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RESEARCH ARTICLE

THE IMPACT OF PREMENSTRUAL SYNDROME AND DYSMENORRHOEA ON ACADEMIC PERFORMANCE OF COLLEGE STUDENTS

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Abstract

Premenstrual syndrome is a cyclical pattern of physical and emotional symptoms that interfere with work or lifestyle in the days before menstruation. The present study was aimed to assess the impact of PMS and dysmenorrhoea on academic performance of the students.

Materials and Methods: In a Cross sectional study 60 female students with random sampling method were participated in this study. Data was collected using four point rating scale for PMS, visual analogue scale for dysmenorrhoea and checklist used to assess the impact of PMS and dysmenorrhoea on academics.

Results: Prevalence of PMS was found to be 78.3% and dysmenorrhoea was 75%, with regard to severity of PMS, 35% and 61.67% of the participants had severe and moderate PMS respectively. 90% of the subjects reported back pain and 76.67% had poor concentration due to dysmenorrhoea.

Conclusion: It is concluded that the menstrual symptoms having a major impact on academic performance of the students. The study findings suggested that the students need to be counseled to reduce the impact of menstrual symptoms on academic performance.

Introduction:-

India has an estimated 80 million adolescent girls. Adolescent girls in India face numerous hurdles in life, especially when it comes to accessing higher education. The physical and mental changes that adolescent girls go through during puberty, as well as the lack of emotional support to deal with them, are two such problems that have been recognized. Puberty can even be traumatic for women who experience severe menstrual pain and discomfort due to hormonal imbalance. (TAG report by Naandhi Foundation, 2018).

Mild cramps are common during menstruation, but primary dysmenorrhea is characterized by significant pain without pelvic disease, severe enough to interfere with daily activities. (Bilir et al, 2020) Approximately 87.8% of Indian women have dysmenorrhea. (Agarwal ,AK & Agarwal,A, 2010).Women can suffer from anxiety, fear, confusion, shame, anger, and depression because of the physiological and pathological changes associated with primary dysmenorrhea. In women of reproductive age, it can also lead to absenteeism from work or school. Not only does it cause adolescent girls to miss school, it also affects their concentration and makes it harder for them to do well on exams, lowering their overall grades. (Dahlawi, H et al. 2021).

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In addition, many girls suffer from premenstrual syndrome, a cyclical pattern of physical and emotional symptoms that interfere with work or lifestyle in the days before menstruation (PMS). Anxiety, irritability, breast tenderness, body aches, mood swings, cravings, disinterest in activities, insomnia, difficulty concentrating, and cramps/bloating are classic PMS symptoms. According to the American College of Obstetricians and Gynecologists (ACOG,2014), these symptoms appear 5 days before menses and disappear 4 days after menses in each of the three previous menstrual cycles, without recurring until at least day 13 of the cycle.(Buddhabunyakan et al., 2017) PMS affects 49.6% of Indian adolescent girls (Dutta, A., & Sharma,A., 2021).

PMS increases the likelihood of suicide and car accidents, as well as absenteeism from work and school, poor academic performance, and serious psychiatric problems.(Tenkir et al.,2003) PMS is caused by rapid fluctuations in gonadal hormones, which is one of the reasons women are more likely to suffer from depression than men. According to studies from numerous nations, PMS symptoms are more common and severe in highly educated women than in illiterate women, suggesting a possible link between stress and PMS.(Tolossa, F.W & Bekele, M.L ,2014)

In view of the foregoing, we sought to determine the impact of PMS and dysmenorrhea on students' academic performance at Yadava Arts College in Madurai, India.

Materials and Methods:-

A cross-sectional study among sixty female students selected using a random sampling method was conducted between September 1st and 30th, 2021 at the Economics Department of Yadava Arts College, Madurai, Tamilnadu. The study was conducted with proper institutional approval and individual student consent. The students were approached by class, the study goals were explained, anonymity was promised and they were asked to fill out a self-administered closed questionnaire. This data collection tool includes demographic information, a four-point rating scale for premenstrual syndrome and a 10-point visual analogue scale for dysmenorrhea, and a checklist with six items to measure the impact of PMS and dysmenorrhea on academics. The tool has been validated by experts and pre-tested with Cronbach Alpha, resulting in a validity score of 0.8. Premenstrual symptoms were classified into three categories: mild (score 1-28), moderate (score 29-56), and severe (score 57-84 points). Dysmenorrhea was divided into three categories: mild (score 1-3), moderate (4-6), and severe (7-10). Impact on academics were calculated using ANOVA for each item at three levels (mild, moderate, and severe) of the combined PMS and dysmenorrhea scores. The data obtained were analyzed using a Microsoft Excel spreadsheet (based on the 2007 version) and the results reported in the form of descriptive and inferential statistics.

