

Herbal Remedy used by Rural Adolescent girls with Menstrual Disorders

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Abstract: The study aimed to determine the herbal remedy used by rural adolescent girls with menstrual disorders. The study comprised 900 adolescent students (aged 12-18years old) from preparatory and secondary schools in rural village in Elbehira governorate, Egypt. An interview schedule was developed and used to collect the necessary data. The results revealed that 89.9% of the adolescent girls had suffered from dysmenorrhea. 78% of them had used herbal remedy for treatment. Premenstrual syndrome (PMS) was experienced by 77.7% of the study subjects 72.7% of them had used herbal remedy for treatment. The type of herbs used in management of PMS and dysmenorrhea were fenugreek, peppermint and aniseed which were effective among almost all of the study subjects. Green tea, cinnamon and basil were moderately effective. Fenugreek, chamomile and cinnamon were effective in the management of amenorrhea. In spite of its high prevalence and enormous impact on their lives girls believed that dysmenorrhea is a normal part of the female menstrual cycle and only 16.1% sought medical treatment. A great number of adolescents obtained information from their mothers (62.7%) and peers (46.7%). These findings imply the need for educating adolescent girls on effective management of dysmenorrhea. Education should be extended to parents and school peer leaders to address the reproductive health needs of adolescents.

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1. Introduction:

Menstruation is a landmark in every woman's life. It is a major physical event that transmits the female from girlhood to womanhood. Its onset may occur as early as 9 years or as late as 17 years, but age 12 is the average. Menstrual cycles are not always regular or stable; they may be disturbed by many disorders which commonly occur at the extremes of reproductive age. The causes of menstrual disorders can be triggered by a number of different factors, such as hormone imbalances, genetic factors, blood clotting disorders, and pelvic diseases. These disorders may be psychosomatic/physical including premenstrual syndrome (PMS) and dysmenorrhea, disorders related to the length of menstrual cycle as amenorrhea, oligomenorrhea, and polymenorrhea and disorders related to the amount of blood loss as hypomenorrhea and menorrhagia⁽¹⁾.

Premenstrual syndrome (PMS) is a set of physical, emotional, and behavioral symptoms that occur a week before menstruation in most cycles. The physical symptoms are: breast tenderness or swelling; weight gain due to fluid retention; abdominal bloating; fatigue; dizziness; nausea and vomiting; acne or worsening of an existing skin disorders; muscle aches; pelvic heaviness; appetite change; constipation; headache and backache. The emotional symptoms are: insomnia; sadness; irritability; tension; anxiety; restlessness; loneliness and food cravings. There are also behavioral symptoms such as: difficul-

ty concentrating; forgetfulness and social avoidance⁽²⁾.

Dysmenorrhea, or painful menstruation, is a severe, painful cramping sensation in the lower abdomen. It may be accompanied by headache, dizziness, diarrhea, a bloated feeling, nausea and vomiting, backache and leg pain. Dysmenorrhea has a negative effect on a woman's life. It may be so severe as to confine the woman to bed. During adolescence, dysmenorrhea leads to high rates of absence from school and non-participation in activities⁽¹⁾.

Amenorrhea is the absence of menstruation. There are two categories; Primary amenorrhea occurs when a girl does not begin to menstruate and no signs of sexual development (breast development and pubic hair). Any girl who does not have her period by age 15 should be evaluated for primary amenorrhea. Secondary amenorrhea occurs when periods that were previously regular become absent for at least three cycles.⁽²⁾

Oligomenorrhea is a condition in which menstrual cycles are infrequent. It is very common in early puberty and does not usually indicate a medical problem⁽¹⁾. Polymenorrhea describes the condition of having too frequent periods. Periods occur more often than every 21 days, and ovulation usually does not occur during the cycle. Hypomenorrhea refers to the condition where the duration of menstrual flow is short, usually lasts less than two days and the flow is scanty. Menorrhagia is defined as total blood loss

exceeding 80 ml per cycle. The condition is also known as hypermenorrhea. ⁽³⁾

Management of menstrual disorders may pave the way to either healthy or unhealthy reproductive health later on. Menstrual disorders may be managed positively or negatively. A positive management is usually followed by menstrual regulation or even preservation of the girl's reproductive ability later on. On the other hand negative management can lead to deterioration of the present menstrual disorder or even bring on other menstrual disorders and negatively affect the girl fertility later on. All over the world adolescent girls tend to be silent about menstruation and may accept its disorders as one package. Consequently, they underutilize medical health care services for their management. This is evident in Egypt and is also reported in Hong Kong. ⁽⁴⁾

