree	58	58	30	30	0.637
Disagree	42	42	70	70	
If the problem can solve by marriage in case of Imperforated hymen which you're preferred?					
Surgical intervention	54	54	28	28	0.227
Marriage	46	46	72	72	
If your daughter need a hormonal treatment like contraceptive pills					
Agree	64	64	46	46	0.036*
Disagree	36	36	54	54	
If your daughter need a plastic surgery					
Agree	84	84	58	58	0.001**
Disagree	16	16	42	42	

Chi-square test used
*Statistically significant difference (p<0.05)
**Statistically significant difference (p<0.01)

Findings of knowledge among urban Adolescent students Pre/post orientation program about causes of delayed menstruation. It was revealed that urban adolescent Pre/post-orientation 12% *vs.* 58% knew the definition of primary amenorrhea, with a statistically significant difference at (P=0.001). While rural findings revealed 14 *vs.* 34% with a statistically significant difference at (P=0.001). Regarding the causes of delayed menstruation 12% *vs.* 54% of urban adolescent answered correctly and revealed a statistically significant difference at (P=0.001) before and after the program respectively. While rural findings reflected 8% *vs.* 52% with a statistically significant difference at (P=0.001) (Table 3 and Figure 1).

DISCUSSION

Prepared female adolescents with applicable information, regarding delayed menstruation might make redirection of their habits when they seek medical assistance. The source of most basic knowledge about this topic is habitually information which is gained from their mothers and their classmates or relatives. Fortunately, girls are curious to get more information about menstrual concerns (7).

Therefore, the study aimed to explore knowledge and habits followed among adolescents and their families toward treatment of a delayed menstrual cycle. The results of this study reflected a total of 200 female students that participated in this study: their mean age was 13.4+0.7 with range 13-16 ages' years. Also, there was a significant improvement of the students' knowledge related to absence of menstrual cycles. In addition to the locality of participants, the study reflected a significant difference between urban and rural in their opinion related to options of seeking care.

Comparison between parents' habits based on locality (urban *vs.* rural) revealed a statistical significant difference in their agreement for treatment decisions which are taken by a physician. Moreover, the traditional choices for absent menstruation reflected superiorly for rural parents compared to urban: such as the preference of marriage as a choice to solve the problem of imperforated hymen. However, for the urban parents the data revealed a significant difference in preference for modern or medical treatment such as hormonal treatment "contraceptive pills" for delayed menstruation and plastic surgery of imperforated hymen.

There are no published studies that have reported on the habits among adolescents and their parents toward the absence of menstrual cycles after puberty. We searched for articles on the following engine: PubMed, CINHAL, Research Gate and Google Scholar using keywords such as "habits", "effect

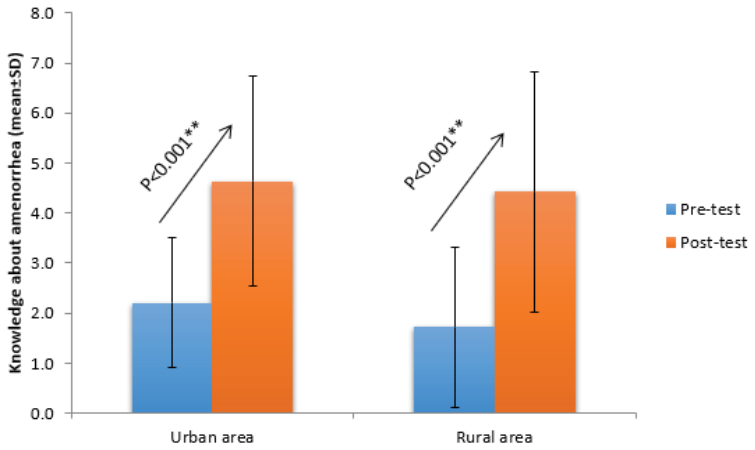
TABLE 3

Knowledge of urban and rural Adolescent students about causes of delayed menstruation (pre/post –test)

