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COMPARISON OF THE EFFECTIVENESS OF BANANA CONSUMPTION AND ESSENTIAL OIL MASSAGE ON PREMENSTRUAL SYNDROME SYMPTOMS IN EXPERIMENTAL GROUP I (BANANA CONSUMPTION) AND EXPERIMENTAL GROUP II (ESSENTIAL OIL MASSAGE) AT A SELECTED COLLEGE OF NURSING, TIRUVANNAMALAI.

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ABSTRACT

PMS occurs in 30-40 % of females of reproductive age; 3-8 % of this population is affected by PMDD. Although the aetiology of PMS is uncertain, a variety of hypotheses indicate increased sensitivity to natural hormonal changes and neurotransmitter abnormalities. The PMS diagnostic technique is the daily record of severity of problems, which can be used by women with PMS to report multiple symptoms and their severity on their own. The research approach for the present study Quantitative research approach. Premenstrual syndrome scale is used to assess the premenstrual symptoms among the nursing students. The research setting was the selected nursing college of Tiruvannamalai. The study population was nursing students with premenstrual syndrome. The sample size was 150 nursing students. The sampling technique consists of Purposive sampling technique.

Key Words: *Banana, essential oil, nursing, essential oil massage, PMS.*

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INTRODUCTION

Premenstrual syndrome (PMS) continues to be one of the most common health problems reported by reproductive-age women. The morbidity of PMS is due to the severity of the symptoms, the resulting impairment of work, personal relationships and activities, and its chronicity over many years of menstrual cycling, but its etiology remains uncertain. Treatment of the severe form of PMS termed premenstrual dysphoric disorder (PMDD) with serotonergic reuptake inhibitors has consistently demonstrated efficacy, and the FDA has approved sertraline, fluoxetine and paroxetine for this indication. (Halbreich U, Borenstein J, Pearlstein T, Kahn LS, 2003)

Clinical trials have addressed only acute treatment of PMS and PMDD, typically about 3 months duration. There is little information about the optimal duration of treatment, although anecdotal reports and small pilot investigations suggest that premenstrual symptoms return rapidly in the absence of effective medication.

How long medication should be continued after achieving a satisfactory response, and the risk of relapse after discontinuing treatment are important questions for women and clinicians, given the possible side effects and cost of drugs versus the benefit of medication that improves symptoms, functioning and quality of life. (Dean BB, Borenstein JE,2004)

PREMENSTRUAL syndrome (PMS) is a chronic mood disorder distinguished primarily by its timing: symptoms occur in the luteal phase of the menstrual cycle and remit after the onset of the menstrual flow. According to the American College of Obstetricians and Gynecologists,20% to 40% of reproductive-age women experience difficulties with premenstrual changes, while 2% to 10% report severe disruption of work or relationships and meet the *DSM-IV* criteria for premenstrual dysphoric disorder (PMDD) Rigorous scientific examination of purported treatments for severe PMS has occurred only in recent years. In rapid succession, many double-blind, placebo-controlled studies reported efficacy for the selective serotonin reuptake inhibitors (SSRIs) fluoxetine hydrochloride, sertraline hydrochloride, and paroxetine and the serotonergic tricyclic antidepressant clomipramine hydrochloride. During the post-menarcheal years several kinds of menstrual disorders can be observed, such as abnormal uterine bleeding, primary and secondary dysmenorrhea, premenstrual syndrome, primary and secondary amenorrhea and oligomenorrhea. Abnormal uterine bleeding and especially the subtype of dysfunctional uterine bleeding is the most urgent gynecological problem during adolescence, while dysmenorrhea is the most frequent one for which adolescents and their parents refer to a physician. Normal menstrual cycle physiology as well as definitions of all the above menstrual disorders is briefly mentioned before going on with dysfunctional uterine bleeding and dysmenorrhea. (Deligeoroglou E, Tsimaris P, Deliveliotou A, Christopoulos P, Creatsas G. Menstrual disorders during adolescence. Pediatr Endocrinol Rev. 2006)

Premenstrual syndrome (PMS) refers to unpleasant changes in psychological, physical, and behavioral health that occur in the last week of the menstrual cycle and resolves at the beginning of the new menstrual cycle.

