ARTICLES

A DESCRIPTIVE STUDY TO ASSESS PERCEIVED STRESS DURING MENSTRUAL CYCLE AMONG ADOLESCENT GIRLS IN SELECTED SCHOOLS IN RAJASTHAN

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ABSTRACT

Adolescence is a period of life with specific health and developmental needs and rights. It is also a time to develop knowledge and skills, learn to manage emotions and relationships, and acquire attributes and abilities that will be important for enjoying the adolescent years and assuming adult roles. All societies recognise that there is a difference between being a child and becoming an adult. How this transition from childhood to adulthood is defined and recognized differs between cultures and over time. In the past it has often been relatively rapid, and in some societies it still is. In many countries, however, this is changing. *Adolescence is a time of life with specific health and needs and rights for development. It is also a time to develop awareness and skills, learn to manage emotions and relationships, and acquire attributes and abilities that will be critical for enjoying the adolescent years and assuming adult roles.*

Key Words: Menstrual cycle, Stress in School girls.

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INTRODUCTION

Adolescence is a period of life with specific health and developmental needs and rights. It is also a time to develop knowledge and skills, learn to manage emotions and relationships, and acquire attributes and abilities that will be important for enjoying the adolescent years and assuming adult roles. All societies recognise that there is a difference between being a child and becoming an adult. How this transition from childhood to adulthood is defined and recognized differs between cultures and over time. In the past it has often been relatively rapid, and in some societies it still is. In many countries, however, this is changing. (WHO)

Menarche, the onset of menstruation is a hallmark of female pubertal development. It usually happens between the ages of 11- 14 years. Several changes in the physiology as well as in the personal and social world occur as the young adolescent grows. Menstruation is a physiological cyclic function common to all healthy adult females. The initiation of menstruation takes place during early adolescent period.

Menstruation disorders occur at different ages among women. These disorders are more prevalent in early puberty among girls, especially during the first 2 years of menstruation in which many periods are without ovulation. One of the most common disorders at this time is menstruation signs, which include irritability, tender breasts, low back pain, skin outbreaks, fatigue, palpitation, social isolation, nausea & vomiting, abdominal pain (cramps), and general weakness occurring before, during, or after menstruation. Retrospective and prospective studies have reported the prevalence of these signs over 60% and 23-67% respectively. These signs not only affect the quality of life but also are the main reasons for adolescents' and teenagers' school absenteeism. The intensity and frequency of menstruation-related signs differ based on menstruation cycle's stages and the cultures, so the lowest prevalence is for Western countries like Yugoslavia. Based on World Health Organization (WHO) report, menstruation signs have higher prevalence in Asian countries compared to Western countries.

About 40-45 percent adolescent girls report menstrual problems, mainly due to psychosocial stress and emotional changes. As the physiological process of menstruation is still regarded as an unclean state, such perceptions segregate girls from the activities of normal life. Several traditional beliefs, misconceptions and practices are linked with the issue of menstruation, which make girls vulnerable to reproductive problems. A large proportion of adolescent girls suffer from various gynaecological problems, particularly menstrual irregularities such as hypermenorrhoea, hypomenorrhoea, menorrhagia and dysmenorrhoea. Reproductive Tract infections among adolescents are associated with infertility, pelvic tenderness and genital prolapse. Health behaviours and practice may lead to failure in health care delivery, thereby complicating various reproductive health problems and related mental health problems

A report from Times of India says: Now, Girls are reaching puberty two years earlier. The age of attaining sexual maturity in a girl, when she changes physically, hormonally and sexually has dipped, especially in urban India, to 10 years from 12-13 earlier. The earlier onset of puberty has increased the window of risk associated with adolescent. Professor Susan Sawyer and George Patton (Murdoch children's Research Institute Melbourne and University of Melbourne) say, "Puberty is increasingly recognised as a significant physiological event that catapults adolescents into higher risk for range of health related behaviours like mental disorders and substance use"

STATEMENT OF THE PROBLEM

A descriptive study to assess perceived stress during menstrual cycle among adolescent girls in selected schools in Rajasthan

