

Assessment of Levels of premenstrual psychological and physical Problems (Premenstrual Syndrome-PMS) of Students of the Colleges of Bab Al-Mua'dham Complex/ University of Baghdad

تقييم مستويات المشاكل النفسية والجسمية السابقة للدورة الشهرية (اضطراب ما قبل الدورة الشهرية) لطالبات كليات مجمع باب المعظم/ جامعة بغداد

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المستخلص:

الأهداف: تهدف الدراسة الحالية الى تقييم مستويات المشاكل النفسية والجسمية السابقة للدورة الشهرية بين طالبات كليات مجمع باب المعظم/ جامعة بغداد، وإيجاد بعض العلاقات الأحصائية بين تلك المستويات للمشاكل النفسية والجسمية وبين بعض المتغيرات الديموغرافية لتكن الطالبات كالعمر والمرحلة الدراسية والحالة الزوجية ويوم الدورة وغيرها.

المنهجية: دراسة وصفية تمت ما بين الأول من تشرين الأول ٢٠١٥، والثامن من تموز، ٢٠١٦. تم جمع عينة غرضية لـ ٣١٣ طالبة موزعين كالاتي: كلية الآداب 82؛ كلية اللغات ٧٩؛ كلية العلوم الإسلامية ٤٨؛ كلية التمريض ١٠٤. لغرض جمع معلومات البحث الحالي فقد تم بناء استبيان خاص لهذا الغرض والذي شمل: المعلومات الديموغرافية للطالبات المشاركات؛ ومقياس شتاينر لفحص العلامات السابقة للدورة الشهرية (٢٠٠٣)^(١). هذا الاستبيان يتضمن ثلاثة أجزاء: الجزء الأول يمثل الخصائص الديموغرافية للطالبات اللواتي أتفقن على المشاركة في الدراسة الحالية، الجزء الثاني يحتوي على ١٦ فقرة تمثل المشاكل النفسية والجزء الثالث يفترض ان تقيس المشاكل الجسمية وعددها ١١ فقرة. تم تحديد مستويات شدة المشاكل باستعمال خطوة التلخيصات، تم إجراء تحليل البيانات باستعمال الأحصاء الوصفي: التردد والنسبة المئوية والتوزيع، والأحصاء التحليلي والذي تمثل بمعامل الارتباط لبيرسن ومربع كاي مستخدماً البرنامج الاحصائي SPSS النسخة ١٩.

النتائج: كشفت نتائج الدراسة الحالية بان أكثر من نصف الطالبات هن من عمر ٢٠ و ٢١ سنة؛ الغالبية هن من غير المتزوجات؛ ثلث عدد الطالبات المشاركات هن من المرحلة الأولى؛ أكثر من ثلاثة ارباع العينة لديهم مختلف مستويات الشدة للاعراض النفسية والجسمية تتوزع بين مستوى طفيف الى مستوى يعيق النشاطات اليومية الى مستوى يغير نمط حياة الطالبة. لم تجد الدراسة اي اختلاف بين المتزوجات وغير المتزوجات بالنسبة لتلك المشاكل؛ لم تجد الدراسة علاقة بين الموصفات الديموغرافية والمشاكل النفسية بينما هنالك علاقة بين المرحلة الدراسية والمشاكل الجسمية وايضاً توجد علاقة بين العمر والمشاكل النفسية والجسمية.

التوصيات: توصي الدراسة الحالية بالمتابعة الطبية والصحية للطالبات مع المستويين اللذين يعيقان النشاطات اليومية او التي تغير نمط حياة تلك الطالبات. أيضاً توصي الدراسة بإجراء دراسات أخرى مختلفة تتناول تأثير تلك المشاكل على إداء الطالبات الأكاديمي وايضاً على العلاقات الإجتماعية ومدى تواصل الطالبة مع عائلتها ومجتمعها. والكشف عن تقلبات المزاج التي قد تؤدي الى الافكار الانتحارية.

Abstract

Objectives: To assess levels of premenstrual psychological disorders of the students in Bab Al-Mua'dham Complex and to find out the relationship between the levels of premenstrual psychological and physical disorders and some demographic characteristics of the students.