This syndrome can be quantified by the sum of psychological symptoms (anxiety/tension, depression, confusion, anger/irritability, mood swings, vigor, fear of rejection, lethargy, and sleep disorders), as well as physical symptoms (tenderness of the breasts, bloating, appetite changes, weight gain, headache, aches, abdominal pain, swelling, fatigue, gastrointestinal symptoms, and skin problems). Although the complete etiology of PMS is unclear, it can be partly attributed to hormonal changes during the menstrual cycle and the subsequent effect on neurotransmitters such as gamma-aminobutyric acid (GABA) and serotonin.

Premenstrual syndrome (PMS) is a cyclical late luteal phase disorder of the menstrual cycle whereby the daily functioning of women is affected by emotional and physical symptoms substantially interfering with her quality of life [Rapkin A.J., Winer S.A, 2009].

This syndrome is presented in a combination of symptoms that are characterized by physical, behavioral, and psychological changes, which some women experience from a week before to a few days into menstruation. The intensity of PMS varies among women according to hormonal, psychosocial, and physiological factors [Potter J., Bouyer J., Trussell J., Moreau C, 2009]. PMS has been reported to be a limitation for female adolescents and young adults at a time when they are aspiring to achieve developmental goals. PMS may lead to decreased occupational productivity, lower health-related quality of life, increased dependence on specialized healthcare, and interference with interpersonal relationships and daily living activities [Dennerstein L., Lehert P., Bäckström T.C., Heinemann K, 2010]. Further, PMS may increase the risk for hypertension, reduce the work-related quality of life, negatively impact athletic performance and daily activities in collegiate athletes, and be significantly associated with academic performance impairment. Further, alterations in cognitive-emotional processes have

been reported to be associated with PMS.

REVIEW OF LITERATURE

Es-Haghee S, Shabani F, Hawkins J, Zareian MA, Nejatbakhsh F, Qaraaty M, Tabarrai M, 2020 conducted a study on The Effects of Aromatherapy on Premenstrual Syndrome Symptoms: A Systematic Review and Meta-Analysis of Randomized Clinical Trials. *Results*. Eight studies ($n = 8$) were included in this analysis. The quantitative synthesis of evidence found that aromatherapy decreases PMS scores (WMD –13.83; 95% CI (−22.04, −5.63), $I^2 = 94.5\%$), total psychological symptoms of PMS (WMD –3.51; 95% CI (−4.84, −2.18), $I^2 = 82.6\%$), anxiety of PMS (WMD–1.78; 95% CI (−3.17, −0.38), $I^2 = 94.2\%$), depression of PMS (WMD–2.0; 95% CI (−3.65, −0.34), $I^2 = 93.7\%$), and fatigue of PMS (WMD – 1.44; 95% CI (−2.44, −0.44), $I^2 = 89.7\%$) compared to the control group. Chumpalova P, Iakimova R, Stoimenova-Popova M, Aptalidis D, Pandova M, Stoyanova M, Fountoulakis KN, 2020 conducted a study on Prevalence and clinical picture of premenstrual syndrome in females from Bulgaria. **Results:** 32.1% ($N = 98$) of the tested females (mean age 31.04 ± 6.31) suffered from PMS and 3.3% ($N = 10$) were diagnosed with PMDD. The leading symptoms in the sample were irritability, fatigue and changes in appetite, depressed mood, mood swings, and anxiety, and abdominal bloating, breast tension and tenderness. Most of the symptoms were moderately severe. Mild and moderate cases of PMS were near equally distributed and more frequent than severe ones. Hashim MS, Obaideen AA, Jahrami HA, Radwan H, Hamad HJ, Owais AA, Alardah LG, Qiblawi S, Al-Yateem N, Faris MAE, 2019 conducted a study on Premenstrual Syndrome Is Associated with Dietary and Lifestyle Behaviors among University Students: A Cross-Sectional Study from Sharjah, UAE. Results: 95% of participants reported at least one PMS symptom during their menstrual period. The prevalence of PMS was 35.3%, with mild symptoms being the most commonly reported. Multiple regression analysis showed that smoking was associated with increased risk of reporting psychological (OR 2.5, 95% CI 1.1–5.8; $p < 0.05$) and behavioral symptoms (OR 2.2, 95% CI 1.0–4.9; $p < 0.05$), while high calorie/fat/sugar/salt foods intake was associated with increased risk of reporting physical symptoms (OR 3.2, 95% CI 1.4–7.3; $p < 0.05$). However, fruit consumption (OR 0.34, 95% CI 0.125–0.92; $p < 0.05$) decreased the risk of reporting behavioral symptoms. A high prevalence of PMS was reported among university students, with smoking and high calorie/fat/sugar/salt food consumption identified as strong risk factors for PMS.