Herbal remedy has been practiced for thousands of years before pharmaceutical companies began. In addition, many of the pharmaceutical preparations used around the world are based on plants. Herbal remedy is well known since long times and the Ancient Egyptians have used peppermint, coriander, garlic, castor oil and other herbs in the treatment of illness ⁽⁵⁾. The uses of herbal remedy are growing very fast. A recent study (2008) conducted in Egypt by Saber to explore the knowledge, utilization, and attitude of maternity nurses towards complementary and alternative therapies, did report its use among 60% of the study participants ⁽⁶⁾.

Herbs are used by all age groups in any culture - as a part of their health management traditions - for all health problems including menstrual disorders. ⁽⁷⁾

Although there is an increased evidence for the effective and safe use of many herbal remedy, yet an abundant of these herbs is not yet proved to be either effective or safe. As some of these practices are found to be safe, effective and culturally accepted, on the other hand others may be harmful or useless and lead to undue delay in medical management leading to serious consequences later on in reproductive life. Moreover, there is a little knowledge about adolescents' health-seeking behaviors for management of menstrual problems. ⁽⁸⁾ This raises the attention to investigate the utilization of such herbs among both sensitive population and areas, especially among adolescent girls in rural areas. The availability of such information could be important for the development and provision of the appropriate health care services. Therefore, this study was done in order to encourage, modify, or abolish its uses according to its benefits versus risks.

Aim of the study

The study aimed to identify herbal remedy used by rural adolescent girls with menstrual disorders.

2. Material and Methods

Research design:

The descriptive exploratory design was utilized to conduct the study.

Setting:

Data was collected randomly from four available preparatory and secondary schools in rural village in Elbehira governorate, Egypt.

Subjects:

The study comprised a convenient sample of 900 female students from preparatory and secondary school age from 12-18 years old. They were identified through the assistance of the school health nurse.

Tool:

An interview schedule was developed and used to collect the necessary data. It comprised two main sections:

Section one:

- A. Socio-demographic and health profile data such as: age, academic year, presence of chronic diseases....etc.
- B. Menstrual history such as: age at menarche; duration; interval; amount of blood loss...etc

Section two:

- A) Presence of menstrual disorders such as: Premenstrual syndrome (PMS); Dysmenorrhea; Oligomenorrhea; Amenorrhea; Polymenorrhea; Hypomenorrhea; Menorrhagia; Menostaxis; and Metrorrhagia.
- B) Use of complementary and alternative therapy (CATs) for management of menstrual disorders. This part included: used modalities; Reasons for use; Techniques of usage; Effectiveness and Sources of knowledge.

Methods

The study was executed according to the following Steps:

1- Approvals

- An official letter from the Faculty of Nursing, University of Alexandria was directed to the responsible authorities to take their permission to conduct the study after explaining its purpose.
- Official permission was obtained from the General Agency for public Mobilization and Statistics, then from the Vice Minister of Education in Elbehira, then from the director of Elmahmodia zone, and finally from the head masters of each of the schools included in the study.

2- Tool development

A structured interview schedule was developed by the researcher after extensive review of the relevant and current literature; it was tested for content validity by nine juries, who were expert in the filed.

3- Pilot study

A pilot study was carried out on randomly selected 40 students from one school not included in the actual study. Then modifications of some statements in the tool were done. The purpose of the pilot study was to:

- Test the applicability of the tool
- Estimate the time needed to complete the tool.

The pilot study revealed that student's response was extremely low through the questionnaire data collection method but very good by interview method. Therefore, it was decided to collect the data through interviewing technique instead of the questionnaire technique. The relevant official procedures were taken to ensure such changes.