Methodology: A descriptive study was accomplished throughout the period from the 1st of October, 2015 to the 8th of July, 2016 to assess the psychological and physical problems. A purposive sample of 313 students distributed among different colleges of Bab Al-Mua'dham complex distributed as following: 82 students are from college of Arts; 79 students are from College of Languages; 48 students are from college of Islamic Sciences; and 104 are from College of Nursing. For the purposes of the study a questionnaire was constructed which represents the premenstrual symptoms screening tool (PSST) by Steiner et al. (2003)⁽¹⁾. This questionnaire consists of three parts: first, the demographic characteristics of students agreed to participate in the present study; Second part contains 16 items represents the psychological problems and the third part is supposed to measure the physical problems and contains 11 items. Levels of severity of problems were determined by using the quartiles step. The data of the study were analysed by applying descriptive data analysis: frequencies, percentages and tables of distribution; and inferential data analysis: Pearson coefficient correlation and Chi square, using the statistical analysis program of SPSS 19th version.

Results: The present study reveals that more than half of the students are 20 and 21 years old; the majority of them are unmarried; one third of the sample are from the first class; more than three quarters have different levels of severity of psychological and physical problems distributed among slight level to the levels which interrupt the daily activities and/ or change the life style. The study has not found any differences between

married and unmarried students. Also, the study does not find significant association between demographic characteristics and psychological problems but there is a significant relationship between the study stage and physical problems and age and psycho-physical problems.

Recommendations: The present study recommends that medical and health follow up for students with levels which interrupt the daily activities and/ or change the life style of those students. Further studies concerning the impact of psychological and physical problems upon the academic achievement and also upon social relationship and the way the student deals with her family and society. Further studies aimed to discover the mood fluctuations which might result to suicidal ideation.

Keywords: *Assessment, psychological, physical, students, Bab almua'dam, colleges, university, Baghdad,*

Introduction

Premenstrual psychological and physical problematic disorders (Premenstrual Syndrome, PMS) are characterized by the cyclical recurrence of a variable constellation of physical and psychological symptoms which appears in the luteal phase and subsides with the onset of menstrual course^(2,3,4). It is a devastating state, causing social and occupational weakening in the lives of affected females comparable to that related with major depressive symptoms⁽⁵⁾ and with burdens of illness and incapacity adjusted life years lost on a balance with main predictable complaints⁽⁶⁾.

Menstruation is the episodic alteration occurring in primates, which marks in the flow of blood and endometrium from the uterine cavity and which may be accompanied with a number of constitutional troubles. Premenstrual syndrome (PMS) is the label specified to a group of physical and psychological symptoms that some women experience throughout the late luteal stage of each menstrual cycle, which is seven to fourteen days earlier to menstruation^(7,8).

On the other hand, premenstrual syndrome is a multi-factorial syndrome that affects different ages and particularly adolescent girls with a great incidence⁽⁹⁾. Premenstrual syndrome refers to distressing physical, psychological and behavioural symptoms not caused by organic disease, which regularly occurs during the same phase of menstrual cycle and significantly regresses or disappears during the remainder of the cycle⁽¹⁰⁾.

In retrospective community surveys it was approximated^(9,10) that virtually 90% of

women had experienced at any rate one premenstrual syndrome (PMS)⁽¹¹⁾. Previous epidemiological studies estimated that more than 75% of women experience various symptoms attributed to the premenstrual phase of menstrual cycle⁽¹²⁾ and over 160 symptoms had been linked to the menstrual cycle⁽¹⁰⁾. These symptoms are ranging from body aches and liquid retention to migraine headaches and fatigue, from instability and mood fluctuates to suicidal and homicidal thoughts and actions⁽¹³⁾. Affected students experience severe recurrent spasm of pain restrained to lower part of abdomen, back and thighs and of wavering severity ranging from mild, moderate to severe⁽¹⁴⁾. These disorders are particularly common in the younger age group and represent significant public health problem in young girls. 90% of menstrual problems are preventable by early detection and appropriate treatment⁽¹³⁾. Medical students are at a high risk of developing menstrual irregularities due to stress, irregular food and lack of exercise⁽¹⁵⁾.

