

Prevalence of Premenstrual Syndrome and Migraine in Medical Students: comorbid disorders

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BACKGROUND

Migraine and several other primary headaches disproportionately affect women, and hormonal influences may be of importance in at least explain partially the gender-related differential prevalence ¹. Menstrual headaches often do not fulfill criteria for migraine ². Although migraine is more common in women than in men, it is yet little explored whether migraine, migraine types, or headache frequency are linked to specific events of the reproductive cycle. Headache is a common symptom during the menstrual cycle. The primary trigger of Menstrually Related Migraine (MRM) seems to be the modifications in the estrogen levels ³.

OBJECTIVES

The aims of this study were: to verify in medical students with premenstrual syndrome (PMS) whether there is more migraine-type headache than in women without the syndrome; address in female students with Headache, if there is a higher prevalence of premenstrual syndrome than in women without headache; and to check whether PMS and Migraine are comorbid disorders, and assess whether menstrually related migraine (MRM) is a risk factor for PMS, and address whether PMS is a risk factor for MRM

METHODS

The method used was a cross-sectional cohort where a single interview with a semi-structured questionnaire was carried out. Sample of 189 women aged between 18 and 39 years from the Medicine Course at Centro Universitário Padre Albino in Catanduva, SP, Brazil. The questionnaire consisted of 30 questions regarding the cyclical life of women and headaches. The students were asked if they wanted to participate in an interview about Headache and PMS, and signed the Free and Informed Consent Form. The research was submitted to and approved by the local Research Ethics Committee (CAAE: 84943718.0.0000.5430).

The diagnostic criteria for headache and migraine were those of the 2018 International Headache Society (ICHD-III)¹⁰. And the premenstrual syndrome criteria were according to the DSM-V ¹⁵.

INCLUSION CRITERIA

- Women between 18 and 39 years old.
- Use or not pills or contraceptives. Being or not being treated for premenstrual syndrome, or headache. Having comorbidities such as SAH, DM, Asthma, controlled hypothyroidism and other pathologies with good clinical control.

EXCLUSION CRITERIA: Pregnancy; Menopause; infectious or immunosuppressive diseases

RESULTS

The questionnaire approached 189 students with average age of 22 years old (Table 1).

The presence of headache occurs in 77.25% of students. The presence of TPM occurred in 81.48% (Table 2)

An association was observed between PMS and headache ($p < 0.01$ - $p = 0.0032$) by Fisher's exact test, so there is more headache in those who have PMS compared to those who do not have PMS (Table 3)

It has been estimated that the risk of PMS is 2.54 times higher (confidence interval 1.417 to 4.445) in the headache population. It has been estimated that the risk of headache is 2.54 times higher (confidence interval 1.417 to 4.445) in the population with PMS (test: Koopman asymptotic score relative risk and the Newcombe/Wilson with CC attributable risk).

Table 1: Demographics

DEMOGRAPHICS	n
AGE IN YEARS	
18 a 20	55(28.8%)
21 a 25	123(64.4%)
26 a 30	10(5.2%)
31 e 39	3(1.6%)
BMI	
15.8 to 18.2	9(4.7%)
18.5 to 24.9	114(59.7%)
25 to 28.6	22(11.5%)
31.5	1(0.5%)
não calculado	45(23.6%)
MARITAL STATUS	
Single	188 (99.5%)
Married	1(0.5%)

Table2: Headache and SPM

PRESENCE of HEADACHE	
No headache	43(22.7%)
With Headache	146(77.3%)
PRESENCE of SPM	
No SPM	35(18.5%)
With SPM	154(81.5%)

Table3: Association between Headache and SPM

	No SPM	With SPM	
No headache	15 (7.94%)	28 (14.81%)	43
With headache	20 (10.58%)	126 (66.67%)	146
	35	154	189

Headache classification according to ICHD 3 -2018 demonstrate that most of women have Migraine without aura (Table 4)

Table 4: Headache Classification

Headache Classification	
Migraine without aura	68 (46.6%)
Migraine with aura	54 (36.9%)
Probable Migraine	17 (11.7%)
Tension type Headache	7(4.8%)
	146

Mean age at menarche was 12.07 years, . 17/146 (11.6%) of women have aura (Migraine with aura). Most women used contraceptives (141/189=74.60%). Sixty/146 women had menstrual headache (called in this paper a broad definition menstrual headache). Seventeen of 146 had headache within 3 days of onset of flow or equal to or more than 4 days after onset of flow. By the definition of the IHS, menstrual migraine is one that occurs between 2 days before and 3 days after the onset of menstrual flow (we will call it real menstrual migraine) which prevailed in 43/146 women.

Fisher's exact test showed an association between PMS and menstrual headache with a broad definition ($p < 0.0001$), with a higher occurrence of menstrual headache in the population with PMS (98.33%), and a higher occurrence of PMS in the population with menstrual headache ($p < 0.0003$) (Table 9).

On the other hand, when we separate the real menstrual migraine fraction (-2 to +3) which in our study were menstrual-related migraines (that which occurs between 2 days before the onset of the flow and 3 days after the onset of the flow and also in others moments of the cycle, =MRM), we verified that no association was observed between SPM and MRM ($p = 0.526$) (Table 5).^{4,5}

Table 5: Menstrual Migraine (Broad definition) and MRM and SPM

	No MRM	With MRM	
No SPM	0	1	1
With SPM	17	42	59
	17	43	60

CONCLUSION

The association between PMS and migraine in general is high and statistically significant and can be said to be comorbid disorders.

There is a relationship between PMS and menstrual migraine in a broad definition, in the sense that one increases the risk of the other.

MRM (Migraine that occurs between 2 days before and 3 days after the onset of the flow) however it is not a risk factor for PMS or vice versa, demonstrating that headaches that occur before 2 days and after the initial 3 days flow would be more associated with the risk of one in relation to the other.

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