Research Article

Influence of change of place on premenstrual symptoms in young college women

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Abstract

Background : Symptoms of premenstrual syndrome (PMS) are common in young college students. But factors associated with severity of PMS in them is lacking.

Objective: To study the effect of migration from home-town to a distant place on severity of PMS symptoms in residents of ladies hostels.

Methods: 100 recent inmates of ladies hostels were study subjects. 100 age matched inmates of ladies hostels who were residing there for more than one year were controls.

This was a questionnaire based study in which participants self-reported on PMS symptoms. Study group self-reported on symptoms at home and variation in severity of these symptoms immediately after started to reside in the hostels. Control group reported on severity of symptoms on two consecutive months while residing in the hostels. Each of the symptoms were assigned scores based on the severity (1=mild; 2=moderate; 3=severe). Total scores of all the symptoms for each subject were done under two major categories namely physical and psychological.

Result: In the study group the total score of physical and psychological symptoms of PMS were significantly higher while residing in the hostel compared to living at home (10.48 ± 8.32 vs. 13.31 ± 7.97, p < 0.0001; 5.59 ± 4.37 vs. 7.59 ± 4.49, p < 0.0001 respectively). In the control group there was no significant difference in severity of symptoms between two consecutive months.

Conclusion: Change of place is having definite acute negative influence on physical and psychological symptoms of PMS.

Keywords: PMS symptoms, change of place, college students

1. Introduction

Premenstrual syndrome (PMS) is used to describe physical, cognitive, affective, and behavioral symptoms that occur cyclically during the luteal phase of the menstrual cycle and resolve quickly at or within a few days of the onset of menstruation. PMS is one of the most common disorders of women of reproductive age. Numerous epidemiologic surveys have shown PMS to consistently affect between 25% and 50% of women in this age group. Premenstrual symptoms associated with premenstrual syndrome (PMS) may impair the overall physical health of a woman as well as interpersonal relationships, daily routine, and work productivity. The etiology of the premenstrual experience has progressed from a supposed hormonal imbalance to psychological to a more recent multi-causal origin. Yet the underlying cause of premenstrual syndrome remains unclear and speculative. Thus we studied the effect of migration from home-town to a distant place on severity of PMS symptoms in recent residents of college ladies hostels.
2. Materials and Methods

Study group was comprised of 100 recent residents of college hostels (less than 6 months stay at hostel). Control group was comprised of 100 residents staying for more than one year in the same college hostels. This was a questionnaire based study in which participants self-reported on premenstrual syndrome (PMS) symptoms. Study group self-reported on severity of symptoms at home and at hostel. Control group reported on severity of symptoms on two consecutive months while residing in the hostels. Each of the symptoms was assigned score based on the severity (1 = mild; 2 = moderate; 3 = severe). Total scores of all the symptoms for each subject were done under two major categories namely physical and psychological. The parameters studied under physical symptoms were increase in appetite, headache, dizziness, palpitation, fluid retention, weight gain, swollen extremities, breast tenderness, abdominal bloating, oily skin, acne, constipation, diarrhoea and backache. The psychological parameters considered were anxiety, irritability, mood swings, nervous tension, depressive moods, crying, forgetfulness, insomnia, and confusion.

Statistical analysis was done by students unpaired and paired t tests. Students unpaired t test was employed to compare the characteristics of study group with control group. Paired t test was applied to paired data of independent observations from one sample only (in study group: change in severity of PMS symptoms at hostel compared to at home; in control group: change in severity of PMS symptoms in two consecutive months at hostel).

