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Prevalence of Acne Associated Gynecological Diseases among Multiethnic Female Medical Students

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Abstract- *The purpose of the study:* To investigate and analyze the presence of pathological acne and their correlation between gynecological disorders among young female medical students from different ethnicity.

Material and Methods: The prospective study included 126 female students from Kursk State Medical University aged 18-30 years. This study group consists of six nationalities Indians (27.7%), Nigerians (12.6%), Sri Lankans (15.8%), Malaysians (26.9%), Brazilians (9.5%), and Thai (7.1%) accordingly. The clinical nature of acne, genetic predisposition to acne, gynecological history, lifestyle and habits were recorded in the questionnaire.

Results: After analyzing the questionnaire it was found that 84.7%of students have or had acne in past and 15.3% students never had acne. Among them, 8.26% were diagnosed with PCOS, 65.11% were diagnosed with premenstrual syndrome, 1.8% diagnosis with endometriosis 5.6% with vaginal candidiasis 22.2% diagnosed with hirsutism. 77.5% students with acne got normal menstrual cycle (between 22 to 34) 13% students got oligomenorrhea (menstruation cycle above 34 days) 12.1% with polymenorrhea (menstruation cycle lesser than 22 days).

Keywords: *Acne, hormonal imbalance, PCOS, life style modifications.*

GJMR-E Classification: *NLMC Code: WP 100*



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Prevalence of Acne Associated Gynecological Diseases among Multiethnic Female Medical Students

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Conclusion: Many causes of adult acne are due to changes in hormone levels that women experience at certain points during their lives such as before menstrual periods, starting or stopping birth control pills and polycystic ovarian syndrome and their prevalence percentage depend on their nationality.

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I. Introduction

Acne is the most common type of inflammatory dermatological disease widespread among any age from newborn to menopause [15]. It affects nearly 80% of people at some time between the ages of 11 and 30 years. It can persist for several years and result in disfigurement and permanent scarring, and it can have serious adverse effects on psychosocial development, resulting in emotional problems, withdrawal from society, and depression [28]. Acne is a multifactorial disease which is associated with systemic disorders and also potential skin marker of internal diseases or component of syndromes such as polycystic ovarian syndrome, Hyperandrogenism insulin resistance acanthosis nigricans syndrome (HAIR-AN syndrome) and SAHA syndrome [20].

Women of secondary reproductive age suffer more from acne than men. Psychological stress, diet, smoking, genetic predisposition and hormonal imbalance have been considered as factors that can trigger or worsen acne [15].

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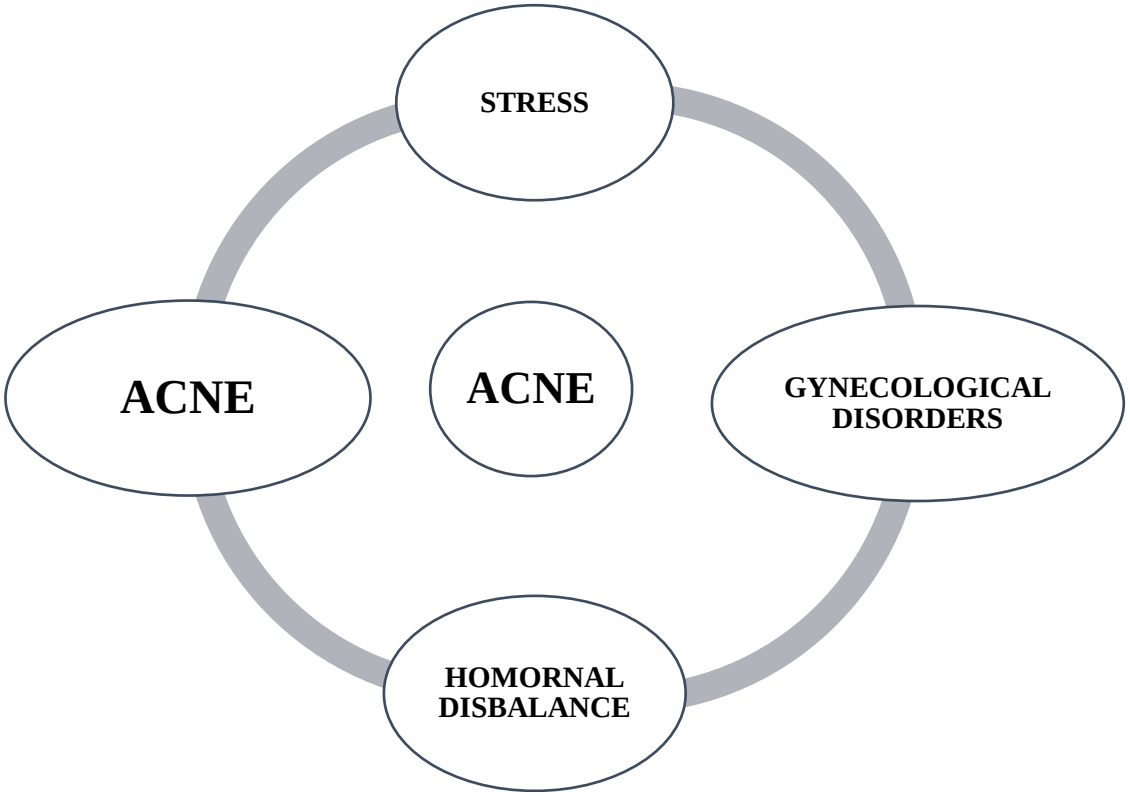