OBJECTIVE OF THE STUDY

To assess the perceived stress during menstrual cycle among adolescent girls

REVIEW OF LITERATURE

Takeda T, Imoto Y, Nagasawa H, Takeshita A, Shiina M (2016) did a study on Stress fracture and premenstrual syndrome in 394 Japanese adolescent athletes: a cross-sectional study. The prevalence of moderate-to-severe PMS

and PMDD were 8.9% and 1.3%, respectively, which were the same as in collegiate athletes in a previous study. Premenstrual symptoms disturbed 'Work efficiency or productivity, home responsibilities', 'Relationships with co-workers or family' and 'Athletic performance in training or competition' more severely than menstrual pain (p=0.031, p=0.004 and p<0.001, respectively). 66 athletes (16.8%) reported having experienced a stress fracture. The severity of 'Overeating or food cravings', 'Physical symptoms' and 'Performance in training or competition' in athletes with previous stress fractures were much higher than in those without a history of stress fractures (p=0.015, p=0.008 and p=0.006, respectively). In terms of premenstrual symptoms, 'Physical symptoms' was associated with an increased risk of stress fractures in athletes (OR 1.66, 95% CI 1.06 to 2.62).

Mohamadirizi S, Kordi M (2013): [Association between menstruation signs and anxiety, depression, and stress in 407 school girls in Mashhad]. Based on the findings, 74% of the subjects reported pre-menstruation signs, 94% reported signs during bleeding, and 40.8% reported post-menstruation signs. About 44.3% of the subjects had anxiety, 45.5% had depression, and 47.2% had stress. In addition, Pearson correlation coefficient test showed a significant positive correlation between menstruation signs and depression, anxiety, and stress (P < 0.05).

Ossewaarde L, van Wingen GA, Rijpkema M, Bäckström T, Hermans EJ, Fernández G (2013) did a study on Menstrual cycle-related changes in amygdala morphology are associated with changes in stress sensitivity. A study was conducted to find the association between mental health problems and menstrual cycle irregularity among 808 adolescent Korean girls. The risk of menstrual cycle irregularity tended to increase, as the number of mental health problems increased (P for trend=0.016). High stress levels, depressive mood, and psychological counselling were associated with increased risks of menstrual cycle irregularity (odd ratio [95% confidence interval]=1.88 [1.1-3.21], 2.01 [1.01-4.03], and 2.92 [1.16-7.34], respectively) even after adjusting for age, body mass index, alcohol consumption, smoking status, physical activity, haemoglobin level, monthly household income, weight loss attempts, age at menarche, and sleep duration. Suicidal ideation was not significantly associated with menstrual cycle irregularity. (Yu M, 2017).

Stress fracture and premenstrual syndrome in Japanese adolescent athletes: a cross sectional study was done. The prevalence of moderate-to-severe PMS and PMDD were 8.9% and 1.3%, respectively, which were the same as in collegiate athletes in a previous study. Premenstrual symptoms disturbed 'Work efficiency or productivity, home responsibilities', 'Relationships with co-workers or family' and 'Athletic performance in training or competition' more severely than menstrual pain (p=0.031, p=0.004 and p<0.001, respectively). 66 athletes (16.8%) reported having experienced a stress fracture. The severity of 'Overeating or food cravings', 'Physical symptoms' and 'Performance in training or competition' in athletes with previous stress fractures were much higher than in those without a history of stress fractures (p=0.015, p=0.008 and p=0.006, respectively). In terms of premenstrual symptoms, 'Physical symptoms' were associated with an increased risk of stress fractures in athletes (OR 1.66, 95% CI 1.06 to 2.62). (Takda T,2016)

The research was conducted to find association between menstruation signs and anxiety, depression and stress in school girls in Mashhad in 2011-12. Based on the findings, 74% of the subjects reported pre-menstruation signs, 94% reported signs during bleeding, and 40.8% reported post-menstruation signs. About 44.3% of the subjects had anxiety, 45.5% had depression, and 47.2% had stress. In addition, Pearson correlation coefficient test showed a significant positive correlation between menstruation signs and depression, anxiety, and stress (P < 0.05). Mohammadirrizzi S (2013).