3. Results

Data are presented as mean ± standard deviation. The height, weight, duration of menstrual cycle and duration of menstruation of study group was comparable with control group (5.26 ± 0.28, 5.21 ± 0.22; 53.54 ± 8.31, 53.95 ± 8.41; 30.53 ± 6.33, 30.87 ± 6.36; 4.73 ± 1.18, 4.8 ± 1.16 respectively). In the study group the total score of physical and psychological symptoms of PMS were significantly higher at hostel compared to at home (10.48 ± 8.32 vs. 13.31 ± 7.97, p < 0.0001; 5.59 ± 4.37 vs. 7.59 ± 4.49, p < 0.0001 respectively). Data on comparison of severity score of physical symptoms between study and control group is presented in Table 1. In the study group, among the psychological symptoms studied, severity score in depressive moods, mood swings, crying, insomnia, irritability and confusion was significantly higher compared to at home ( p < 0.00001, p < 0.01, p < 0.0001, p < 0.05, p < 0.05 respectively, Table 1). There was no significant difference in severity of anxiety, forgetfulness symptoms at hostel compared to at home. Data on comparison of severity score of physical symptoms between study and control group is presented in Table 2. In the study group, among the physical symptoms studied, severity score in decrease in appetite, headache, fatigue, dizziness, palpitation, fluid retention, weight gain, breast tenderness, oily skin, acne, diarrhoea was significantly higher at hostel compared to at home ( p < 0.00001, p < 0.01, p < 0.0001, p < 0.01, p < 0.05, p < 0.01, p < 0.05, p < 0.01, p < 0.01, p < 0.01 respectively, Table 2 ). In the study group, there was no significant difference in severity score of appetite increased, constipation, and abdominal bloating symptoms at hostel compared to at home. In the study group, severity score in menstrual backache, menstrual cramps were significantly higher at hostel compared to at home (p < 0.01, Table 2).

In the control group there was no significant difference in severity of any of the physical or psychological symptoms between two consecutive months of stay at hostel (Table 3, Table 4 respectively).

Table 1 - Variation in severity score of psychological premenstrual symptoms in study group (values are mean ± SD)

| Parameters       | At home town | At hostel | Mean difference |
|------------------|--------------|-----------|-----------------|
| Insomnia         | 1.62 ± 0.79  | 1.64 ± 0.75| - 0.17 ± 0.68 *|
| Anxiety          | 1.29 ± 0.62  | 1.32 ± 0.64| - 0.11 ± 0.75 NS|
| Irritability     | 1.69 ± 0.75  | 1.75 ± 0.78| - 0.18 ± 0.86*|
| Mood swings      | 1.67 ± 0.63  | 1.71 ± 0.58| - 0.3 ± 0.92**|
| Nervous tension  | 1.84 ± 0.86  | 1.71 ± 0.80| - 0.18 ± 0.96 NS|
| Depressive mood  | 1.56 ± 0.59  | 1.69 ± 0.66| - 0.6 ± 0.96****|
| Crying           | 1.34 ± 0.60  | 1.61 ± 0.71| - 0.44 ± 0.91****|
| Forgetfulness    | 1.2 ± 0.40   | 1.23 ± 0.49| - 0.06 ± 0.56 NS|
| Confusion        | 1.29 ± 0.64  | 1.35 ± 0.62| - 0.13 ± 0.64 *|

*p < 0.05; **p<0.01; ***p<0.001; ****p<0.0001; *****p<0.00001, NS= Non-significant
Table 2 - Variation in severity score of premenstrual and menstrual physical symptoms in study group (values are mean ± SD)