4- Data collection

The purpose of the study was explained to each student and an oral consent for participation in the study was obtained from each one of them.

- The researcher gave each class of the study subjects a brief talk about menstruation, its possible disorders and herbal remedy in general. This was done in the classrooms with the assistance of the school social workers. Then each student was interviewed either in the classroom; laboratory; school library or school clinic. During the interview, the researcher had read each item/ question on the data collection tool and explained its meaning to the student. Then the student was asked to write down her answer immediately following asking each item/ question. The interview time ranged from 15 – 20 minutes. The student was allowed to ask for any interpretation, elaboration or explanation.
- The time for data collection was from 9 am to 2 pm in the preparatory school and from 9am to 4 pm in the secondary school because it works on the morning and evening. Data was collected 5 days a week, 5-10 girls were interviewed per day, for a period of 4 months started on February 2010 to the end of May 2010.

Statistical analyses

The following statistical measures were used:

- Frequency & percentage were used for describing and summarizing categorical data.
- Cross tabulation was used with percentage to explore relationships between variables
- ❖ Chi square (X^2) was used to test the association between categorical variables and herbal remedy use to manage menstrual disorders.
- ❖ The 0.05 level was used as the cut off value (P value) for statistical significance.

3. Results

According to table (1) the majority (83.2%) of the girls had their menarche at the age of 11 -<13 years. Nearly one - sixth (15.5%) of them had it at 13 years or more. 44.1% of them had a gynecological age of less than two years. While an almost equal proportions (26.8% and 27.6%) of them had either a gynecological age of 2 <4 years or of 4-<6 years. The menstrual interval among most of them (85.7%) was normal 21 <35 days. Few (6.9%, 4.8%) of them had either a short interval (less than 21 days) or a longer one (more than 35 days), respectively. Only 2.6% of them had irregular periods.

More than half (58.4%) of them had their menstrual flow for 5 or more days. While 40.8% had it for 3-<5 days. Most of them (84.9%) used to change 2- 4 sanitary pads per day. Nearly one tenth (12.3%) of them used to change only one sanitary pad per day. Yet a few (2.8%) of them used to change 4 sanitary pads or more a day. Regarding source of information about menstruation nearly two-thirds (62.7%) of adolescent girls obtained information from their mothers and 46.7% from their peers and 37.2% from school curricula.

According to table (2), almost all (89.9%) of the study subjects had suffered from dysmenorrhea. 78% of them used herbal remedy for treatment, 16.1% of them sought medical treatment and 5.9% did not seek any treatment. More than three quarter (77.7%) of the study subjects had experienced PMS. 72.7% of them used herbal remedy for treatment and 12.4% sought medical treatment and 14.9% of them did not seek any treatment. Hypomenorrhea was present in only 12.4% of the study subjects 27.7% of them used herbal remedy for treatment 3.6% of them sought medical treatment and 68.7% did not seek any treatment. Both oligomenorrhea and polymenorrhea were experienced by less than one - tenth (8.4%, and 6.8 %, respectively) of the study subjects. A few (2.5%, and 2.9%) of them had menorrhagia, or metrorrhagia, respectively.

Table (3) shows a highly significant association between the type of used herbs and its effectiveness in management of PMS. Where fenugreek, peppermint and aniseed were effective among almost all of the study subjects. Green tea, cinnamon and basil were moderately effective among more than four – fifths (88.8%, 86.9%, 83.3%) of them, respectively. A similar profile was observed in relation to the management of dysmenorrhea, where fenugreek, peppermint, aniseed green tea, cinnamon and basil and were effective among almost all of the study subjects.

