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Research Article

Risk Factors of Acne Vulgaris among Young Females

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Abstract: To find out the risk factors of acne vulgaris among young females visiting hospitals in Lahore.A cross sectional study was done to assess young females suffering from acne vulgaris attending dermatological ward at Sir Ganga Ram Hospital, Lahore. Total 100 females were chosen through non-probability convenient sampling technique and participants were assessed through pre-tested questionnaire. SPSS version 21.0 was used for data analysis. Study duration was 4 months from February 2018-May 2018. About 63% womens were under stress, 58% womens were taking spicy foods.67% womens were having blackheads as a symptom. In the dietary determinants consumption of chocolate was highest with 67%.There was a significant association of marital status with consumption of spicy food, stress, consumption of medicines and family history of PCO,s. association of BMI was also significant with hormonal imbalance and PCO,s. The study concluded that consumption of spicy food and medicine, stress, hormonal imbalance and history of PCO,s family history of acne, blackheads, fair complexion were the major risk factors responsible for acne vulgaris.

Keywords: Risk factors, Acne vulgaris, Young females, Stress.

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INTRODUCTION

A degenerative inflammatory illness of pilosebaceous unit which results from enhanced sebum production, changes in structure of keratin, swelling and accumulation of bacterial colonies around hair follicle because of high level of androgens and with the action of propionic bacterium occurring mostly on face, neck, chest and back is known as Acne vulgaris. (Williams, H. C *et al.,* 2012).Great number of young adults and young population is affected by Acne vulgaris(Abulnaja, K.O *et al.,* 2009).Mostly acne vulgaris occurs in those countries of high socioeconomic status irrespective of the effect of genes, dietary factors also play a key role in the formation of acne like Western diet. This kind of diet increases the amount of nutrient and growth factor sensitive kinase mTORC1 which causes increased activity of sebaceous glands (Melnik.B.C, 2018). Acne diagnosis and treatment is simple but some cases shows difficult or their forms of acne the difficult forms of acne include acne conglobata and acne fuliminas (Dessinioti, C., & Katsambas, A, 2017).Acne has many reasons consisting of genetic, racial, endocrine, Immunological, environmental and psychological factors(Kaur *et al.*,2016) Age just before adolescence is the most risky age to get acne and the factors which worsen this situation(Al-Saeed *et al.*,2007).Acne occurs most commonly among those individuals whose family members had acne in the history and this type of acne is in the severe form(Ballanger, F *et al.*,2006).Acne's multiform attribute starts from a moderate to an intense disabling and uncured inflammatory disease. Normally two types of acne have to be considered: a natural and a non-natural type aggravated by additive endogenous/exogenous factors(Ghodsi S.Z *et al.*,2009) An independent peripheral endocrine function is present in pilosebaceous gland which expresses receptors for neuropeptides (Ganceviciene, R. *et al.*,2009)When an individual enters its early teens mechanism of pimple formation starts with the formation of blackheads and whiteheads on face which causes redness and

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scars.(Slominski, A *et al.*,2013)(Bickers, D. R *et al.*,2006) So we can conclude that an important causative factor which causes pimple formation is pilosebaceous ductal hyper cornification.(Cunliffe *et al.*,2004).In the beginning of puberty, sebaceous glands become more and more distinguished, increases in size and changes its sebum composition.If sebum increases chances of pimple formation also increases this shows that sebum production is also a risk factor for acne(Yosipovitch G.*et al.*,2007)Sweat, stress and lack of sleep increases the chances of having acne. Depression and acne are directly related to each other(Kubota Y *et al.*,2010).Most of the inflammation in acne occurs because of an anaerobic diphtheroid *Propionibacterium acnes* which is a habitant organism in follicles which are prone to cause acne (Akaza, N.*et al.*,2009).

In 2016, a cross-sectional study on women of racially diverse sample of was conducted by Schmidt TH *et al.*, in San Francisco at The University of California, Polycystic Ovary Syndrome Multidisciplinary Clinic over a 6-year period between May 18, 2006, and October 25, 2012 to know cutaneous and systemic features of PCOS that help distinguish women who do and do not meet the diagnostic criteria and to observe the tie-up among cutaneous 3 senses of finding, systemic abnormalities, and fulfillment of the criteria in women expected of having polycystic ovary syndrome (PCOS) is incomplete. This examination displayed that higher rates of acne (61.2% [164 of 268] vs 40.4% [19 of 47] were present in women who did not meet the criteria for PCOS vs women who met the criteria (Schmidt, T. H. *et al.*, 2016) .