Figure 1: Pathogenesis of acne and risk factors (Khuraseva AB, Jayaweera JACS. Acne associated gynecological diseases and risk factors in the multiethnic women. Obstet Gynecol Int J. 2019; 10(1):42-45. DOI: 10.15406/ogij.2019.10.00411)

II. Material and Method

This research was conducted in the Department of Obstetrics and Gynecology; Kursk State Medical University on 4th year and 5th year female medical students aged 18 to 30. The number of students entrolled in the study was 126 after application of inclusion and exclusion criteria. The experiment consists of female students from Thailand, Nigeria, Brazil, Malaysia, India and Sri Lanka. They were given a questionnaire about the presence and absence of acne, their location, type of acne, health history, gynaecological history, genetic and life style considerations. All students were thoroughly informed about the study aims and through discussion about the procedure, associated benefits and risks and assigned written consent. The response rate was 95%.

a) *The inclusion criteria* was history or / and presence of acne, age above 18 below 30 female, non pregnant and non lactating women.

b) *The exclusion criteria* was absence of acne, age below and above 30, Pregnant and lactating woman

III. Results

After the evaluation of questionnaire following statistical data was obtained. According to the results there were 7.1% Thai, 9.5% Brazilian, 27.7% Indian, 12.6% Nigerian, 26.9% Malaysian, and 15.8% SriLankan students totally. There were 7.1% Thai, 9.5% Brazilian, 17.4% Indian, 12.6% Nigerian 25.4% Malaysian, and 12.7% Sri Lankan students with acne. Whereas 10.3% Indian, 1.6%Malaysian, 3.2% Sri Lankan without acne.