Knowledge about amenorrhea in pre-test	Urban (pretest) No (%)	Urban (posttest) No. (%)	P. value	Rural (pretest) No. (%)	Rural (posttes) No. (%)	P. value
The meaning of primary amenorrhea						
Delayed of menstruation at age 16 in the presence of puberty secondary characteristics	16 (16.0)	38(38.0)	0.024*	6 (6.0)	34(34.0)	0.001**
Delayed of menstruation at age 14 in the absence of secondary puberty characteristics	22 (22.0)				22(22.0)	
		34(34.0)		18(18.0)		
All of the above	12(12.0)	58(58.0)		10(10.0)	62(62.0)	
Don't know	4(4.0)	16		14(14.0)	34(34.0)	
Causes of delayed menstruation at puberty age						
Imperforated hymen	8 (8.0)	20(20.0)	0.462	6 (6.0)	10(10.0)	0.001**
Congenital anomalies of genital system	6(6.0)	12(12.0)		4 (4.0)	8 (8.0)	
Incomplete genital tract system	4(4.0)	10(10.0)		6 (6.0)	14(14.0)	
Hormonal disturbances	4 (4.0)	28(28.0)		10(10.0)	24(24.0)	
Chromosomal disturbances	6 (4.0)	6 (6.0)		4 (4.0)	4(4.0)	
All of the above	12(12.0)	54(54.0)		8 (8.0)	52(52.0)	
Don't know	6 (6.0)	24(24.0)		14(14.0)	36(36.0)	

Chi-square test used
*Statistically significant difference (p<0.05)
**Statistically significant difference (p<0.01)

Figure 1: *Illustrates the comparison between Urban vs. Rural Adolescent students about causes of delayed menstruation. The comparison based on Paired and unpaired t-test showed that mean + SD of pre/post-test (2.20±1.3)/ (4.64±2.1) of urban locality reflected a statistically significant at (P=0.001) vs. mean + SD of pre/post-test (1.72±1.6)/ 4.42±2.4) reflected a statistically significant at (P=0.001) respectively.*



Paired and unpaired t-test used
** Statistically significant difference (p<0.01)

of locality", "relationship between residence" and "knowledge toward amenorrhea". None of these engines has any study related to these keywords except for the general topic about amenorrhea or amenorrhea relating to athletics.

Educational program effect on participants' habits

The findings of rural parents' habits before and after an orientation program revealed a significant difference in the change in their habits: seeking a male physician, and the type of treatment decided by physician such as hormonal treatment and plastic surgery. This encouraging finding suggests that increased knowledge may improve habits. Similarly, a study by Feldmann et al. which confirmed that knowledge may inform attitudes as in their study the low knowledge of adolescents informs their unhealthy attitude, so their study suggested that increased knowledge may positively influence attitudes (8).

In our study, almost two-thirds of total adolescents have no knowledge about amenorrhea while Naveed et al. findings revealed more than two-thirds had knowledge about amenorrhea. This is may be related to that our study's main topic is amenorrhea while Naveed's study is about all forms of menstrual disorders and amenorrhea was one of them. In addition, our study age group was ranged from 13-16 while Naveed's study's age group included a wide range from 10 to 20 years old. This wide range revealed the variation of knowledge level between two studies (9).

In our study the locality may inform an improvement of knowledge which is interpreted by comparison between adolescents that reflect a significant improvement of urban adolescent students, almost fifty percent" in their information related to the definition of primary amenorrhea. While rural adolescents revealed twenty percent. Also, regarding the causes of delayed menstruation forty percent of urban adolescent answered correctly and this revealed a statistically significant difference. While rural findings reflected fifty percent with a statistically significant difference. The comparison based on paired and unpaired t-tests showed that the mean of urban locality reflected a statistically significant at (P=0.001)

LIMITATIONS

Our study includes a small sample size which may reflect a difficultly for generalization.

CONCLUSION

This study highlights an important theme of habits and knowledge about amenorrhea among adolescents and their parents. Improvement of knowledge reflects a significant change in habits which will be followed in the future toward amenorrhea. Educational programs in this study achieve a positive change in participants' habits. Therefore, the study's subtle distinction between knowledge, habits and biases associated with self-reported data.

CLINICAL IMPLICATIONS

- Further research should be done to figure-out the relationship between knowledge and habits toward puberty abnormalities and their management
- Provide students in the preparatory phase with a simple guidance program about abnormality during puberty stage.
- Faculties of nursing should improve the awareness of primary schools in their localities toward this topic

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