

## Original Research

### To study the association of body menstrual index with menstrual disturbances patients age between 20-40 years

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#### ABSTRACT:

**Aim:** To study of association of body menstrual index with menstrual disturbances between 20-40 years. **Methods:** A prospective study was conducted in the Department of Obstetrics and gynaecology. 120 patients were included in the study. Patients with age ranging from 20-40yrs, coming to gynaecology OPD with presenting history of menstrual irregularities were included. **Results:** Over weight category had the maximum patients of 78, with 23 normal weight patients. 13 patients were under weight. Our study had no patients who were morbidly obese. Menstrual disturbances and pain abdomen were the two symptoms as presenting complaints. In menstrual disturbances, increased frequency of cycles was the highest with 11 patients. Next was heavy menstrual bleed with 9 patients. Decreased frequency with menorrhagia, intermenstrual bleed and continuous bleed had the same number of patient distribution of 6. Less common symptom was spotting pv, amenorrhoea followed by bleeding, post coital bleed and post menopausal bleed. In pain abdomen, continuous pain was the most common with dyspareunia and dysmenorrhoeal Abdominal pain was observed by 38 patients with back ache also being the most common symptom. Other uncommon symptoms were nervousness, depression and anxiety. **Conclusion:** BMI plays a very important role in menstrual cycle regulation. Life style modifications and nutritional counselling could decrease the incidence of menstrual irregularities. Healthy eating habits and maintaining optimal BMI improves menstrual health.

**Keywords:** Body mass index, menstrual cycle, menorrhagia, obesity

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#### INTRODUCTION

Irregular menstruation can have various health implications, and is an indicator of health in women.<sup>1</sup> The prevalence of irregular menstruation varies from 5% to 35.6% depending on age, occupation, and the country of residence.<sup>1-3</sup> In particular, the incidence of menstrual irregularity in adult Korean women is 14.3%; while this value is not high, it is increasing by 0.4% every year.<sup>4</sup> Irregular menstruation can result from hormone imbalances and stress; these factors act as both health indicators in women and as mediators of various health indicators. Irregular menstruation is related to mental health conditions, such as depression, in addition to physiological factors. Studies have shown that a large proportion of the female population of reproductive age suffers from menstruation-related health issues.<sup>5-6</sup> Menstrual problems not only carry an economic burden but are also one of the most common causes of absenteeism

and poor academic performance among young females.<sup>7-9</sup>

Dysmenorrhea is one of the most prevalent menstrual problems during adolescence,<sup>5-7</sup> and can even cause women to become bed-ridden.<sup>10</sup> A review by Devis et al<sup>11</sup> showed that, 20-90% of adolescent girls reported dysmenorrhea, and almost 15% of those experienced severe dysmenorrhea. Another menstrual problem that can affect women's daily activities is premenstrual syndrome (PMS). In a systematic review, the pooled prevalence of PMS was found to be 47.8%.<sup>12</sup> Menstrual disorders such as menorrhagia, abnormal uterine bleeding, and polymenorrhea contribute to almost 12% of gynecology referrals, and are usually associated with a very high chance of surgical intervention.<sup>13</sup> Coulter et al.<sup>14</sup> reported that 60% of women underwent a hysterectomy within 5-years of a referral for menorrhagia.

Menstrual patterns can be affected by a number of factors, including age, ethnicity, family history, smoking, physical activity, and dietary habits.<sup>15</sup> Stress can be a major contributor to, or cause of menstrual irregularities, and an association has been documented between stress and various menstrual irregularities including menorrhagia, oligomenorrhea, dysmenorrhea, and PMS.<sup>16,17</sup> In addition, a high incidence of menstrual problems has been observed in students studying medicine and health sciences.<sup>6</sup> The majority of health science students reported that they are under continuous and chronic academic stress related to their studies and exams, resulting in negative health outcomes, including menstrual problems in females.<sup>18</sup>

## MATERIALS AND METHODS

A prospective study was conducted in the Department of Obstetrics and gynaecology, after taking the approval of the protocol review committee and institutional ethics committee.

120 patients were included in the study. Patients with age ranging from 20-40yrs, coming to gynaecology OPD with presenting history of menstrual irregularities were included in this study. Patients with normal cycles, pregnancy were excluded. Data regarding age, marital status, parity, symptoms, menstrual history, obstetric history, examination, co morbidities, investigation findings, associated pathology and treatment modality were noted.

The data obtained was analysed using the SPSS 25.0 software by applying Chi-square test. A 'p' value <0.05 was considered statistically significant.

## RESULTS

**Table 1: Age Distribution of patients**

Age in years	No. of patients=120	%
20-30yrs	35	29.17
30-40yrs	85	70.83

Majority of patients belong to the age group of 30-40yrs- 70.83 % and the rest belong to the age group 20-30yrs. In our study majority of our patients were multiparous women 75% and 25% patients were nulliparous. Lower socio economic status had 75% in the group. 15% in middle and 10% in upper socio economic status.