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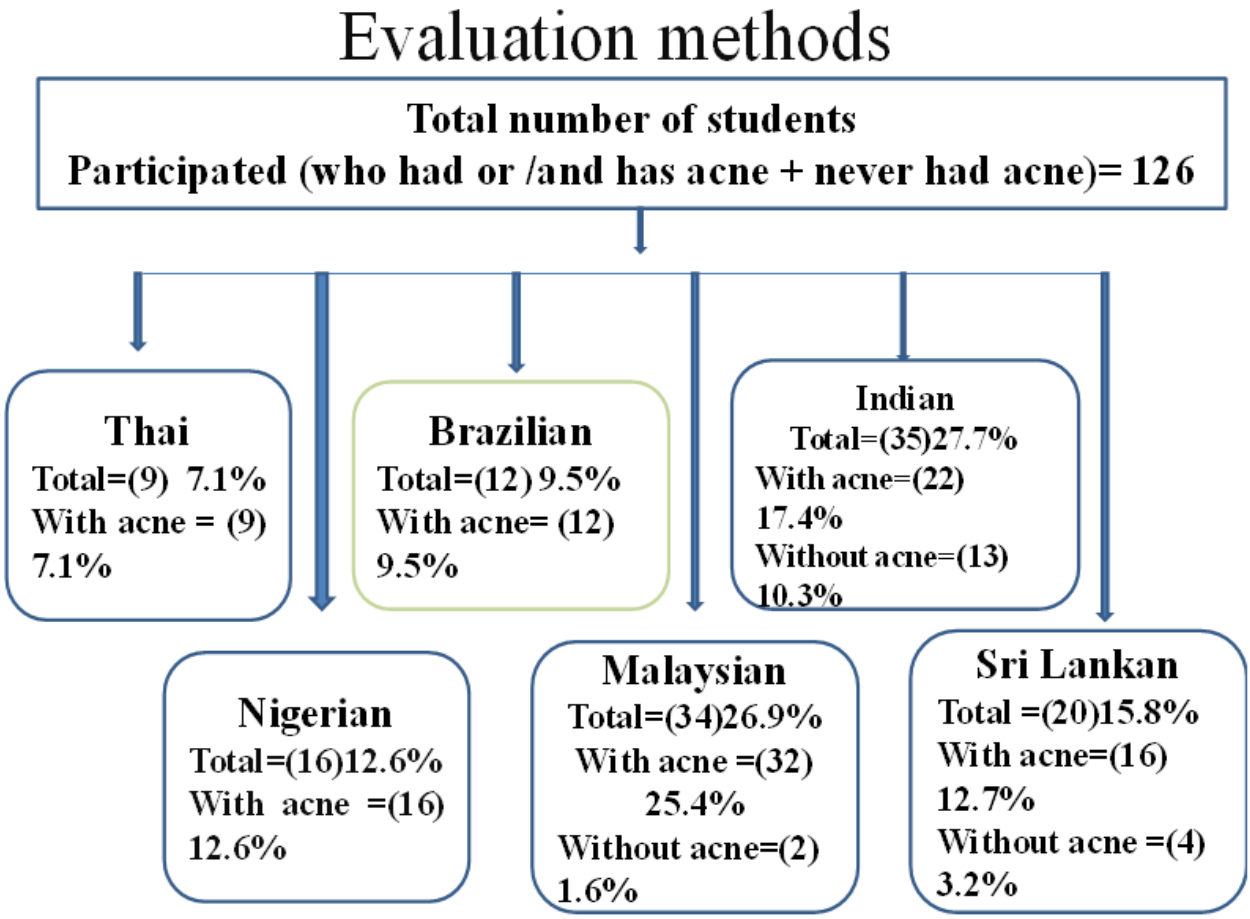


Figure 2: Study design

According to the figure 3, 77.5% students with acne got normal menstrual cycle (menstruation cycle between 22 to 34 days), 13% students got oligomenorrhea (menstruation cycle above 34 days), 12.1% with polymenorrhea (menstruation cycle lesser than 22 days). With reference to figure 4, 61.6% of students with acne got 4-6 days of menstruation duration in one cycle which is considered to be normal. 19.6% students got menorrhagia (7-8 days of menstruation duration in one menstruation cycle). 3.7% students are more prone to hyper menstrual syndrome since more than 8 days of menstruation duration in one cycle. 14.9% students show hypomenorrhea since they have 2-3 days of menstruation duration in one cycle.

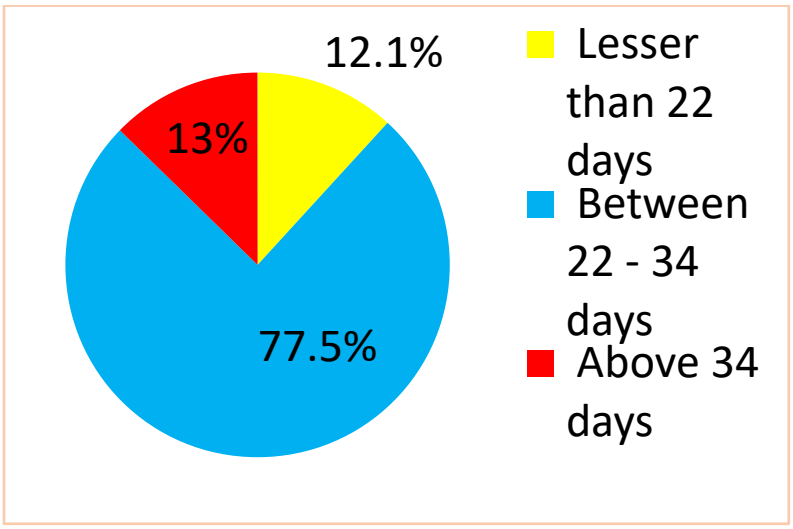


Figure 3: Length of menstruation cycle (students with acne)