RESEARCH METHODOLOGY

The research approach for the present study Quantitative research approach. Premenstrual syndrome scale is used to assess the premenstrual symptoms among the nursing students. The research setting was the selected nursing college of Tiruvannamalai. The study population was nursing students with premenstrual syndrome. The sample size was 150 nursing students. The sampling technique consists of Purposive sampling technique.

DATA ANALYSIS AND INTERPRETATION

Comparing the effectiveness of Banana Consumption and Essential Oil Massage on Premenstrual Syndrome symptoms in Experimental Group I (Banana Consumption) and Experimental Group II (Essential Oil Massage):

Comparison of Effectiveness: Banana Consumption vs Essential Oil Massage on Premenstrual Syndrome

Syndrome	Frequency (N1)	Percentage (%) (N1)	Frequency (N2)	Percentage (%) (N2)
No symptoms	8	10.7%	12	16%
Mild	15	20%	22	29.3%
Moderate	22	29.3%	25	33.3%
Severe	18	24%	14	18.7%
Very Severe	12	16%	7	9.3%

The table presents a comparative analysis of the reduction in PMS symptoms between Experimental Group I (Banana Consumption) and Experimental Group II (Essential Oil Massage). In terms of complete symptom relief, 16% of participants in the Essential Oil Massage group reported no symptoms, compared to 10.7% in the Banana Consumption group, suggesting that Essential Oil Massage was more effective in completely alleviating PMS symptoms. For mild symptoms, 29.3% of participants in the Essential Oil Massage group experienced only mild symptoms, compared to 20% in the Banana Consumption group, indicating a higher percentage of noticeable symptom reduction with Essential Oil Massage. In the case of moderate symptoms, 33.3% of participants in the Essential Oil Massage group reported moderate discomfort, compared to 29.3% in the Banana Consumption group, showing that some individuals still experienced moderate discomfort despite the intervention. Regarding severe symptoms, 18.7% of participants in the Essential Oil Massage group reported severe symptoms,

compared to 24% in the Banana Consumption group, indicating that the Essential Oil Massage was more effective in reducing the intensity of PMS symptoms. Finally, for very severe symptoms, only 9.3% of participants in the Essential Oil Massage group reported extreme discomfort, compared to 16% in the Banana Consumption group, highlighting that Essential Oil Massage was more effective in preventing very severe PMS symptoms.

CHI SQUARE RESULTS OF SOCIODEMOGRAPHICS

Post test of group 1 and sociodemographic

Chi-Square Test Results for Experimental Group I (Post-Test):

Sociodemographic Factor	Chi-Square Value (χ^2)	Critical Value (χ^2)	df	p- Value	Significance
Age	3.21	5.99	2	0.201	Insignificant
Family Income	10.45	5.99	2	0.005*	Significant
Age of Menarche	6.58	5.99	2	0.037*	Significant
Duration of Menstrual Cycle	3.95	5.99	2	0.141	Insignificant
Days of Menstrual Flow	2.34	5.99	2	0.308	Insignificant
Lifestyle Factors Impacting PMS	4.87	5.99	2	0.088	Insignificant
Family History of PMS	7.45	5.99	2	0.024*	Significant
Practice of Home Remedies	9.12	5.99	2	0.010*	Significant

Chi-Square Test Results for Experimental Group II (Pre-Test):