Ms. P. Padmavathi, Dr. RajaSankar, Dr**. N. Kokilavani (2013)** found correlation between perceived stress and premenstrual symptoms among 60 adolescent girls in selected schools at Namakkal in Tamilnadu. The findings show "t" value regarding perceived stress and selected background factors of adolescent girls such as age at menarche t =1.25(p=0.22), duration of cycle t =0.141(p=0.89), type of flow t = 0.62 (p= 0.54), family history of PMS t =1.09(p=0.28), academic performance t =1.14(p=0.26), school absenteeism t = 0.49 (p=0.63), and use of home remedies

t = 0.045 (p=0.96). There was significant correlation between perceived stress and premenstrual symptoms. As the perceived stress increases the premenstrual symptoms among adolescent girls also increased.

Mood and the menstrual cycle were studied. Only half the individual mood items showed any MC phase association; these links were either with the menses phase alone or the menses plus the premenstrual phase. With one exception, the association was not solely premenstrual. The menses-follicular-luteal MC division gave similar results. Less than 0.5% of the women's individual periodogram records for each mood item showed MC entrainment. Physical health, perceived stress and social support were much stronger predictors of mood (p < 0.0001 in each case) than MC phase. Romans SE 2013.

RESEARCH APPROACH

Polit & Beck (2008) described that in non-experimental approach the researcher observes, describes and documents aspects of a situation as it naturally occurs and sometimes to serve as a starting point for hypothesis generation or theory development.

In view of the nature of the study and objectives to accomplish, a **Non Experimental design** was selected for this study**.**

RESEARCH DESIGN

Basavanthappa BT (2007) defined research design as the plan, structure and strategy of investigations of answering the research question. It is the overall plan or blue-print the researcher select to carry out their study.

The overall purpose of the research design is to help in the solution of research question and to maintain control. For the present study, descriptive design was selected to accomplish the objectives.

VARIABLES OF THE STUDY

1. Age
2. Educational qualification
3. Total hours of sleep per day, Hours
4. Physical activity
5. Place of Residence
6. Occupation of Mother
7. BMI
8. Type of Family
9. Education of Mother
10. Absenteeism from School (In days)
11. Age at menarche,
12. Duration of cycle,
13. Type of flow,
14. Family history of PMS,
15. Any Menstrual Disorder

SELECTION AND DESCRIPTION OF RESEARCH SETTING

The present study was conducted in selected schools in Rajasthan. Three girls' schools were selected:

1. Birla Palika Vidyapeeth, Pilani

2. Maharani Gayatri Devi Girls' School, Ajmer

3. Rajmata Krishna Kumari Girls' Public School, Jodhpur

STUDY POPULATION

Basavanthappa BT (2007)[21] defined the population as a total category of persons or objects that meets the criteria for study established by the researcher. The target population for present study were adolescent girls in selected schools

SAMPLE & SAMPLING TECHNIQUE

Random sampling technique was used to select the sample. A total sample of 300 adolescent girls was selected. **Basavanthappa BT (2007)** stated that in Random sampling technique, the researcher selects those units of the population in the sample which in which everyone has the equal probability of selection.

CRITERIA FOR SAMPLE SELECTION

The samples were selected with the following predetermined set criteria

Inclusion criteria

1. Adolescent girls between age of 14-18 years
2. *Those who were willing to participate in the study*

Exclusion criteria

1. Adolescent girls who were suffering from medical conditions related to menstruation
2. Who were on medicines

DESCRIPTION OF THE TOOL

Tool – I: Part A: Socio Demographic Data   **Part B:** Menstrual History

Tool- II: Perceived stress scale

Tool-III: Pictorial blood assessment chart

Tool – I: Part A: Socio Demographic Data

Tool - 1 dealt with the socio demographic variables, which are used to collect the characteristics of samples with an instruction to participants to put a tick mark against the appropriate choice closely representing their answers. It contains items for obtaining information regarding Age, Educational qualification, Total hours of sleep per day, Hours, Physical activity, Place of Residence, Occupation of Mother, BMI, Type of Family, Education of Mother, Absenteeism from School (in days).

