



**International Journal of Biology, Pharmacy
and Allied Sciences (IJBPAS)**

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

**ACNE AND ITS RELATIONSHIP WITH DIET AND SLEEP PATTERN
AMONG ADOLESCENTS AND YOUNG ADULTS IN CHENNAI –A
CROSS SECTIONAL STUDY**

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Received 28th March 2021; Revised 28th April 2021; Accepted 25th May 2021; Available online 1st Dec. 2021

<https://doi.org/10.31032/IJBPAS/2021/10.12.58005>

ABSTRACT

Background: Acne is a common occurrence among the adolescent and young adults due to their life style and also hormonal changes. Association of acne with diet and sleep were not proven by facts but recently studies have substantiated a link between certain dietary factors, altered sleep and acne. It is highly important to know if there is influence of lifestyle changes in causing acne. Many educational interventions stress on lifestyle changes for prevention of non-communicable diseases but in this decade, where physical appearance plays vital role among youngsters, if we use acne as a means to promote lifestyle changes there will be a better impact.

Method: A cross sectional descriptive study was carried out by convenient sampling method among 200 adolescents and young adults (12-35 years) in urban area of Kancheepuram. The study was done by utilizing a questionnaire.

Result: Among the 57% of people who have acne currently, 52 of them have oily skin. 80% of people responded that they believe diet could affect acne. 64% of people feel fried greasy foods and 37% of people think refined carbs aggravate the acne. 77% of people also think

that proper skincare is equally important for good skin. 53% of people think that acne is associated with sleep pattern. 54% of people get good sleep of six to eight hours.

Conclusion: Awareness about the acne and its associated factors seems to be moderately fine among the study participants. But still many do not practice a healthy lifestyle which stresses the need of health promotion activities among adolescents and young adults.

Keywords: Food, Lifestyle, Refined Carbohydrates

INTRODUCTION

Acne vulgaris is a multifactorial dermatosis that most commonly occur during puberty. Its pathogenesis is very complex and is caused due to various factors. The disease is characterized by seborrhoea and formation of comedones, pustules and papules in areas rich in sebaceous glands. The factors contributing to the formation of acne also include genetic predispositions, hormonal abnormalities (androgens play the key role), immunological disorders, psychological, environmental and even iatrogenic factors. It is believed that diet may play a role in pathogenesis of acne vulgaris and some products may have an effect on the course of this dermatosis. Though sleep pattern alone does not singly contribute to acne. Sleep along with diet or other factors may lead to acne [1, 2].

Dairy and acne: IGF-1: Milk contains insulin-like growth factor (IGF-1). IGF-1 is a hormone which helps the body build necessary tissues. Increased levels of IGF-1 results in increased sebum production. Since over oil production is one of the reasons for causing acne dairy products can lead to acne [1]. IGF-1 also stimulates the

body to produce cells. Acne is thought to sometimes begin with an over-production of skin cells inside the pore which causes the formation of comedone. Thus, some scientists also hypothesize that milk may lead to over-production of skin cells within pores which cause the pores to become clogged and produce the beginning stages of acne [1].

Androgen: Milk also contains male hormone (androgen) precursors. These precursors require enzymes to convert them into actual male hormones in the body, and these enzymes are readily available in the pores of the skin. Similar to IGF-1, male hormones have been implicated in increased skin oil production and increased skin cell production [1, 3]. Fatty food and acne: Current evidence shows that fat rich food lead to increased oil production. In addition, at least one study has shown that fatty food leads to increased fat content in sebum. The evidence stops there. Whether more sebum leads toward increased or decreased acne symptoms is up for debate. Scientists are looking into the nature of sebum, particularly its saturated or

unsaturated content [1, 4].

Sleep and acne: Although lack of sleep is not a direct cause of acne, research shows that proper sleep encourages stress reduction, hormone balance, healthy sebum production, and strong immune responses, all of which could theoretically help prevent acne. Acne is an inflammatory disease, and proper sleep may also lead to less inflammation in the body. This could potentially help reduce acne and help with the healing acne lesions which could help reduce scarring [3, 4].

This study is conducted to bring out the lifestyle changes that are leading to acne among adolescents and young adults. Increased exposure to media has become the main reason for increased intake of junk foods especially refined carbohydrates. It is unavoidable to ignore these stuffs but there should be a limit in consuming these kinds of foods. Our skin is the mirror of our internal health. Thus, proper sleep and healthy diet is highly essential to maintain good skin.