The main aims of the present study are to assess levels of premenstrual psychological disorders among the students of colleges in Bab Al-Mua'dham Complex; to assess levels of premenstrual physical disorders of the students in Bab Al-Mua'dham Complex; and to find out the relationship between the levels of premenstrual psychological and physical disorders and some demographic characteristics of the students.

Methodology

A descriptive study was accomplished throughout the period from the 1st of October, 2015 to the 8th of July, 2016. The present study aims to assess the psychological and physical problems among female students in Bab Al-Mua'dham complex. A purposive sample of 313 students distributed among different colleges of Bab Al-Mua'dham complex participated to achieve the study objectives, these students distributed among different colleges of this complex: 82 students are from college of Arts; 79 students are from College of Languages; 48 students are from college of Islamic Sciences: and 104 are from College of Nursing. For the purposes of the study a questionnaire was constructed which represents the premenstrual symptoms screening tool (PSST) by Steiner et al. (2003)⁽¹⁾. This questionnaire consists of

three parts: first, the demographic characteristics of students agreed to participate in the present study such as age, marital status, class, date of completing the questionnaire and date of the latest period; Second part contains 16 items represents the psychological problems and the third part is supposed to measure the physical problems and contains 11 items. Severity of the problems was computed by applying the Quartiles which determine four levels of severity according to the cut-off point for each problem. Table one shows the cut-off points and these levels. The data of the study were analysed by applying descriptive data analysis: frequencies, percentages and tables of distribution; and inferential data analysis: Pearson Chi square; *t*-test using the statistical analysis program of SPSS 19th version.

Results

Table (1): Range of Severity of psychological and physical Problems according to the Cut-off Point of each Problem

Problems	Cut-off Points of premenstrual Problems			
	No Effect	Slight	Interrupt Daily Activities	Change Life Style
Psychological	0-7	8-13	14-20	21-41
Physical	0-7	8-11	12-18	19-32
Psycho-physical	0-17	18-25	26-36	37-62

Table (1) revealed that distribution of students according to the levels of severity of psychological, physical and psycho-physical problems.

Table (2): Distribution in the Severity of psycho-physical Problems according to the Total of the Students

Problems	Levels of Psychological and Physical Problems									
	No Effect		Slight		Interrupt Daily Activities		Change Life Style		Total	
	f	%	f	%	f	%	f	%	f	%
Psychological	71	22.7%	84	26.8%	79	25.2%	79	25.2%	313	100.0%
Physical	74	23.6%	76	24.3%	92	29.4%	71	22.7%		
Psycho-physical	81	25.9%	71	22.7%	82	26.2%	79	25.2%		

f → frequency, % → percentage

Table (2) indicates that more than half of the students have levels of psychological, physical and psycho-physical problems ranged between interrupting life activities and changing life style (50.4%), (52.1%) and (51.4%) respectively.

Table (3): Demographic Characteristics of the Students participated in the Study.

Age			Marital Status		
Years	f	%	Status	f	%
≥19	97	31.0%	Unmarried	288	92.0%
20-21	164	52.4%	Married	25	8.0%
≤22	52	16.6%	Total	313	100.0%
Total	313	100.0%			
Class			Last Menstrual Period (LMP)		
Class	f	%	Days	f	%
1 st	102	32.6%	10-14	81	25.9%
2 nd	80	25.6%	15-19	78	24.9%
3 rd	57	18.2%	20-24	70	22.4%
4 th	74	23.6%	≤25	84	26.8%
Total	313	100.0%	Total	313	100.0%

f → frequency, % → percentage

Table (3) reveals that about half of the students is 20 to 21 years old (52.4%); the majority of them are unmarried (92.0%); more than half of those students are from class one and class two (58.2%); and 26.8% of them have last menstrual period (LMP) at 25 days and more.