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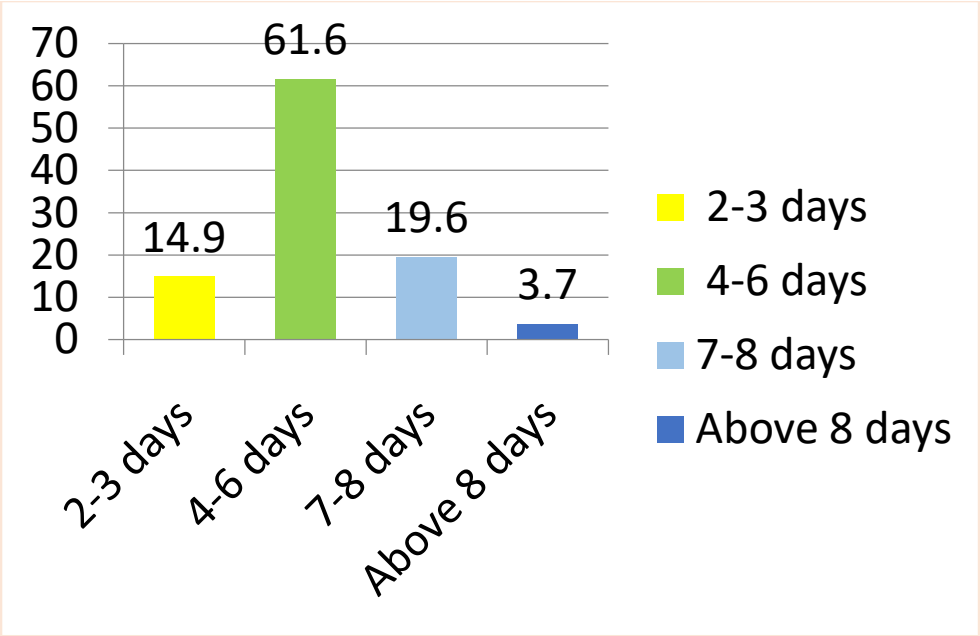


Figure 4: Duration of menstruation cycle (students with acne)

Table 1: Menstrual history of the participants (students with and without acne)

	Students with acne	Students without acne
Average age of menarche	12-13	13-14
Regular menstruation cycle	n=75 59.5%	n=13 10.3%
Irregular menstruation cycle	n=32 25.3%	n=6 4.7%

After analyzing the menstruation history of the participants with acne (with reference table 1) 59.5% students with regular menstruation cycle, 25.3% with irregular menstruation. Participants without acne 10.3% with regular menstruation, 4.7% with irregular menstruation. Average age of menarche for students with acne is 12-13 years old whereas 13-14 years students without acne.

When analyzing the gynecological diseases in the participants with acne the below mentioned results were obtained (figure 5). Brazilian participants got highest variety of gynecological diseases, premenstrual syndrome (11.21%), hirsutism (3.7%), polycystic ovarian syndrome (PCOS) (2.8%), vaginal candidiasis (2.8%), and endometriosis (0.9%) compared to other nationalities.

Nigerian and Thai students got the second largest variety of gynecological diseases. Nigerian participants, got premenstrual syndrome (10.2%), hirsutism (5.6%), polycystic ovarian syndrome (PCOS) (1.86%), and vaginal candidiasis (2.8%). Thai participants got premenstrual syndrome (7.4%), hirsutism (0.9%), polycystic ovarian syndrome (PCOS) (0.9%), and endometriosis (0.9%). Whereas Indian, Malaysian, SriLankan students got only premenstrual syndrome, hirsutism and polycystic ovarian syndrome.

Totally from the students with acne, 8.26% were diagnosed with PCOS, 65.11% were diagnosed with premenstrual syndrome, 1.8% diagnosis with endometriosis 5.6% with vaginal candidiasis and 22.2% diagnosed with hirsutism.