METHOD

A cross sectional descriptive study was carried out by convenient sampling method among 200 adolescents and young adults (12-35 years) in urban area of Kancheepuram. The purpose of the study was clearly explained to the volunteers. The consent was obtained from the volunteers before study. The study was

based on questionnaire. The structured questionnaire includes height, weight, age, sex, skin type, degree of acne, skincare, meal pattern, frequency of intake of dairy products, junk food and antioxidants, remedy followed, hours of sleep, type of physical activity in a day etc., Data analysis is performed in MS EXCEL. This study was approved by institutional ethical committee.

RESULTS

Among the 200 persons surveyed 113 of them had acne problems. (56%)

Figure 1 conveys the awareness among people who think acne and diet /sleep are related. Almost 75% of people who had acne feel that it is related with diet. Similarly almost 64% of participants feel sleep also plays a role in causing acne. Though more than half the people surveyed think sleep exclusively affect acne, it is not a fact. Sleep along with other factors may contribute. **Figure 2** denotes the skin type more prone to acne. Majority of the participants (89%) thought oily skin people are more prone to develop acne when compared to dry skin (3%). There are many causes leading to oily skin namely genetics, comedones, diet, etc.

Figure 3 denotes more non vegetarians (78%) are prone to acne compared to vegetarians (22%). Non vegetarian foods are hard to digest and produce acids which can be a cause for acne.

Table 1 denotes that 40% of people who have acne take refined carbohydrates on regular basis. But intake of fried and greasy food (22%) and protein calorie supplements (13%) are less than half. Refined carbohydrates are not direct cause for acne. **Figure 4** denotes that 55% of people who have acne get a good sleep of 6-8 hours. As said earlier sleep alone cannot cause acne. **Figure 5** denotes the opinion of the

participants who have acne in their day to day life. Only 2% of people do not mind or think of acne. It is obvious that almost everybody feel stressed, anxious, etc. Many are found to avoid gatherings like parties. Few try covering it with makeup. On the whole everybody have issues in having acne. Even today people are judged based on their appearance.

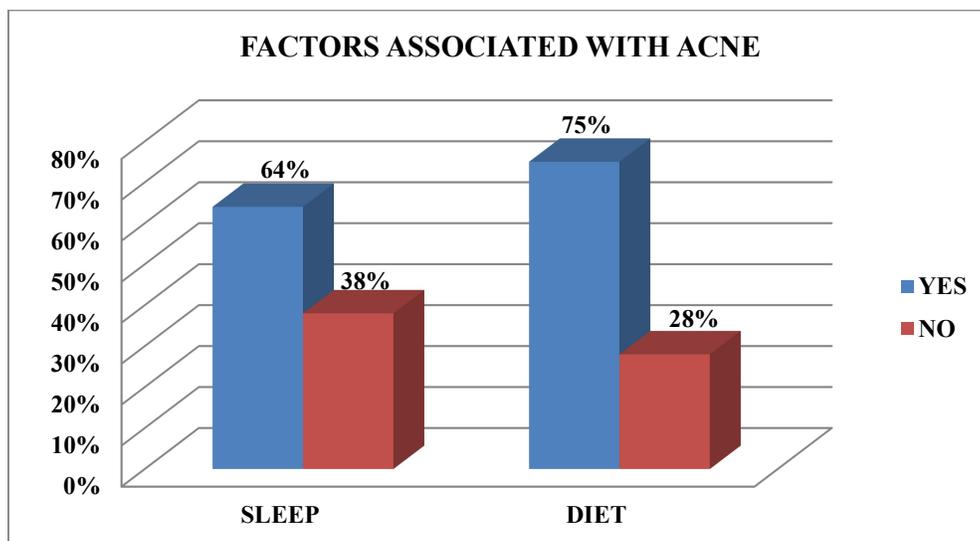


Figure 1: Awareness about factors related to Acne (n=200)