Table (4): Distribution in the Levels of psychological Problems according to demographic Characteristics of the Students

Psychological Problems											
Demographics		Severity of Symptoms									
		No Effect		Slight		Interrupt Daily Activities		Change Life Style		Total	
		f	%	f	%	f	%	f	%	f	%
age	≥19	23	7.3%	27	8.6%	29	9.3%	18	5.8%	97	31.0%
	20-21	35	11.2%	45	14.4%	41	13.1%	43	13.7%	164	52.4%
	≤22	13	4.2%	12	3.8%	9	2.9%	18	5.8%	52	16.6%
	Total	71	22.7%	84	26.8%	79	25.2%	79	25.2%	313	100.0%
Marital Status	Unmarried	62	19.8%	79	25.2%	75	24.0%	72	23.0%	288	92.0%
	Married	9	2.9%	5	1.6%	4	1.3%	7	2.2%	25	8.0%
	Total	71	22.7%	84	26.8%	79	25.2%	79	25.2%	313	100.0%
Class	1 st	25	8.0%	32	10.2%	29	9.3%	16	5.1%	102	32.6%
	2 nd	23	7.3%	17	5.4%	15	4.8%	25	8.0%	80	25.6%
	3 rd	11	3.5%	13	4.2%	15	4.8%	18	5.8%	57	18.2%
	4 th	12	3.8%	22	7.0%	20	6.4%	20	6.4%	74	23.6%
	Total	71	22.7%	84	26.8%	79	25.2%	79	25.2%	313	100.0%
LMP	10-14	17	5.4%	23	7.3%	27	8.6%	14	4.5%	81	25.9%
	15-19	19	6.1%	25	8.0%	15	4.8%	19	6.1%	78	24.9%
	20-24	14	4.5%	21	6.7%	13	4.2%	22	7.0%	70	22.4%
	≤25	21	6.7%	15	4.8%	24	7.7%	24	7.7%	84	26.8%
	Total	71	22.7%	84	26.8%	79	25.2%	79	25.2%	313	100.0%

f → frequency, % → percentage

Table (4) shows that the levels of severity of psychological problems distribute accidentally among the four demographic characteristics and among the domains of each characteristic; the majority of age group 20-21 years have levels of psychological problems which might interrupt the daily activities and might change the life style of the students (26.8%); in regard whether the students are married or unmarried the results indicate that about half of unmarried students having the severest two levels (47.0%); 14.4% of the first-class students have levels of psychological problems which might interrupt the daily activities and might change the life style; and 15.4% of those students who have LMP within 25 days and more show having the levels that interrupt the daily activities and might change the life style.

Table (5): Association between Levels of Severity of psychological Problems and demographic Characteristics of the Students

Demographic Characteristics	Severity of Psychological Problems		
	X ²	df	Sig.
Age	6.35	2	0.385
Marital Status	3.59	1	0.308
Class	13.09	3	0.159
Last Menstrual Period (LMP)	12.58	3	0.183

X²=Chi-square, df= Degree of Freedom, Sig.= Significant

Results of table (5) indicate that whether the student is younger or older; married or unmarried; in higher or lower class; and whether the LMP is earlier or late do not give an indicator to higher levels of severity of psychological problems.

Table (6): Distribution in the Levels of physical Problems according to demographic Characteristics of the Students

Physical Problems											
Demographics		Severity of Symptoms									
		No Effect		Slight		Interrupt Daily Activities		Change Life Style		Total	
		f	%	f	%	f	%	f	%	f	%
age	≥19	27	8.6%	24	7.7%	33	10.5%	13	4.2%	97	31.0%
	20-21	37	11.8%	41	13.1%	43	13.7%	43	13.7%	164	52.4%
	≤22	10	3.2%	11	3.5%	16	5.1%	15	4.8%	52	16.6%
	Total	74	23.6%	76	24.3%	92	29.4%	71	22.7%	313	100.0%
Marital Status	Unmarried	67	21.4%	74	23.6%	85	27.2%	62	19.8%	288	92.0%
	Married	7	2.2%	2	0.6%	7	2.2%	9	2.9%	25	8.0%
	Total	74	23.6%	76	24.3%	92	29.4%	71	22.7%	313	100.0%
Class	1 st	30	9.6%	22	7.0%	35	11.2%	15	4.8%	102	32.6%
	2 nd	17	5.4%	28	8.9%	21	6.7%	14	4.5%	80	25.6%
	3 rd	12	3.8%	9	2.9%	15	4.8%	21	6.7%	57	18.2%
	4 th	15	4.8%	17	5.4%	21	6.7%	21	6.7%	74	23.6%
	Total	74	23.6%	76	24.3%	92	29.4%	71	22.7%	313	100.0%
LMP	10-14	16	5.1%	23	7.3%	26	8.3%	16	5.1%	81	25.9%
	15-19	19	6.1%	27	8.6%	18	5.8%	14	4.5%	78	24.9%
	20-24	14	4.5%	12	3.8%	23	7.3%	21	6.7%	70	22.4%
	≤25	25	8.0%	14	4.5%	25	8.0%	20	6.4%	84	26.8%
	Total	74	23.6%	76	24.3%	92	29.4%	71	22.7%	313	100.0%