| Parameters              | At home  | At hostel | Mean difference |
|-------------------------|----------|-----------|-----------------|
| Increased appetite      | 1.30 ± 0.55 | 1.2 ± 0.46 | 0.07 ± 0.7 NS    |
| Decreased appetite      | 1.63 ± 0.72 | 1.88 ± 0.63 | -0.43 ± 0.9 *** |
| Headache               | 1.46 ± 0.68 | 1.59 ± 0.71 | -0.29 ± 0.85 ** |
| Fatigue                | 1.5 ± 0.71  | 1.66 ± 0.71 | -0.48 ± 0.92 ***|
| Dizziness              | 1.36 ± 0.62 | 1.33 ± 0.58 | -0.15 ± 0.43 ** |
| Palpitation            | 1.21 ± 0.41 | 1.3 ± 0.46  | -0.09 ± 0.4 *   |
| Weight gain            | 1.30 ± 0.47 | 1.45 ± 0.50 | -0.06 ± 0.34 ** |
| Breast tenderness      | 1.36 ± 0.48 | 1.4 ± 0.49  | -0.09 ± 0.42 *  |
| Abdominal bloating     | 1.6 ± 0.70  | 1.53 ± 0.68 | -0.06 ± 0.50 NS |
| Oily skin              | 1.59 ± 0.68 | 1.71 ± 0.70 | -0.24 ± 0.86 ** |
| Acne                   | 1.78 ± 0.72 | 1.85 ± 0.74 | -0.22 ± 0.83 *  |
| Constipation           | 1.75 ± 0.94 | 1.75 ± 0.91 | -0.09 ± 0.43 NS |
| Diarrhoea              | 1.2 ± 0.40  | 1.25 ± 0.44 | -0.14 ± 0.44 ** |
| Backache               | 1.84 ± 0.79 | 1.97 ± 0.75 | -0.51 ± 0.99 ****|
| Hives                  | 1.61 ± 0.86 | 1.75 ± 0.85 | -0.07 ± 0.40 NS |
| Weakness and radiation | 1.6 ± 0.86  | 1.63 ± 0.57 | -0.26 ± 0.71 ***|
| Fluid retention        | 1.2 ± 0.40  | 1.21 ± 0.41 | -0.14 ± 0.42 ** |
| Menstrual cramps       | 2.09 ± 0.78 | 2.1 ± 0.75  | -0.24 ± 0.75 ** |
| Menstrual backache     | 2.03 ± 0.83 | 2.04 ± 0.78 | -0.25 ± 0.7 *** |
| Menstrual bleeding     | 2 ± 0.79   | 2.02 ± 0.78 | -0.18 ± 0.96 NS |

* P < 0.05; ** p < 0.01; ***p < 0.001; p < 0.0001; NS = Non-significant

Table 3 - Variation in severity score of psychological premenstrual symptoms in two consecutive months at hostel in control group (values are mean ± SD)

| Parameters       | Consecutive First month | Consecutive second month | Mean difference |
|------------------|-------------------------|--------------------------|-----------------|
| Insomnia         | 1 ± 0                   | 1 ± 0                    | 0 NS            |
| Anxiety          | 1.16 ± 0.42             | 1.16 ± 0.42              | 0 NS            |
| Irritability     | 1.4 ± 0.56              | 1.4 ± 0.56               | 0 NS            |
| Mood swings      | 1.48 ± 0.50             | 1.48 ± 0.50              | 0 NS            |
| Nervous tension  | 1.21 ± 0.41             | 1.21 ± 0.41              | 0 NS            |
| Depression       | 1.58 ± 0.64             | 1.58 ± 0.64              | 0 NS            |
| Crying           | 1.04 ± 0.20             | 1.04 ± 0.20              | 0 NS            |
| Forgetfulness    | 1 ± 0                   | 1 ± 0                    | 0 NS            |
| Confusion        | 1.07 ± 0.26             | 1.07 ± 0.26              | 0 NS            |
Table 4 - Variation in severity score of physical premenstrual and menstrual symptoms in two consecutive months at hostel in control group (values are mean ± SD)