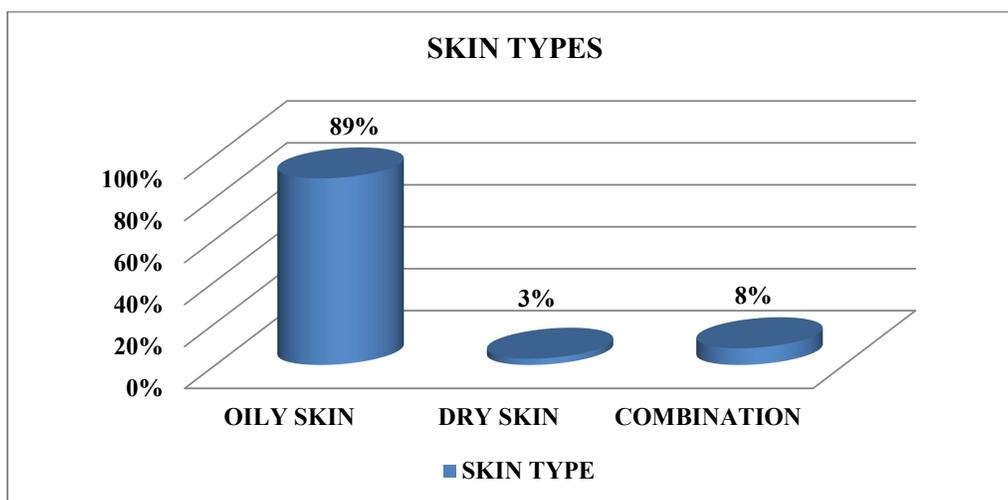


Figure 2: Response of type of skin prone to Acne development (n=200)

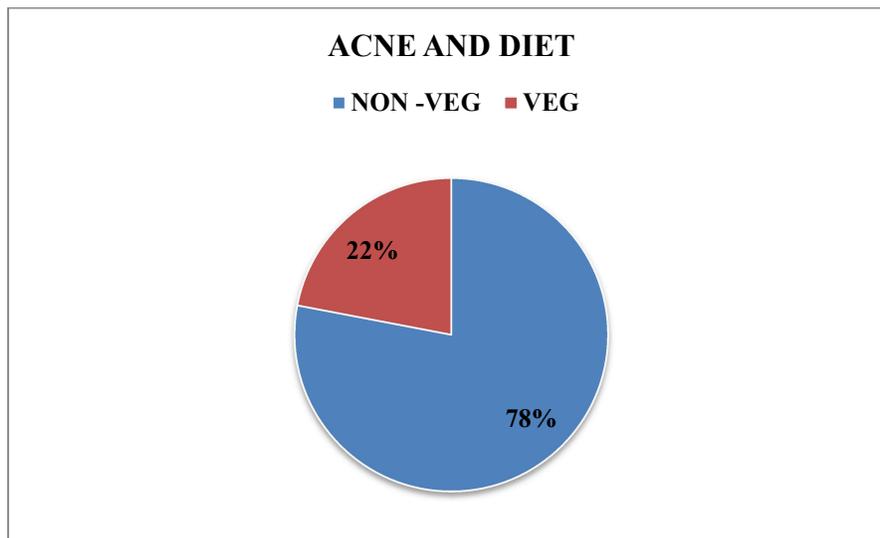


Figure 3: Awareness on type of diet more prone for acne development (n=200)

Table 1: Type of food intake among the study population (n=200)

TYPE OF FOOD	YES	NO
REFINED CARBOHYDRATES	40%	60%
PROTEIN CALORIE SUPPLEMENTS	13%	87%
INTAKE OF FRIED&GREASY FOODS	22%	78%

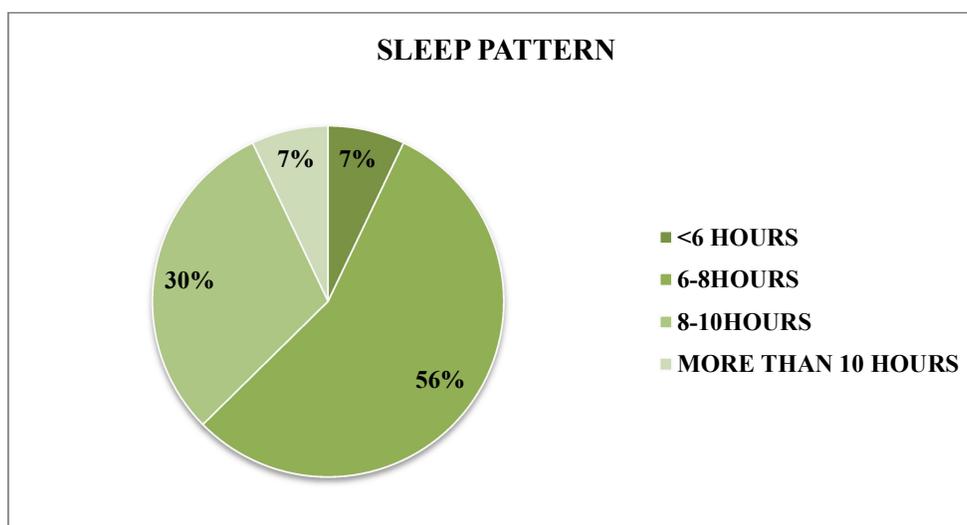


Figure 4: Sleep pattern among the study population (n=200)