f → frequency, % → percentage

Table (6) indicates that the levels of severity of physical problems allocate by coincidence among the four demographic characteristics of the students and among the domains of each characteristic; 27.4% of age group 20-21 years have levels of psychological problems which might interrupt the daily activities and might change the life style of the students; whether the students are married or unmarried the results indicate that 47.0% of unmarried students having the severest two levels; 16.0% of the first-class students have levels of psychological problems which might interrupt the daily activities and might change the life style; and 28.4% of those students who have LMP within 20 days and more show having levels that interrupt the daily activities and might change the life style.

Table (7): Association between Severity of physical Problems and demographic Characteristics of the Students

Demographic Characteristics	Severity of Physical Problems		
	X ²	df	Sig.
Age	8.24	2	0.221
Marital Status	5.33	1	0.149
Class	19.21	3	0.023
Last Menstrual Period (LMP)	14.06	3	0.120

X²=Chi-square, df= Degree of Freedom, Sig.= Significant

Table (7) indicates that whether the student is younger or older; married or unmarried and whether the LMP is earlier or late do not give an indicator to higher levels of severity of physical problems but the higher class the student has the higher levels of severity she has (X²= 19.21, p= 0.023)

Table (8): Distribution in the Levels of psycho-physical Problems according to demographic Characteristics of the Students

Psycho-physical Problems											
Demographics		Severity of Symptoms									
		No Effect		Slight		Interrupt Daily Activities		Change Life Style		Total	
		f	%	f	%	f	%	f	%	f	%
age	≥19	26	8.3%	27	8.6%	26	8.3%	18	5.8%	97	31.0%
	20-21	47	15.0%	28	8.9%	46	14.7%	43	13.7%	164	52.4%
	≤22	8	2.6%	16	5.1%	10	3.2%	18	5.8%	52	16.6%
	Total	81	25.9	71	22.7	82	26.2	79	25.2	313	100.0%
Marital Status	Unmarried	75	24.0%	66	21.1%	75	24.0%	72	23.0%	288	92.0%
	Married	6	1.9%	5	1.6%	7	2.2%	7	2.2%	25	8.0%
	Total	81	25.9	71	22.7	82	26.2	79	25.2	313	100.0%
Class	1 st	32	10.2%	25	8.0%	30	9.6%	15	4.8%	102	32.6%
	2 nd	23	7.3%	18	5.8%	17	5.4%	22	7.0%	80	25.6%
	3 rd	12	3.8%	8	2.6%	18	5.8%	19	6.1%	57	18.2%
	4 th	14	4.5%	20	6.4%	17	5.4%	23	7.3%	74	23.6%
	Total	81	25.9	71	22.7	82	26.2	79	25.2	313	100.0%
LMP	10-14	19	6.1%	22	7.0%	24	7.7%	16	5.1%	81	25.9%
	15-19	20	6.4%	23	7.3%	21	6.7%	14	4.5%	78	24.9%
	20-24	16	5.1%	13	4.2%	14	4.5%	27	8.6%	70	22.4%
	≤25	26	8.3%	13	4.2%	23	7.3%	22	7.0%	84	26.8%
	Total	81	25.9	71	22.7	82	26.2	79	25.2	313	100.0%

f → frequency, % → percentage

Results of table (8) shows that the levels of severity of psycho-physical problems distribute accidentally among the four demographic characteristics and among the domains of each characteristic; the majority of age group 20-21 years have levels of psycho-physical problems which might interrupt the daily activities and might change the life style of the students (28.4%); in regard whether the students are married or unmarried the results indicate that about half of unmarried students having the severest two levels (47.0%); 14.4% of the first-class students have levels of psycho-physical problems which might interrupt the daily activities and might change the life style; and finally, 27.4% of those students who have LMP within 20 days and more show having the levels that interrupt the daily activities and might change the life style.