In 2017, Sharma RK *et al.*, did a written report for adolescent students of Chandigarh to check the prevalence and pattern of acne vulgaris and to check the impact of acne on caliber of biography time in which Children from three schools were enrolled showed 72.3 % of 1032 children were suffering from acne which were included in this study. Mild acne was present in 81.9% students, moderate in 17.1%, and severe 0.9%. And also analyzed that stress and premenstrual flare had an important connection with acne. Acne, eating patterns, personal hygiene, weather condition, family history and smoke had no association at all. 29% of children had affected tone of spirit and severity of acne was directly related to it. Boys and girls had same quality of life having acne so no difference in effect of quality was determined. Thus this study concluded that acne is a very common among Amerindian language school children having a significant effect on their quality of life (Sharma R. K. *et al.*,2017).

In 2016, di Landro did a research study on a topic Lifestyle factors associated with Adult female acne in which he concluded that positive family history was more common among those adult females having acne, other factors also included that either they were office workers or unemployed, they had stressful life, they consume fruits Delhi, having abnormal growth of hair and many more this also affects the occurrence and prevalence of acne (Di Landro *et al.*, 2016).

The study was aimed to check the underlying risk factors of the acne vulgaris so that awareness could be created regarding the prevention of these risk factors through extensive health education so that burden of this disease could be decreased from the society.

METHODS

A cross sectional study design was conducted to assess young females with Acne vulgaris attending dermatological ward in Sir Ganga Ram Hospital, Lahore. Study duration was 4 months and All young females with Acne vulgaris attending dermatological ward in Sir Ganga Ram Hospital, Lahore during this time were selected. Data were collected through non-probability convenient sampling techniques. Patients were assessed through pre-tested questionnaire. SPSS version 21.0 was used for data analysis. Females not suffering from acne vulgaris and non-cooperative participants were excluded from the study.

RESULTS:

79% womens were unmarried, 99% were from middle class and mean age of the puberty was 12.8.**Table 1** The figure shows 58% women were taking spicy food, 44% women were suffering from hormonal imbalance,63% women were under stress,41% women were under medication, 44% women have family history of acne and 57% women have acne at the age of puberty **Figure 1** The figure shows that 67% women were having blackheads, 45% women were having fair complexion,35% women have pco,s,32% women have family history of pcos and 40% women have family history of obesity **Figure 2** The figure shows 43% women were consuming fizzy drinks,55% women were consuming spicy and fatty foods,56% were consuming fruits,27% women were consuming meat,57% women were consuming tea,26% were consuming desi ghee,60% women were consuming milk products,55% women were consuming vegetable and 63% women were consuming chocolates **Figure 3** There was significant results of association of marital status with consumption of spicy food, association of marital status with family history of PCO,S, Association of marital status with stress, association of marital status with consumption of medicine, association of BMI with hormonal imbalance, association of BMI with PCO,s as shown in table **Table 2**

Table 1: Demographic profile

Socio demographic characterization	Number (n)
	Marital status
Single	79
Married	21
	Socio economic status
Lower class	1
Middle class	99
	Occupation
Teacher	6
Student	80
House wife	14
	Age of puberty
Mean age	12.87