Table (4) shows that fenugreek, chamomile and cinnamon were effective in the management of amenorrhea. Fenugreek, peppermint and chamomile were effective in three fourth in the management of polymenorrhea. Peppermint, fenugreek, aniseed and cha-

momile were effective in the majority of case of hy- significant.
pomenorrhea but these relations were not statistically

Table (1): Number and percent distribution of the study subjects according to their clinical characteristic of menstrual history:

Menstrual history	No (900)	%
<u>Age of the students</u>		
• <13 years	108	12
• 13years-	201	22.3
• 15 years -	341	37.9
• ≥17 years	250	27.8
<u>Age at menarche</u>		
• 9 years-	12	1.3
• 11 years-	749	83.2
• ≥ 13 years	139	15.5
<u>Gynecological age:</u>		
• < 2 years	397	44.1
• 2years -	241	26.8
• 4 years-	248	27.6
• ≥ 6 years	14	1.5
<u>Menstrual interval:</u>		
• 15 days-	62	6.9
• 21 days-	771	85.7
• ≥ 35 days-	44	4.8
• Irregular	23	2.6
<u>Menstrual duration:</u>		
• < 3 days	7	0.8
• 3 days-	367	40.8
• 5 days-	526	58.4
<u>Numbers of sanitary pads/day:</u>		
• 1 sanitary pad	111	12.3
• 2-4 sanitary pads	764	84.9
• ≥ 4 sanitary pads	25	2.8
<u>Sources of information*</u>		
• Mothers	564	62.7
• Sisters	77	8.6
• Peers	420	46.7
• School curricula	335	37.2

* More than one answer

Table (2): Number and percent distribution of the study subjects according to their varieties of treatment taken for specific menstrual disorder:

Menstrual disorders *	Total Number (900)		Herbal Treatment		Medical Treatment		NO Treatment	
	No	%	No	%	No	%	No	%
Premenstrual syndrome (PMS).	699	77.7	508	72.7	87	12.4	104	14.9
Dysmenorrhea.	809	89.9	631	78	130	16.1	48	5.9
Secondary amenorrhea.	23	2.5	8	34.8	9	39.1	6	26.1
Polymenorrhea	61	6.8	17	27.8	12	19.7	32	52.5
Hypomenorrhea.	112	12.4	31	27.7	4	3.6	77	68.7
Oligomenorrhea	76	8.4	4	5.3	1	1.3	71	93.4
Menorrhagia	23	2.5	3	13	1	4.4	19	82.6
Metrorrhagia.	26	2.9	1	3.8	2	7.7	23	88.5

* More than one answer

Table (3): Number and percent distribution of used herbs for management of PMS and dysmenorrhea according to their effectiveness.

Herbs	Total	PMS (508)				Total	Dysmenorrhea (631)				
		effective		Not effective			effective		Not effective		
		No	%	No	%		No	%	No	%	
Fenugreek	284	279	98.2	5	1.8	348	341	98	7	2	
Peppermint	200	197	98.5	3	1.5	281	277	98.5	4	1.5	
Aniseed	135	129	95.5	6	4.5	144	141	97.9	3	2.1	
Green tea	45	40	88.8	5	11.2	46	42	91.3	4	8.7	
Cinnamon	23	20	86.9	3	13.1	28	27	96.4	1	3.6	
Basil	12	10	83.3	2	16.7	11	11	100	0	0	
Chamomile	-	-	-	-	-	17	14	82.3	3	17.7	
$\chi^2=25.8; P=0.0001$						$\chi^2=25.3; p = 0.0003$					

* More than one answer

Table (4): Number and percent distribution of used herbs for management of amenorrhea ,polymenorrhea and hypomenorrhea according to their effectiveness.

Herbs	Total	Amenorrhea (8)				Total	Polymenorrhea (14)				Total	Hypomenorrhea (28)					
		Effective		Not effective			Effective		Not effective			Effective		Not effective			
		No	%	No	%		No	%	No	%		No	%	No	%		
Fenugreek	4	4	100	0	0	8	6	75	2	25	7	6	85.6	1	14.4		
Peppermint	-	-	-	-	-	4	3	75	1	25	16	15	93.8	1	6.2		
Aniseed	-	-	-	-	-	-	-	-	-	-	5	5	100	0	0		
Green tea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Cinnamon	3	2	66.7	1	33.3	-	-	-	-	-	-	-	-	-	-		
Basil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Chamomile	8	6	75	2	25	3	2	66.7	1	33.3	2	2	100	0	0		
		$\chi^2=1.5$ P =0.5						$\chi^2=0.1$ p = 0.9						$\chi^2=1.2$ p= 0.7			