Table (9): Association between Severity of psycho-physical Problems and demographic Characteristics of the Students

Demographic Characteristics	Severity of Physical Problems		
	X ²	df	Sig.
Age	12.23	2	0.053
Marital Status	0.24	1	0.971
Class	15.19	3	0.08
Last Menstrual Period (LMP)	15.05	3	0.090

X²=Chi-square, df= Degree of Freedom, Sig.= Significant

Table (9) indicates that the older students have the higher levels of psycho-physical problems (X²=12.23, p=0.05) but being married or unmarried or in different classes or having different LMP do not give the definite decision for higher levels of severity of psycho-physical problems.

Table (10): Differences between married and unmarried Students in regard to psychological, physical and psychophysical Problems

Problems	Group Statistics				Independent t-test	
	Marital Status	N	Mean	Std. Deviation	t	Sig.
Psychological	Single	288	2.55	1.087	0.806	0.421
	Married	25	2.36	1.254		
Physical	Single	288	2.49	1.072	-1.002	0.317
	Married	25	2.72	1.242		
Psycho-physical	Single	288	2.50	1.129	-0.416	0.672
	Married	25	2.60	1.155		

N= Number of Study Sample, Std. Deviation= Standard Deviation, Sig.= Significant

Differences between married and unmarried students have not been found in regard to the levels of severity of psychological, physical and psycho-physical problems.

Discussion

The results reveal that the students distribute among different groups of age but the majority of them are between 19 to 21 years old, this is because the students participated are in the morning study where the age is supposed to be in the range of 19 to 22 years for the level of college and other exception is due to personal differences in reaching or falling in or during the study. In addition, the classes: first, second and third are formed the majority of the students which supports the range of the age mentioned above. Normal distribution of the students according whether they are married or unmarried is found in present study; unmarried covered the major number of the students where is supposed to be so because the financial resources are limit or they rarely have among the students community. The present study indicates that more than half of the students have levels of psychological, physical and psycho-physical problems ranged between interrupting life activities and changing life style as shown in table (2). So many studies in different places and countries all over the world have reached different results regarding the same problems; a study conducted upon 250 medical students in Saudi Arabia in 2009 concluded that premenstrual syndrome (PMS) was a common problem in young Saudi medical students and severe PMS was associated with more impairment of daily activities and psychological distress symptoms; older student age, rural residence, earlier age of menarche, regular cycles and positive family history were potential risk factors for PMS⁽¹⁶⁾. A cross sectional study was carried out in some health institution students in Zaria Northern Nigeria over a three month period. A semi-structured open-ended questionnaire was used to determine the severity of premenstrual symptoms. The criteria for the diagnosis of premenstrual syndrome (PMS) was based on the Diagnostic and Statistical Manual of

Mental Disorder (DSM IV). Most participants were unmarried 240 (91.7%)⁽¹⁷⁾. Other study was conducted Elnagar and her colleagues⁽¹⁸⁾ in Saudi Arabia; a descriptive research design was used to assess self-care measures regarding premenstrual syndrome among female nursing students. These results consistent with the researchers' results show that the age of the majority of studied sample ranged between twenty and twenty two years. Regarding marital status more than the three quarter of the sample was single; more than half of the studied sample recruited into third academic level and this result conversely with the researchers' results.

Recommendations

The present study recommends that medical and health follow up for students with levels which interrupt the daily activities and/ or change the life style of those students. Further studies concerning the impact of psychological and physical problems upon the academic achievement and also upon social relationship and the way the student deals with her family and society. Further studies aimed to uncover the mood fluctuations which might result to suicidal ideation.