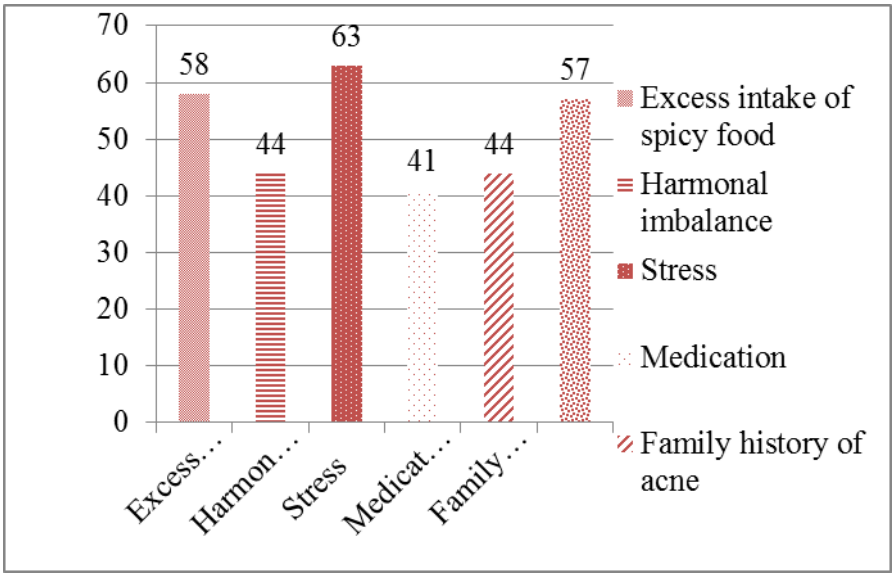

Figure 1: Determinants of acne vulgaris

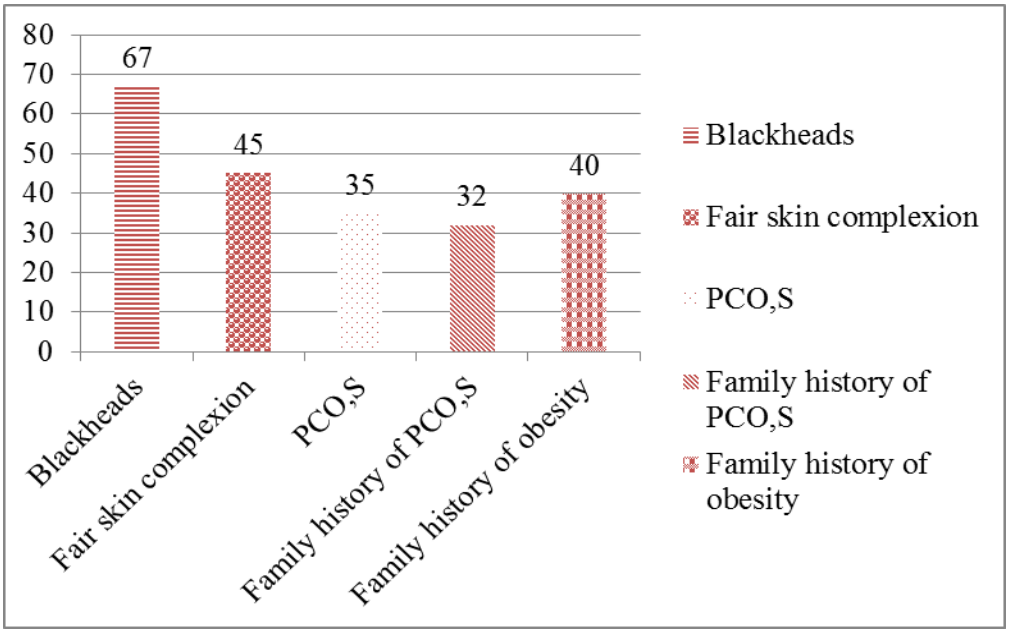

Figure 2: Symptoms of acne

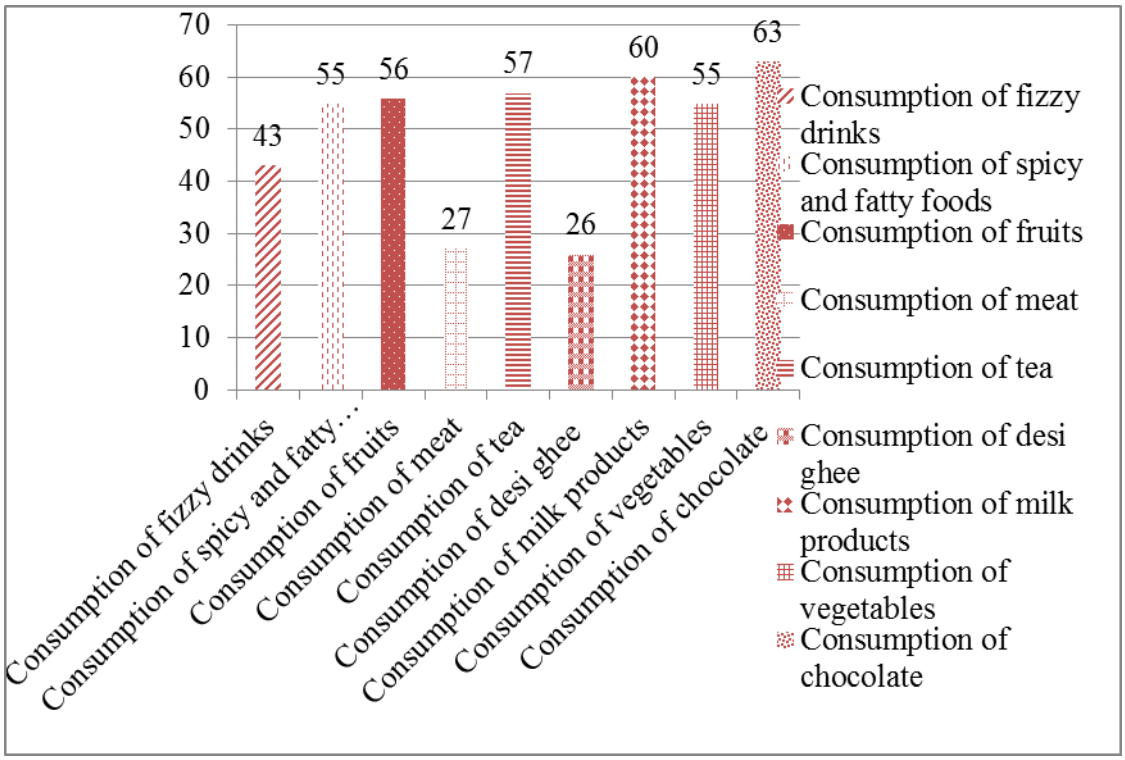

Figure 3: Dietary determinants

Table 2: Association of different factors related to acne

Sr. No	Different factors	P-value
1.	Association of marital status with consumption of spicy food	0.47
2.	Association of marital status with family history of PCO,S	.074
3.	Association of marital status with stress	.045
4.	Association of marital status with consumption of medicine	.027
5.	Association of BMI with hormonal imbalance	0.97

6.	Association of BMI with PCO,S	0.002

DISCUSSION

Findings of the current study showed that 45% of the patients had fair skin complexion while 55% patients did not. While in 2011 Cheng CE *et al.,* conducted a study in which sample included 2895 women aged from 10 to 70 years. And the study concluded that clinical acne was more common in African American and Hispanic women (37%, 32% respectively) than in Continental Indian, Caucasian and Asian (23%, 24%, 30% respectively) women. Showing a significant impact of skin color on acne prevalence.(Perkins, A.C.*et al.*,2011) The current study proposed that 57% patients had self-induced acne while 43% patients did not, similar study was done in 2009 by Helvorsen JA *et al.,* which also claimed that self-reported acne was present among late adolescent people(Halvorsen J.A.*et al.*,2009).Polycystic ovarian syndrome was considered to be the one of the important risk factor in causing acne (Malekinejad, H.*et al.*,2006).In the current study results showed that minor percentage of patients that is 35% had polycystic ovarian syndrome while 65% were not having this disease. Similarly another study was done in 2016 by Schmidt TH *et al.,* which showed that higher rates of acne 61.2% were present among those women who were not having polycystic ovarian syndrome as compared to those who were having polycystic ovarian syndrome (Schmidt, T. H.*et al.