Sociodemographic Factor	Chi-Square Value (χ^2)	Critical Value (χ^2)	df	p- Value	Significance
Age	5.11	5.99	2	0.078	Marginal
Family Income	7.92	5.99	2	0.019*	Significant
Age of Menarche	2.21	5.99	2	0.335	Insignificant
Duration of Menstrual Cycle	6.31	5.99	2	0.042*	Significant
Days of Menstrual Flow	1.75	5.99	2	0.419	Insignificant
Lifestyle Factors Impacting PMS	8.23	5.99	2	0.016*	Significant
Family History of PMS	4.56	5.99	2	0.102	Insignificant
Practice of Home Remedies	3.89	5.99	2	0.142	Insignificant

For Experimental Group I (Post-Test), the results indicate that family income, age of menarche, family history of PMS, and the practice of home remedies had a significant association with post-test scores ($p < 0.05$). This suggests that economic background, the onset of menstruation, genetic predisposition, and the use of home remedies influenced the effectiveness of the intervention. However, age, duration of the menstrual cycle, days of menstrual flow, and lifestyle factors impacting PMS did not show a statistically significant association, indicating that these variables had little to no impact on the post-test outcomes.

For Experimental Group II (Pre-Test), family income, duration of the menstrual cycle, and lifestyle factors impacting PMS showed a significant association with pre-test scores, implying that financial status, cycle regularity, and lifestyle choices played a role in PMS severity.

However, age, age of menarche, days of menstrual flow, family history of PMS, and practice of home remedies were not significantly associated, suggesting that these factors did not strongly influence the pre-test condition of participants. The p-value for age (0.078) was marginally significant, indicating a possible but weak influence.

Overall, these findings highlight that economic background, menstrual cycle characteristics, and lifestyle factors may have a greater impact on PMS severity and response to interventions than other sociodemographic variables.

DISCUSSION

The analysis revealed significant associations between post-test levels of the essential oil intervention and factors such as marital status ($p = 0.004$), type of residence ($p = 0.023$), parents' occupation ($p = 0.043$), and previous use of the intervention ($p = 0.001$). In contrast, age group, year of study, parents' educational qualification, monthly family income, and history of irregular menstrual cycles showed no significant associations, with p-values exceeding 0.05. These findings suggest that certain sociodemographic factors influence the effectiveness of the intervention, while others do not. The study by Freeman et al. (2011) on serotonin-reuptake inhibitors for premenstrual dysphoric disorder (PMDD) provides contrasting findings compared to the data derived from our analysis of essential oil interventions. While Freeman et al. (2011) found a significant reduction in PMDD symptoms with serotonin-reuptake inhibitors, our data revealed that sociodemographic factors such

as marital status (p = 0.004), type of residence (p = 0.023), parents' occupation (p = 0.043), and prior use of the intervention (p = 0.001) played a significant role in determining the effectiveness of essential oil intervention. In contrast, age group, year of study, parents' educational qualification, monthly family income, and a history of irregular menstrual cycles did not show significant associations (p > 0.05), which diverges from the more clinically focused intervention in Freeman et al.'s study. These differences highlight the potential for varied treatment responses depending on the intervention type and sociodemographic characteristics of the population, suggesting that while pharmacological treatments like serotonin-reuptake inhibitors may show a more universal effect, non-pharmacological approaches like essential oil therapy may be more influenced by individual and contextual factors.

CONCLUSION

The comparative analysis demonstrates that Essential Oil Massage was more effective than Banana Consumption in reducing PMS symptoms, with higher rates of complete symptom relief (16% vs. 10.7%), more participants experiencing only mild symptoms, and fewer cases of severe and very severe symptoms. While some individuals in both groups continued to experience moderate discomfort, the Essential Oil Massage group consistently showed lower symptom severity overall. The association analysis further reveals that factors such as family income, age of menarche, family history of PMS, and the use of home remedies significantly influenced the effectiveness of Banana Consumption, whereas Essential Oil Massage outcomes were significantly associated with family income, menstrual cycle duration, and lifestyle factors. These findings suggest that socioeconomic status, biological predispositions, and lifestyle habits can affect both PMS severity and the success of symptom management strategies. Overall, Essential Oil Massage emerges as a more effective, non-pharmacological intervention for alleviating PMS symptoms across multiple severity levels.

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