Part B: Menstrual History

Age at menarche, Duration of cycle, Type of flow, Family history of PMS, Any Menstrual Disorder

Tool-II: PSS (*Perceived Stress Scale*)

It consists of 10 questions and the scale used is likert scale. For each question half score is given, as the following: (Cohen, 2011): 1 = never, 2 = ever, 3 = sometime, 4= often, dan 5 = very often.

Tool III: Pictorial Blood Assessment Chart (PBAC)

How to use the PBAC scoring system: - During the course of your period record your use of tampons and sanitary towels by placing a tally mark under the day next to the box that represents how stained your sanitary materials are each time you change them. - Record clots by indicating whether they are the size of a nickel or quarter coins in the clots/ flooding row under the relevant day. E.g. under day 1 you may say quarter x 1 and nickel x 3. - Record any incidences of flooding by placing a tally mark in the clots/ flooding row under the relevant day.

Scores: - A lightly stained towel *(pic. 1)* will score 1 point, a moderately stained towel *(pic. 2)* 5 points, a towel which is saturated with blood *(pic. 3)* will score 20 points. - A lightly stained tampon *(pic. 4)* will score 1 point, a moderately stained tampon *(pic. 5)* 5 points and a tampon that is fully saturated will score 10 points - A clot the size of a nickel scores 1 point, a quarter sized clot scores 5 points and flooding also scores 5 points.

CONTENT VALIDITY: Content validity concerns the degree to which an instrument has an appropriate sample of items for the construct being measured and adequately covers the construct domain **Polit & Beck (2008).** Standardised tool was used for the present study.

TRY OUT: A try out of the tool was done for clarity, relevance of the study. Formal permission was taken from the administrators of the schools of Rajasthan.

RELIABILITY OF THE TOOL: Cohen, Kamarck, & Mermelstein (1983) reported Cronbach's α between 0.84-0.86 for the PSS.
Test-retest reliability for the PSS was 0.85

Validity: Correlation of the PSS to other measures of similar symptoms ranges between 0.52-0.76 (Cohen et al., 1983).

ETHICAL CONSIDERATION:

Consent was taken from the adolescent girls studying in schools. To gain their confidence, they were told that their responses will be kept confidential and the information would be used only for research purpose. Subjects were told about coping strategies to deal with stress related to menstrual cycle. They had also been informed about their right to refuse from participating in the study.

PERMISSION FOR THE STUDY

A written permission for conducting pilot study and final study from the administrators was taken.

PILOT STUDY

Pilot study is a small-scale version or trial run designed to test the methods to be used in a larger, more rigorous study, which is sometimes referred to as the parent study.

The pilot study was conducted on one tenth of sample.

DATA COLLECTION PROCEDURE

Researcher is planning to carry out the study in different schools of Rajasthan. The investigator obtained written permission from concerned authorities prior to the data collection period. Samples were selected using random sampling. A written informed consent was taken separately from each sample. Appropriate orientation was given to all the samples about the aim of the study, the nature of the tool and adequate care was taken for protecting them from potential risk including maintaining confidentiality, security, identity, etc. The scale was completed in the presence of the investigator to avoid bias in the collection of data.

PLAN FOR DATA ANALYSIS

The plan for data analysis includes both descriptive and inferential statistics. The collected data was organised, tabulated and analysed based on the objectives of the study by using descriptive statistics.