| Parameters            | Consecutive First month | Consecutive Second month | Mean difference |
|-----------------------|-------------------------|--------------------------|-----------------|
| Increased appetite     | 1.27 ±0.50              | 1.27 ±0.50               | 0 NS            |
| Decreased appetite     | 1.5 ± 0.51              | 1.5 ± 0.51               | 0 NS            |
| Headache               | 1.18 ± 0.39             | 1.18 ± 0.39              | 0 NS            |
| Fatigue                | 1.17 ± 0.38             | 1.17 ± 0.38              | 0 NS            |
| Dizziness              | 1.17 ± 0.38             | 1.17 ± 0.38              | 0 NS            |
| Palpitation            | 1.07 ± 0.26             | 1.07 ± 0.26              | 0 NS            |
| Weight gain            | 1.33 ± 0.48             | 1.33 ± 0.48              | 0 NS            |
| Swollen extremities    | 1 ± 0                   | 1 ± 0                    | 0 NS            |
| Breast tenderness      | 1.38 ± 0.49             | 1.39 ± 0.49              | - 0.2 ± 0.2 NS  |
| Abdominal bloating     | 1.27 ± 0.45             | 1.27 ± 0.45              | 0 NS            |
| Oily skin              | 1.39 ± 0.49             | 1.39 ± 0.49              | 0 NS            |
| Acne                   | 1.45 ± 0.50             | 1.43 ± 0.50              | 0.02 ± 0.2 NS   |
| Constipation           | 1.37 ± 0.61             | 1.37 ± 0.61              | 0 NS            |
| Diarrhoea              | 1.22 ± 0.42             | 1.21 ± 0.41              | -0.01 ± 0.1 NS  |
| Backache               | 1.58 ± 0.64             | 1.58 ± 0.64              | 0 NS            |
| Hives                  | 1.25 ± 0.46             | 1.25 ± 0.46              | 0 NS            |
| Weakness and radiation | 1.42 ± 0.49             | 1.41 ± 0.49              | -0.01 ± 0.1 NS  |
| Fluid retention        | 1.13 ± 0.34             | 1.12 ± 0.04              | -0.01 ± 0.1 NS  |
| Menstrual cramps       | 2.1 ± 0.68              | 2.1 ± 0.68               | 0 NS            |
| Menstrual backache     | 1.46 ± 0.63             | 1.45 ± 0.62              | -0.01 ± 0.1 NS  |
| Menstrual bleeding     | 1.95 ± 0.80             | 1.95 ± 0.80              | 0 NS            |

NS = Non-significant

4. Discussion

Premenstrual disorders and symptoms are complex phenomena which despite decades of research remain poorly understood. In the present study we investigated the acute effect of change of place on premenstrual symptoms in young college ladies hostel students. The results of the study demonstrate that change of place adversely influences many of the menstrual cycle related symptoms. Migration from one place to other can be a very stress inducing factor. During stressful conditions the sympathetic activity will be high. A study by Tamaki Matsumoto et al. showed that the women with greater degrees of premenstrual distress possessed higher sympathetic nervous system activity and lower parasympathetic nervous system activity in the late luteal phase than the women with less symptomatology.

In the current study, among the psychological factors, depressive mood was severely affected by change of place. In a non clinical sample of 91 college students, Portella et al. observed that there was a sizeable positive correlation between seasonal depressive symptoms and premenstrual symptoms. Perkonigg et al. studied 1488 women aged 14–24 years and found that elevated ‘daily hassles’ scores was powerful predictors of the development of severe PMS. Certain studies have observed correlation between stress and PMS. Golenberg Al et al have reported longitudinal relation between perceived stress in the previous month and premenstrual symptom severity across two cycles among regularly menstruating,
Thus coping up with a new environment might have been a perceived stress which aggravated PMS symptoms especially depressive mood in our study subjects. Similarly, change of place negatively influenced several of the physical symptoms of PMS but its acute effect on appetite and fatigue was highly significant. Thus, we hypothesize that environmental factors may have adverse influence on PMS symptoms especially depressive mood and fatigue. Thus intervention strategies to cope with stress may be effective in reducing severity of PMS symptoms. However based on our study findings it could be concluded that change of place is having definite acute negative influence on physical and psychological symptoms of PMS. Among the psychological factors, depressive mood is highly aggravated. Among the physical symptoms, decrease in appetite and fatigue are severely affected.

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