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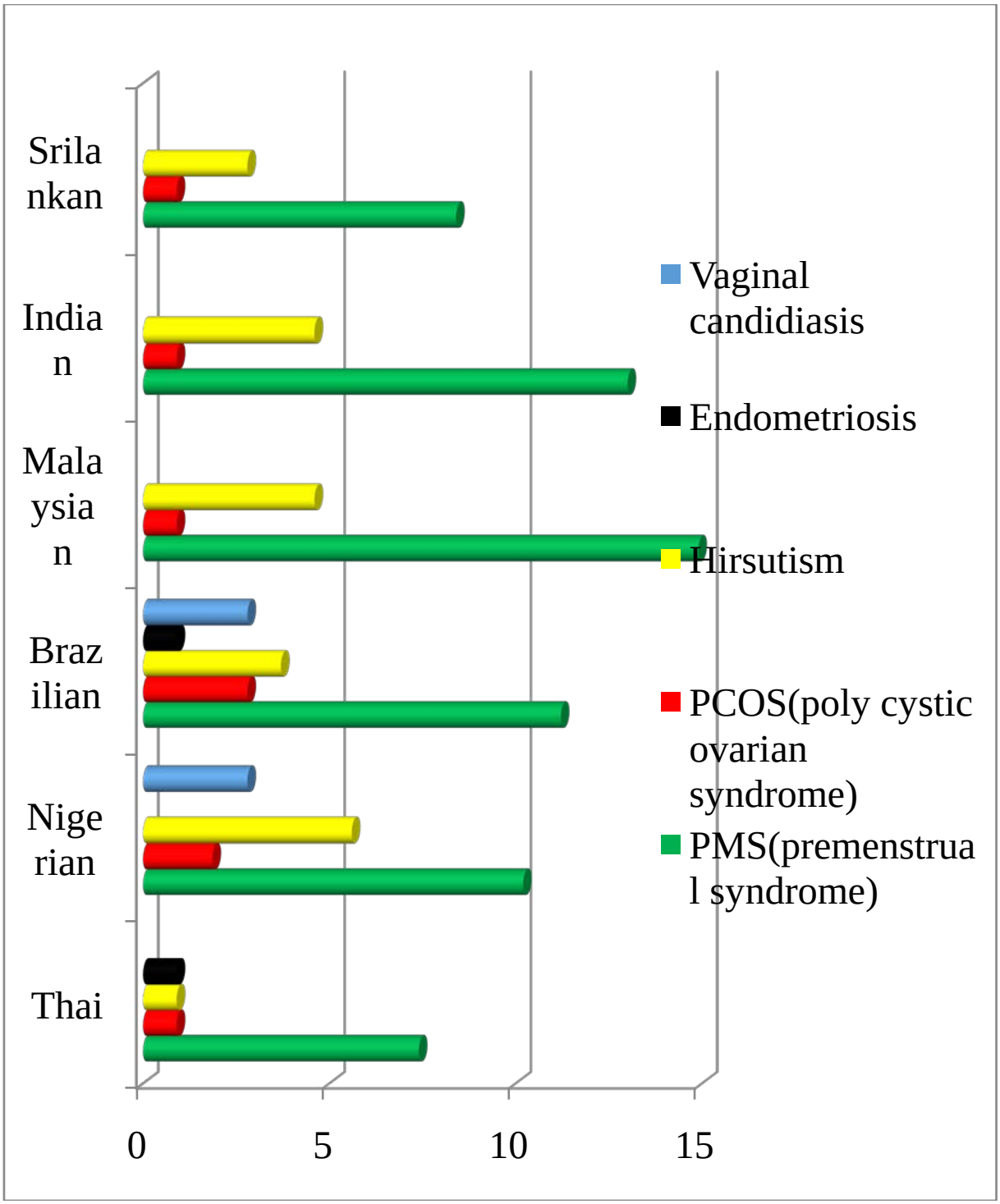


Figure 5: Prevalence of gynecological diseases among students with acne

IV. Conclusion

Acne is a common skin condition which mostly affects woman of secondary reproductive age. It is not only a dermatological problem but also affects woman in socially and psychosocial aspects. Acne can be the sign of many hormone related gynecological diseases.

This study consisted of 126 female medical students which have understandable knowledge about dermatology and gynecology which could help us in increasing the success rate of answers in the study questionnaire. According to research analysis prevalence of acne was found in 84.7% students who participated in this research work. From them considerable number of students with acne have more prevalence to gynecological disorders such as polycystic ovarian syndrome, premenstrual syndrome, endometriosis, vaginal candidiasis, hirsutism,

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oligomenorrhea, polymenorrhea, menorrhagia and hypomenorrhea. Brazilian students got highest variety of gynecological disorders where as Srilankan, Malaysian, Indian students got least variety of gynecological disorders.

Being medical students they had to lead a stressful life with more unhealthy foods, lack of physical exercises due to busy schedule with their studies. Unhealthy lifestyle of students might leads to obesity, diabetes mellitus, hormonal imbalance and psychological stress issues which can lead to future severe form of gynecological disorders.

As health care providers it is our main responsibility to pre diagnose and screen the hormonal imbalance, endocrine disorders and gynecological disorders. And take measures to alter healthy life style and stress among young female medical students. These measures could lead to healthy population of young female doctors.

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