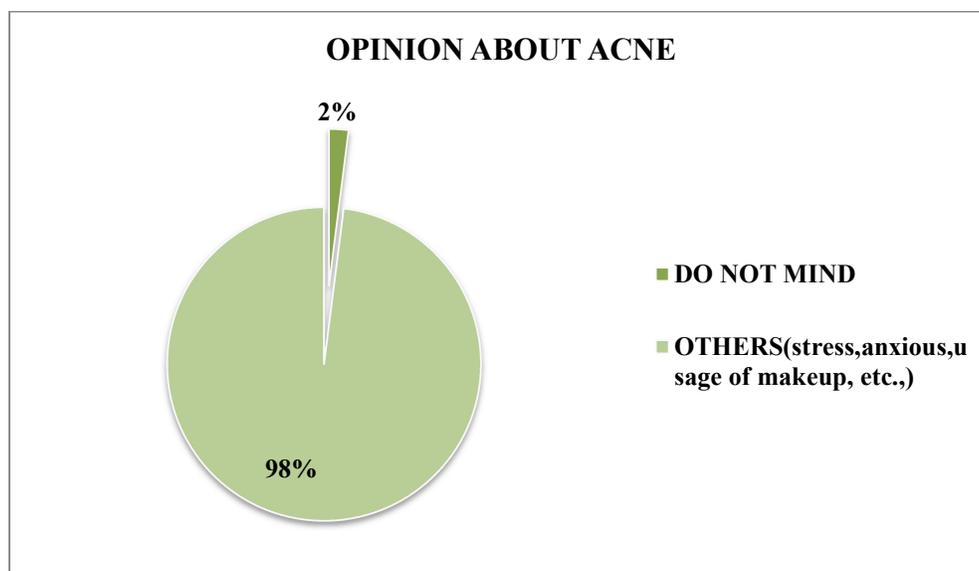


Figure 5: Opinion of the participants who have acne in their day to day life

DISCUSSION

This research mainly around the fact that acne is associated with diet and sleep pattern that shows how people who have acne are affected by their food habits and their sleep. This shows that certain food habits can aggravate or cause acne and in adequate sleep can lead to acne. In similar studies done, the number of persons consuming fried greasy food is 22% which is similar to our results. But people consuming refined carbs is comparatively more (40%) in our study when compared to the referred study (13%). Association of sleep is also similar to our study. As said earlier in **Figure 1**, Oily skin is prone to comedones and to the varying forms of acne. Oil produces a protective barrier for skin [4]. However, too much oil can produce more acne, especially if the sebum has an abnormal composition which

irritates the pores. Exactly how the composition of sebum contributes to acne is unknown, but, we do know that the more oil someone has, the more that person is usually susceptible to acne [5]. Also from **Figure 2**, Non-veg foods are hard to digest and acid-forming in nature. The chemical decomposition of these foods in the digestive system also causes acne. The saturated fat in animal products and the hydrogenated fat in processed foods produce bio-chemical toxins after decomposition in the gastro-intestinal tract. These toxins the find their way out through the skin pores causing acne.

Meat & poultry foods contain hormones which can affect the hormonal balance. Researchers have reported that people who regularly eat meat are more likely to suffer from acne & hirsutism which they attribute to the steroid and hormone levels in meat

[6] from **Table 1**, refined carbs are not the direct cause for acne but they promote the cause. Refined carbs are quickly converted to sugars and feed the bacteria causing acne [7]. Sleep and acne is indicated in fig3 that explains, lack of sleep leads to stress, which causes increase in cortisol that in turn increase sebum and leads to acne. Another factor is it leads to insulin resistance that causes increased sugar that feeds the bacteria [8, 9].

This study is done by means of questionnaire to know if people are aware of their diet affecting their skin health and lifestyle changes that are leading to acne. It is a fact that only a 2% (**Figure 4**) of people have confidence in facing the world ignoring their skin issues. It is also evident that certain alterations in diet and lifestyle can reduce acne to some extent in some people though medications are needed at severe cases.

CONCLUSION

This survey study was made exclusively to know if people are aware of the association of acne, diet and sleep and it is also evident (**Figure 1**) that they are aware and have changed their dietary intake and sleep pattern to reduce acne. It is always essential to take a balanced diet to lead a healthy life. Overeating of anything is not advised. Sleep is the recovery phase that should not be disturbed. Proper sleep and lifestyle changes can make us lead a healthy life.

Healthy skin denotes your overall wellness.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institution Ethical Committee, Sree Balaji Medical College.

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