ANALYSIS & INTERPRETATION

TABLE - 1: Relation between high stress levels and menstrual irregularity

Irregularity → Perceived Stress Score ↓	Present	Absent
>20	33 (11%)	57 (19%)
≤20	30 (10%)	180 (60%)
p = 0.036		
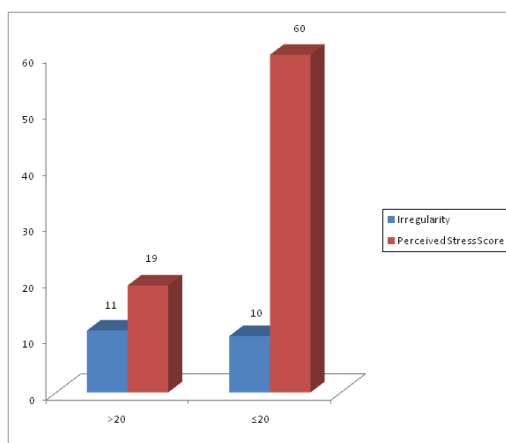
Figure: 1

TABLE - 2: Prevalence of hypomenorrhoea among females with high stress levels

PBAC score → Perceived Stress Score ↓	<10	≥10
>20	3 (1%)	87(29%)
≤20	0	210 (70%)
p = 0.9		
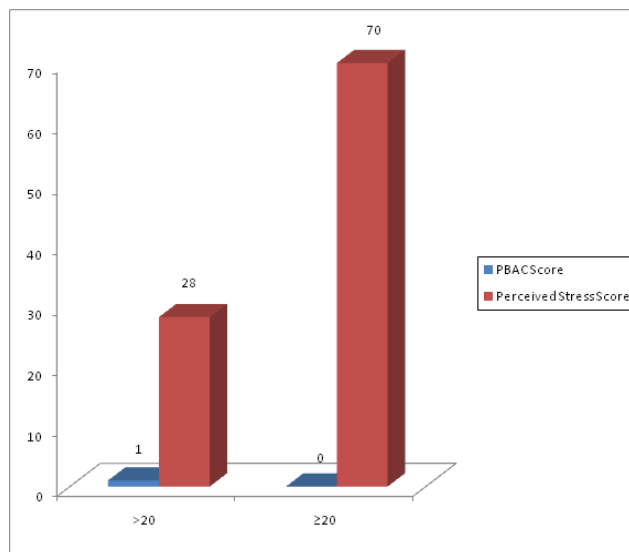
Figure: 2

TABLE - 3: Relation between high stress levels and dysmenorrhoea

Dysmenorrhoea → Perceived Stress Score ↓	Present	Absent
>20	54 (18%)	36 (12%)
≤20	87 (29%)	123 (41%)
p = 0.39		
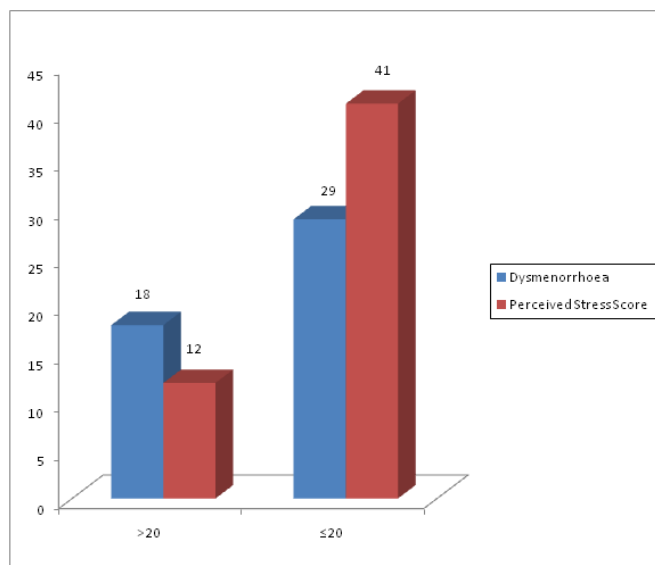
Figure: 3