**highly significant at: 0.005; * More than one answer

4. Discussion

The results of the present study revealed a high prevalence of menstrual disorders, almost all of the study subjects had suffered from one or more of menstrual disorder. This result is similar to Hassan's findings,⁽⁹⁾ who studied the factors associated with menstrual disorders among adolescent girls in Egypt and reported a close prevalence to that of the present study, but he disagrees with the result of Shahbazian, Falahat,⁽¹⁰⁾ where they demonstrated much lower incidence of menstrual disorders. Such discrepancy could be explained by the fact that the menstrual disorders in the two Egyptian studies were based on participants self report which tend to exaggerate their symptoms rather than on medical diagnosis like in the other two studies.

Dysmenorrhea was the most encountered menstrual disorder among the present study subjects followed by PMS and this is in accordance with the relevant literature,^(2,3) and studies done by Hassan,⁽⁹⁾ Goldestein *et al.*⁽¹¹⁾ and Talatu, Egbunu.⁽¹²⁾ Other studies conducted about menstrual disorders reported much lower prevalence of dysmenorrhea and PMS^(13,14). Such discrepancy between the findings of these and those of the present study is self explainable by the fact that the subjects in the former study were adult women and not adolescents like the present study, where dysmenorrhea and PMS are more common at the extremes of reproductive life.

In the present study common menstrual disorders as dysmenorrhea and PMS took the first rank as regard the management seeking behaviors. In contrast all oligomenorrhea, menorrhagia, and metrorrhagia cases completely ignored their management. These findings are in accordance with Cronje, Krintzinger and Houston *et al.*, where the former conducted a study about menstruation: symptoms, management and attitudes among university students in America.

The later had studied the knowledge, attitudes, and consequences of menstrual health in urban adolescent females in England.^(15, 16) Both studies found that natural treatment is so much effective which enhances such management seeking behavior.

In this study fenugreek was the most common herb used to manage menstrual disorders followed by peppermint, aniseed and green tea. This is expected because fenugreek is still present as a part of Egyptian heritage and as superior herb for Egyptian adolescent girls through the years. Similar results were reported by other two Egyptian studies and an American one. The first Egyptian study was conducted at Assiut University Center for environmental studies, where they studied the premenstrual syndrome among Assiut University students. The second Egyptian study was conducted by El Gilany *et al.*, Both studies had reported that fenugreek was the most common herb used for management of menstrual disorders^(17,18). The American study was conducted by Banikarim *et al.*, and in spite of the culture differences between Egypt and America.⁽¹⁹⁾, the three studies did reported that fenugreek was the most commonly used herb among their samples. However, the absolute percentage of the fenugreek used among the three studies was not the same. It was much higher in the two Egyptian studies than in the American one.

Fenugreek was considered as a cure for many symptoms and complaints including female troubles. Specifically, menstrual pain, menopausal troubles, lost periods, and to support healthy milk production.

So fenugreek may help in management of PMS by relieving pelvic congestion, breast tenderness, and weight gain by its diuretic effect. Also its antihistaminic effect can relieve premenstrual tension. Its spasmolytic effect may relieve premenstrual gastrointestinal spasms⁽²⁰⁾.

Again in the present study fenugreek was utilized for management of dysmenorrhea by a high proportion of participants that reported highly effectiveness. Other studies reported the use of the same herb for management of dysmenorrhea but they did not mention either its mode of action or effectiveness.^(13,20) Fenugreek mode of action, was indirectly explained by Natarajan, Dhananjayan, in their experimental study about the spasmolytic and antihistaminic effect of fenugreek on spasm and GIT disturbances associated with dysmenorrhea. Its diuretic effect can also relieve the pelvic congestions and weight gain associated with dysmenorrhea⁽²¹⁾.

In the present study fenugreek was used effectively to manage amenorrhea, polymenorrhea and hypomenorrhea. Natarajan, Dhananjayan in their study provided an evidence that fenugreek contains phytoestrogens - that are natural plant chemicals that mimic female hormones estrogen, which can in turn increase the building up of uterine endometrium and increase its thickness. Consequently, it can increase the menstrual flow⁽²¹⁾.