*,2016).According to the current study, results showed weather conditions were one of the factors which induced acne. 64% patients had environmental (pollution, sun rays, changing weather etc) induced acne while 36% patients had acne because of other reasons which included obesity, high glycemic index, stress, increased sweating. Similar results were seen in a study done by Sharma RK *et al.,* in 2017 that weather conditions were one of the factors having a significant impact on acne, showing presence of acne among 72.3% of 1032 children. Mild acne was present in 81.9% students, moderate in 17.1%, and severe in 0.9% due to above mentioned environmental conditions (Sharma, R. K.*et al.*,2017).Current study revealed that lesser percentage of patients had positive family history of acne that was 44%, while major concentration of patients 56% did not have any family history of acne. Showing a significant relation of acne and positive family history. While Previous research done by Sharma RK *et al.,* in 2017 contradicted this result proposing that family history had no effect on the acne at all In the current study, consumption of oily foods on regular basis resulted to one of the basic factor in causing acne showing 55% patients consuming spicy and fatty food regularly while 45% were not eating fatty foods regularly, showing cases of acne vulgaris. (Sharma, R. K.*et al.*,2017) Same results were found in the recent study, done by Hulmani M *et al.,* in a time period of 2017 concluding that oily nutrient on daily basis caused acne in majority of their patients. Findings of the current study showed that spicy food triggered the process of pimple formation in 58% of the patients while 42% of the patients were not consuming spicy food on regular basis but still had acne. Similarly according to Hulmani M *et al.,* spicy foods caused acne. Oily skin was thought to be major contributing factor in acne. Results of the current study also showed that 66% of the patients had oily skin while 34% of the patients were having normal skin. Same conclusion was drawn in a recent study done by Hulmani M *et al.*, in 2016 that majority of patients 67 % in their research had oily skin representing the cases of acne vulgaris (Hulmani, M.*et al.*,2016)The results of the current study showed that 20% patients had acne since childhood while 80% patients did not have acne since childhood. Contradictory results were found in the previous cross sectional study done by Sharma RK *et al.,* in 2017 which showed that 72.3% of 1032 children had acne (Sharma, R. K.*et al.,* 2017).

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