Results:-

The results are presented in the form of tables and charts for the following order of reporting Distribution of adolescent girls based on demographic information

Table 1 shows that two thirds of the adolescent girls were under the age of 20 (one third is between 17 and 18 years old, while another third is between 19 and 20 years old). The vast majority of the adolescent girls 75% are Hindu, 30% have mothers without formal education, 31.66% of adolescent girls live in rural areas, 75% of adolescent girls live in nuclear families, and 25% of adolescent girls do not exercise regularly. A family history of PMS and dysmenorrhea was reported by 38.33% and 25% of the adolescent girls in the study, respectively.

Table 1:- Frequency and Percentage distribution of Sample according to Socio Demographic Characteristics (n=60).

S. No	Demographic profile	Frequency	Percentage(%)	χ^2	P value
1	Age				
	a. 17-18	21	35		
	b. 19-20	21	35		
	c. 21-22	3	5	6.1224#	0.1058
	d. > 22	15	25		
2	Religion				
	a. Hindu	45	75		
	b. Christian	13	21.67	2.6374#	0.267

	c. Muslim	2	3.33		5
	d. Others	0	0		
3	Education of Mother				
	a. No formal education	18	30		
	b. High School	19	31.66		
	c. Higher Secondary	21	35	2.1652#	0.5388
	d. Graduate	2	3.33		
4	Type of family				
	a. Nuclear	45	75		
	b. Joint	15	25	1.0999#	0.2943
5	Area of living				
	a. Rural	19	31.66		
	b. Semi Urban	17	28.33	0.6553#	0.7206
	c. Urban	24	40		
6	Regular physical exercise				
	a. Yes	20	33.33		
	b. No	40	66.67	7.5758*	0.0059
7	BMI				
	a. Under weight	8	13.33		
	b. Normal	43	71.66	3.7448#	0.1538
	c. Overweight	9	15		
8	Age at menarche(in years)				
	a. <11	3	5		
	b. 11-13	29	48.33	1.7109#	0.6345
	c. 14-16	27	45		
	d. >17	1	1.66		
9	Regularity of menstrual cycle				
	a. Regular	49	81.67		
	b. Irregular	11	18.33	1.8901#	0.1692
	S. No	Demographic profile	Frequency	Percentage(%)	χ^2
10	Length of Menstrual cycle				
	a. < 28	12	20		
	b. 28 days	19	31.66		
	c. 29 days	4	6.67	3.4580#	0.4843
	d. 30 days	16	26.67		
	e. 30 days	9	15		
11	Duration of Menstruation				
	a. < 3 days	2	3.33		
	b. 3-4 days	30	50		
	c. 5-6 days	0	0	0.6926#	0.7073
	d. > 6 days	28	46.67		
12	Have you experienced premenstrual symptoms previously				
	a. Yes	47	78.33		
	b. No	13	21.67	3.7935#	0.0515
13	Have you experienced pain during menstruation previously				
	a. Yes	45	75		
	b. No	15	25		

				8.1033*	0.0044
14	Family history of PMS				
	a. Yes	23	38.33		
	b. No	37	61.67	7.0828*	0.0078
15	Family history of Dysmenorrhoea				
	a. Yes	15	25		
	b. No	45	75	11.8743*	0.0006

*significant,#non significant

Severity of PMS and dysmenorrhea

PMS was present in 78.3% of the adolescent girls and dysmenorrhea was present in 75%. Study revealed that only a small percentage of adolescent girls had mild PMS (3.33%), while the majority of them had predominantly moderate to severe PMS (61.67% to 35%) with the mean score of 49.45±11.603. A remarkably large proportion of 45% had moderate pain, a smaller proportion of 23 % had severe pain, while the remaining proportion of 32% had mild pain during menstruation.

Accompanying Symptoms of dysmennorhea

Adolescent girls had ten other symptoms in addition to dysmenorrhea. Back pain 70%, loss of appetite, 62% dizziness, 57% breast tenderness, 57% painful defecation, 55% headache, and 42% constipation were the most common symptoms, followed by less common symptoms such as 35% nausea, 35% diarrhea, and 27% vomiting during each menstruation.

Impact on academic performance

The severity of PMS and dysmenorrhea had a significant negative impact on work efficiency in 65% of adolescent girls, and the impact was confirmed by analysis of variance, $F(2.38)=129.42$, $p=0.000$. Symptoms made college attendance difficult for 50 percent of adolescent girls, and analysis of variance showed that symptoms significantly affected college attendance, $F(2.29) = 176.57$, $p = 0.000$. Both PMS and dysmenorrhea had impaired concentration in 76.67%. of adolescent girls, confirmed by analysis of variance, $F(2.45)=129.42$, $p=0.000$ and also significantly worsened exam performance in 70% of adolescent girls, which was supported by analysis of variance, $F(2.41)=187.85$, $p=0.000$.

Table 2:- Impact of PMS and Dysmenorrhoea N=60.