Peppermint is the second most commonly used herb for management of menstrual disorders in the present study. It was used effectively in the majorities of cases for management of PMS and dysmenorrhea. Peppermint oil has a long history of safe use both in medicinal preparations and as a flavoring agent in foods and confectionery. Several studies reported that peppermint oil has antimicrobial and antiviral activities. It is recommended for internal use for functional gastrointestinal and gallbladder disorders as it increases the bile secretion. It has anti-inflammatory and anti-ulcer activity. It is used for relieve of indigestion, nausea, diarrhea, sore throat, colds, headaches, catarrhs and myalgia^(22,23). Peppermint can alleviate the digestive symptoms of the premenstrual syndrome as its menthol has a direct antispasmodic activity on the smooth muscle of the digestive tract through calcium antagonist activity.⁽²⁴⁾ Again, relevant literatures indicate that peppermint oil can decrease gas and flatulence by relaxing the lower esophageal sphincter, thereby equalizing the intraluminal pressures between the stomach and esophagus⁽²⁵⁾. Hills and Aaronson conducted a study about the mechanism of action of peppermint oil on gastrointestinal smooth muscle and concluded that peppermint oil also exhibit antihistaminic activity which can help in relieving dysmenorrheal pain⁽²⁶⁾. Farnsworth *et al.* reported that peppermint as an emmenagogue herb so may be used to manage amenorrhea and hypomenorrhea⁽²⁷⁾.

Aniseed is another old herb used by study participants for management of some menstrual disorders. It is used effectively by the majority of participants for the management of PMS. Many studies

have reported its positive effect to manage gastrointestinal symptoms of PMS and psychological symptoms.^(28, 29) In the present study aniseed was used effectively by 97.9% of the participants to manage dysmenorrhea. EL-Shobaki *et al.* reported that aniseed help in management of dysmenorrhea by a direct way as a spasmolytic and an indirect way to increase iron absorption⁽³⁰⁾. Also aniseed was used effectively by all the participants to manage hypomenorrhea. Curtis *et al.* found that aniseed has estrogenic action that increase milk secretion, promote menstruation, and facilitate birth⁽³¹⁾. This explain why aniseed despite being minimally used in the present study to manage hypomenorrhea all of its users reported positive effect.

Green tea was used by small number in the present study to manage PMS. Most of its users reported high effectiveness. According to Lambert *et al.* green tea may help in reducing PMS tension because it has an anti-stress effect via the inhibition of cortical neuron excitation and has a diuretic effect which can help in management of PMS pelvic congestion.⁽³²⁾ It is also used to manage flatulence, consequently it may help premenstrual distention. On the other hand green tea may be not helpful at all as it seems to be a stimulant because it contain caffeine which can not aid the relaxation that aimed in PMS management. Kuriyama *et al.*, had conducted an investigation about green tea consumption and mortality rate in Japan. They reported that green tea has high anticoagulant effect⁽³³⁾. This result must draw our attention to its use for PMS before menses as it may lead to menorrhagia.

Conclusion and Recommendations

Conclusion

Based on the findings of the present study, it can be concluded that, most of the rural adolescent girls suffer from one or more menstrual disorders. They accepted such disorders as a part of being grown up and menstruating like an adult female. The management seeking behaviors were mainly geared to herbal remedies and the most common used to manage premenstrual syndrome and dysmenorrhea were fenugreek followed by peppermint, aniseed, green tea and cinnamon which were effective among almost all of the study subjects. Adolescent girl avoided any medical consultation at an obstetrician because they thought that the occurrence of such disorder is normal and does not deserve the adventure of being stigmatized by visiting an obstetrician.

Recommendation

Based on the finding of the present study, the following recommendations are suggested:

- Preparatory and/or secondary school curricula should contain items about menstruation: its nature, disorders and management.
- Some kind of health educational sessions should be provided to the mothers of adolescent girls (about menstruation).
- Specialized studies are needed to investigate the effect of fenugreek and peppermint on relieve of different menstrual disorders.
- Specialized studies to explore CATs uses in other spans of female reproductive cycles and for other gynecological symptoms should be carried out.

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