TABLE - 4: Relation between high stress levels and long length of cycles

Length →	>35 days	≤35 days
Perceived Stress Score ↓		
>20	0 (0%)	90 (30%)
≤20	3 (1%)	207 (69%)
p = 2.97		
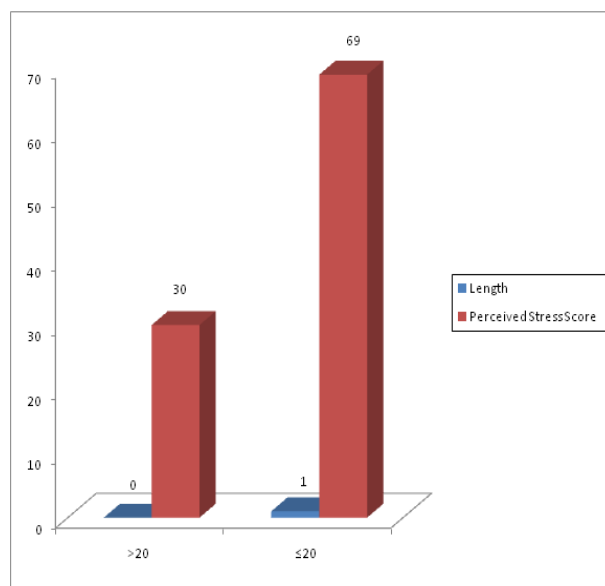
Figure: 4

TABLE 5: Prevalence of menorrhagia among females with high stress levels

PBAC score → Perceived Stress Score ↓	<100	≥100
>20	42 (14%)	48 (16%)
≤20	69 (23%)	141 (47%)
p = 0.57		
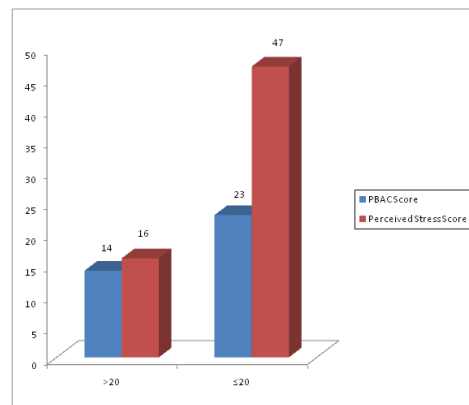
Figure: 5

TABLE 6: Relation between high stress levels and short length of cycles

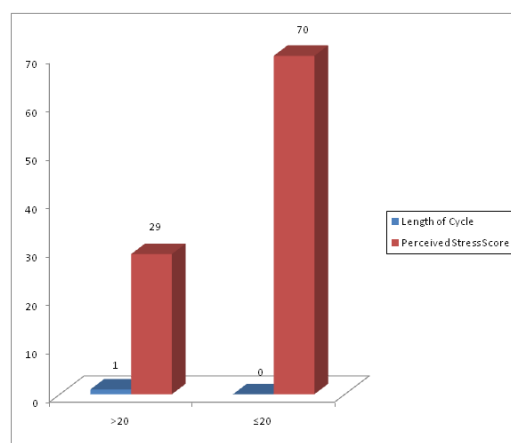| Length of cycle → Perceived Stress Score ↓	<21 days	≥21 days
>20	3 (1%)	87 (29%)
≤20	0	210 (70%)
p = 0.99		

Figure: 6

Objective 1: To assess the perceived stress during menstrual cycle among adolescent girls

Major findings reveal that there was significant association established between high stress levels and menstrual irregularity using the chi-square test. An association could not be established between levels of stress and prevalence of hypomenorrhoea by Fisher's exact test. An association could not be established between levels of stress and prevalence of dysmenorrhoea using chi-square test. An association could not be established between high stress levels and long length of cycles using Fischer's exact test. An association could not be established between levels of stress and prevalence of menorrhagia using chi-square test. An association could not be established between stress levels and short length of cycles using the Fisher's exact test. These findings were found consistent with findings of the study of **Shahida Nagma et.al. (2015),** who evaluated the effect of perceived stress on menstrual function of 300 students. In this study, there was significant association established between high stress levels and menstrual irregularity using the chi-square test. An association could not be established between levels of stress and prevalence of hypomenorrhoea by Fisher's exact test. An association could not be established between levels of stress and prevalence of dysmenorrhoea using chi-square test. An association could not be established between high stress levels and long length of cycles using Fischer's exact test. An association could not be established between levels of stress and prevalence of menorrhagia using chi-square test. An association could not be established between stress levels and short length of cycles using the Fisher's exact test.

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