**Table 2. Body Mass Index of patients**

Body Mass Index	No. of patients=120	%
18.5 (underweight)	13	10.83
18.5-24.9 (normal weight)	23	19.17
25- 29.9 (over weight)	78	65
30-39.9 (obesity)	6	5
>40 (morbid obesity)	-	

Over weight category had the maximum patients of 78, with 23 normal weight patients. 13 patients were under weight. Our study had no patients who were morbidly obese.

**Table 3: Menstrual Disturbances of patients**

Menstrual Disturbances	No. of patients=120	%
Heavy menstrual bleeding	9	7.5
Increased frequency of cycles	11	9.17
Intermenstrual bleeding	6	5
Continuous bleeding PV	7	5.83
Decreased frequency with menorrhagia	6	5
Post menopausal bleeding	2	1.67
Amenorrhoea f/b menorrhagia	2	1.67
Post coital bleeding	2	1.67
Spotting PV	2	1.67

**Table 4. Pain**

Pain	No. of patients=120	%
Congestive dysmenorrhea	6	5
Spasmodic dysmenorrhea	6	5
Continuous pain	8	6.67
Dyspareunia	7	5.83

Menstrual disturbances and pain abdomen were the two symptoms as presenting complaints. In menstrual disturbances, increased frequency of cycles was the highest with 11 patients. Next was heavy menstrual bleed with 9 patients. Decreased frequency with menorrhagia, intermenstrual bleed and continuous bleed had the same number of patient distribution of 6. Less common symptom was spotting pv, amenorrhoea followed by bleeding, post coital bleed and post menopausal bleed.

**Table 5. Pre Menstrual Syndrome**

Pre Menstrual syndrome	No. of patients=120	%
Back ache	31	25.83
Abdominal pain	38	31.67
Anxiety	6	5
Nervousness	7	5.83
Depression	4	3.33

In pain abdomen, continuous pain was the most common with dyspareunia and dysmenorrheal.

Abdominal pain was observed by 38 patients with back ache also being the most common symptom. Other uncommon symptoms were nervousness, depression and anxiety.

Majority of patients had menarche after 12yrs. 38 patients had recent history of onset of symptoms from 3mths. Maximum patients had symptoms from one year. Very few of them had from 2 yrs.

Out of 120 cases anaemia was present in 50 patients. 15 patients having severe anaemia who had blood transfused. Mild and moderate anaemia were treated with multiple doses of iron sucrose injection. D & C, Done for 70 patients out of 120 patients.

**Table 6. Endometrium report of the patients**

Endometrium	No. of patients=120	%
Secretory	38	31.67
proliferative	24	20
Hyperplastic	4	3.33

Normal cervix was found in most of the patients. Cervical fibroid, polyp was seen in few patients. 66 patients had normal uterus whereas 54 patients had fibroid or adenomyosis as the USG finding. Patients with high BMI had high rate of menstrual disturbances. Whereas 35 patients with normal BMI also had menstrual complaints.

## DISCUSSION

Regular menstrual cycles reflect normal functioning of the hypothalamic-pituitary-ovarian axis, a vital sign of women's general health. Irregular and long menstrual cycles, often attributed to the functional disruption of the hypothalamic-pituitary-ovarian axis, are, however, common among women of reproductive age.

Majority of patients belong to the age group of 30-40yrs- 70.83 % and the rest belong to the age group 20-30yrs. Similar association was seen in G. Warrilow *et al.* study.<sup>19</sup> Alpana *et al.* study stated that Incidence of menstrual disturbances increases with parity as seen even in the present study showing 75% parous women having menstrual disturbances.<sup>20</sup> As found in our study, menstrual disturbances are commoner among upper class due to obesity and lower class due to malnutrition. This correlation was found in Hawaii *et al.* study.<sup>21</sup> Increase in BMI is a risk factor for menstrual disturbances due to the excess production of estrogen. Over weight category had the maximum patients of 78, with 23 normal weight patients. 13 patients were under weight. Our study had no patients who were morbidly obese. Similar correlation was observed in Hamdy *et al.* study.<sup>22</sup> Commonest presenting complaint was polymenorrhagia in our study. This result was also found in Moghal *et al.* study.<sup>23</sup> There was a positive correlation noted between PMS and High BMI as also seen in Lu Z *et al.* study.<sup>24</sup> 66 patients had normal uterus whereas 54 patients had fibroid or adenomyosis as the USG finding. Vercillin *et al.*, study also had the same pathology as commonest.<sup>25</sup> D & C is done for patients having acyclical bleeding / if medical therapy fails,

hence only 58.33% had the procedure done. Similar management was observed in Kate D C *et al.* study.<sup>26</sup>

## CONCLUSION

BMI plays a very important role in menstrual cycle regulation. Life style modifications and nutritional counselling could decrease the incidence of menstrual irregularities. Healthy eating habits and maintaining optimal BMI improves menstrual health.

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