S.No	Impact of PMS &Dysmenorrhoea	Mild F(%)	Moderate F(%)	Severe F(%)	χ^2	P value
1	Have your symptoms interfered with work efficiency					
	a. Yes	8 (13.33)	20(33.33)	11(18.33)	6.4883*	0.0390
	b. No	11(18.33)	7(11.67)	3(5)		
2	Have your symptoms interfered with your relationship with family/friends					
	a. Yes	9(15)	14(23.33)	12(20)	5.7249#	0.0571
	b. No	10(16.67)	13(21.67)	2(3.33)		
3	Have your symptoms interfered with your social activities/home responsibilities					
	a. Yes	10(16.67)	15(25)	12(20)	4.5076#	0.1050
	b. No	9(15)	12(20)	2(3.33)		
4	Have your symptoms interfered with your school / college attendance					
	a. Yes	17(28.33)	23(38.33)	8(13.33%)	6.0909*	0.0476

	b. No	2(3.33)	4(6.67)	6(10)		
5	Have your symptoms interfered with your concentration					
	a. Yes	11(18.33)	22(36.67)	13(21.67)	6.1441*	0.0463
	b. No	8(13.33)	5(8.33)	1(1.67)		
6.	Have your scores reduced due to symptoms					
	a. Yes	12(20)	18(30)	12(20)	2.2127#	0.3308
	b. No	7(11.67)	9(15)	2(3.33)		

*Significant, # non significant

Table 3:- Degree of impact of PMS and Dysmenorrhoea with severity of Symptoms.

S. No	Impact of PMS &Dysmenorrhoea	Mild M±SD	Moderate M±SD	Severe M±SD	F value	P value
1	Have your symptoms interfered with work efficiency	2.67 ± 0.5	5.444 ± 0.616	8 ± 1.044	129.42*	0.0000
2	Have your symptoms interfered with your relationship with family/friends	2.67 ± 0.5	5.769 ± 0.439	8 ± 0.739	220.004*	0.0000
3	Have your symptoms interfered with your social activities/home responsibilities	2.7 ± 0.483	5.533 ± 0.64	8.167 ± 0.937	158.54*	0.0000
4	Have your symptoms interfered with your school / college attendance	2.71 ± 0.588	5.52 ± 0.593	8.13 ± 1.126	176.575*	0.0000
5	Have your symptoms interfered with your concentration	2.55 ± 0.688	5.545 ± 0.596	8.23 ± 0.927	184.181*	0.0000
6.	Have your scores reduced due to symptoms	2.67 ± 0.49	5.5 ± 0.618	8.25 ± 0.965	187.859*	0.0000

*significant

Relationship between PMS and dysmenorrheal

Sixty adolescent female students were assessed for their PMS (M=49.45,SD=11.60) and dysmenorrhea (M=5.26,SD=2.16) scores. A Pearson correlation coefficient was calculated to assess the linear relationship between PMS and dysmenorrhea. There was a positive correlation between the two variables, r=0.408, p=0.000.

Association

The Chi-Square Test of Independence showed a significant association between the mean PMS score and the following variables.(Table:1)

1. Adolescent girls who exercise on regular basis are less likely to suffer from PMS and dysmenorrhea. $\mathbf{X^2}$(2, N=60) = 7.57, p = .006.
2. Adolescent girls who have had dysmenorrhea in the past are more likely to have PMS and dysmenorrhea $\mathbf{X^2}$(2, N=60) = 8.1033, p = .004.
3. A family history of dysmenorrhea increases the likelihood of PMS and dysmenorrhea in adolescents $\mathbf{X^2}$(2, N=60) = 11.87, p = .0006 and a family history of PMS $\mathbf{X^2}$(2, N=60) = 7.0828, p = .007 increases the risk of PMS and dysmenorrhea in adolescents

Discussion:-

Prevalence and severity of PMS and dysmenorrhea

It was found that the prevalence of dysmenorrhea was high at 75% and PMS at 78% in two-thirds of adolescent girls under 20 years of age. The results are similar to those of Bilir, E. et al. (2020) who reported a prevalence of PMS alone and with dysmenorrhea of 71.3% and 65.9%, respectively. The findings on the severity of dysmenorrhea Fig (2) were similar with findings by Derseh BT,et al.(2017) and the results on PMS severity is similar to the results of Firoozi, R.(2012).

Relationship and association between variables:

A moderate positive correlation is found between PMS and dysmenorrhea ,this is similar to the findings of Arafa, AE etal.(2018)

Girls who exercise had fewer PMS symptoms (Table 1),this conclusion is supported by study results by Samadi Z et al.2013 who found that exercise has a positive effect on PMS symptoms.PMS and dysmenorrhea are also observed to be more common in girls with a family history.(Table 1). This is comparable to the findings of a study by Kural M et al (2015) , who found that girls with a family history of dysmenorrhea had a three-fold increased risk of experiencing the same problem.

Impact of PMS and dysmenorrhea on academic performance:
PMS and dysmenorrhea adversely affect work efficiency, concentration, study attendance, and exam results (Fig. 4, Table 5). Bilir, E. (2020), Buddhabunyakan et al. (2017) and Chia, CF et al. (2013) Studies support the results

Conclusion:-
PMS and dysmenorrhea were common in adolescent girls and negatively impacted their academic performance.

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