References

- Steiner, M. I, Maccougall, M, & Brown E. (2003). The premenstrual symptoms screening tool (PSST) for clinicians. *Arch Womens Ment Health*; 6 (3): p. 203-209.
- Ling F. W. (2000). Recognizing and treating premenstrual dysphoric disorder in the obstetric, gynecologic, and primary care practices. *J Clin Psychiatry*; 61 Suppl 12: p. 9-16.
- Lakshmi A. S., Priy, M., Saraswathi, I., Saravana, A, & Ramachandran, C. (2011). Prevalence of Premenstrual syndrome and Dysmenorrhea among Female Medical students and its Association with college Absenteeism. *Int. J. Biol Med Res.* 2 (4): pp. 1011-1016.
- Dawood, M. Y. (2006). Advances in primary dysmenorrhea. *Obstet Gynecol*; 108 (2): pp. 428-441.
- Halbreich, U., Borenstein, J., Pearlstein, T., et al. (2003). The prevalence, impairment, impact, and burden of premenstrual dysphoric disorder (PMS/PMDD). *Psycho-neuro-endocrinology*; 28 (Suppl 3): p. 1-23.
- Daugherty, J.E. (1998). Treatment strategies for premenstrual syndrome. *Amer. Fam. Phys.* 58: p. 183-92
- Henderson, C. W. (2000). ACOG issues guide-lines on diagnosis and treatment of PMS. *Women's Health Weekly*; 5 (6): 20-28.
- Oral, E., Kirkan, T.S., Yazici, E., Gulec, M., Consever, Z. & Aydin, N. (2012). premenstrual symptom severity, Dysmenorrhea, and school Performance in Medical Students. *Journal of Mood disorders*; 2 (4): 143-152.
- Pearlstein T., & Steiner M. (2008). Premenstrual dysphoric disorder: Burden of illness and treatment update. *J Psychiatry Neurosci.*; 33:291-301.
- Wilhelm, H., Cronje, A., & Studd, J. (2003). Premenstrual syndrome. In: Studd J. *Progress in obstetrics and gynecology*, vol 15. 1st ed. London: Churchill Livingstone, pp. 169-183.
- Ramcharan, S., Love, E. J., & Fick, G. H. (1992). The epidemiology of premenstrual symptoms in a population based sample of 2650 urban women. *J Clin Epidemiol*; 45: 377-392.
- Johnson, S. R. (1987). The epidemiology and social impact of premenstrual symptoms, *Clin. Obstet. Gynaecol.*; 30: 367-76.
- Mohite, R. V., Mohite, V. R. (2013). Correlates of the menstrual problems among rural college students of Satara district. *Al Ameen J Med Sci.*, 6 (3): pp. 213-218.
- Lakkawar, N. J., Jaya Vani, J. R., Aarthi, N. P, Alaganandam, P., and Vanajakshi N. (2014). A study of menstrual disorders in medical students and Sujatha V et al., Evaluation Of Menstrual Disorders In First Year Female Medical And Dental Students and its correlation with Biological variables; *Sch.J.App.Med.Sci.*, 2 (6): p. 3165-3175.
- Mortola, J. F., Girton, L., Beck, L., & Yen, S. S. (1990). Diagnosis of premenstrual syndrome by a simple, prospective, and reliable instrument: The calendar of premenstrual experiences. *Obstet Gynecol*; 76: P. 302-307.
- Magdy Hassan Balaha, Mostafa Abd El Monem Amr , Mohammed Saleh Al Moghannum, Nouria Saab Al Muhaidab (2010), The phenomenology of premenstrual syndrome in female medical students: a cross sectional study, *Pan African Medical Journal*, Volume 5: Issue (4), p. 1-14.

17. Hajaratu U. Sulayman, Nana H. Madugu, Abimbola O. D. Kolawole, Polite Onwuhafua (2015). Premenstrual Symptoms among Students in Health Institutions in Zaria, Northern Nigeria. *Journal of Gynecology and Obstetrics*, Vol. 3, No. 1, p. 1-5.
18. Mona Abd El-Rahim Elnagar and Howida Abu Ellife Mohamed Awed (2015). Self-Care Measures Regarding Premenstrual Syndrome among Female Nursing Students, *International Journal of Nursing Didactics*, 5 (2), p. 1-10.