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A Review on Acne Vulgaris : The Influence of Diet & its Effect on Self-esteem

Yarlagadda Sreshta Praveen

BSc. Student, Department of Psychology, Jyoti Nivas College Autonomous, Karnataka, India.
Email ID : sreshta.official7@gmail.com

ABSTRACT

The diet and acne interaction has been one of the most fluid areas of research in dermatology over the last few decades. A relationship between specific dietary components and acne has been established in recent studies. Acne is a common dermatological condition that affects millions of young adults and adults around the world. Acne has a considerable impact on self-esteem and quality of life, according to a qualitative evaluation of some selected articles. According to research, acne affects the self-esteem of patients of all age groups. To balance the counterfeit advice that patients may easily access on the Internet, the ability to use data-driven information to counsel patients about the dietary treatment of acne is becoming increasingly vital. Clinicians must deal with the psychological components of acne by assessing patients' quality of life (QOL) and self-esteem, in addition to managing the physical signs of the condition. These steps will help acne patients to be better managed. Given the diversity of ideas and sources used by acne patients, it is necessary to develop up-to-date and reliable ways for educating patients about nutrition and acne. We must seal the gap between those who suffer from acne and their access to physical, physiological and psychological treatment. Acne's effects on self-esteem must be recognized and assessed. The effective administration of treatment must be initiated, to prevent lasting scarring—both inside and out.

Keywords : Acne Vulgaris, Diet, Self-esteem, Adolescent, Adult

Introduction

"You don't get confident from clearing your skin, you get confident by standing up despite your insecurities and ripping through them where it hurts and scares you the most. Confidence is knowing that you have the power inside of you to overcome every negative thought that tries to work its way into your head, and acne or not, smile vibrantly." - Cassandra Bankson

Acne vulgaris (AV) is a recurrent inflammatory skin disorder that is impacted by several factors, including inherited and hormonal factors. Acne onset and exacerbation have been linked to a high-glycemic diet, milk, and chocolate consumption. The link between acne and food has long been a matter of debate. Over the last decade, many well-designed and thought-provoking studies have caused dermatologists and nutritionists to rethink the apparent link between diet and acne. Acne is a well-known skin condition that majorly affects teenagers, but it can also affect adults. Evidence that some dairy products, carbohydrates, or both may aggravate acne is particularly compelling and advocates more examination. A comprehensive review of the literature has been conducted, with special attention paid to the impact of dairy products and carbohydrate intake on acne severity. Consumer perceptions and attitudes on the image and importance of daily nutrition have generated an avalanche of epidemiologic research that has appeared in both scientific and nonscientific/pseudoscientific journals, pushing nutrition into the mainstream of medical practice. Acne vulgaris is associated with a decrease in self-esteem and self-image. Acne can lead to anxiety, depression, and low self-esteem (Gieler et al., 2015). Adolescence is a period of life, during which a person's identity, as well as social and physical changes, reaches its pinnacle. Conditions that affect the face primarily or solely, especially in adolescents, can have serious psychological repercussions. This is likely why the majority of research on the psychosocial consequences of AV, particularly on self-esteem, has focused on teenagers. Although some individuals consider acne to be merely a cosmetic problem, it can have long-term emotional and psychological effects. Acne may not be physically harmful, but it can have substantial psychosocial consequences, such as increased irritation and frustration, that affects professional and academic performance, quality of life (QOL), and self-esteem (Dunn et al., 2011). Acne patients have stated in various studies that acne has a notable negative influence on their overall self-esteem (Uslu et al., 2008; Mallon et al., 1999). Acne patients frequently have a negative body image, low self-esteem, and social isolation, as well as activity limitations (Do et al., 2009). Acne can cause scars on the skin along with psychological scars over time (Thomas et al., 2004).

Review of Literature

Researchers have spent decades attempting to confirm an old notion surrounded by misconceptions and popular beliefs: the link between acne and diet (Fulton et al., 1969; Anderson, 1971; Cordain, 2005). Surprisingly, there is only minimal research that looks into the influence of diet on acne (Magin et al., 2005; Batya et al., 2010). When it comes to acne, the importance of food has been both criticized and praised (Cunliffe et al., 1975). To better appreciate how diet may influence the development of acne, it is helpful to first review: (1) the variety of lesions that fall under the umbrella term of acne, (2) the epidemiology of the disease, and (3) the generally acknowledged proximal causes of acne (Harper, 2003). Conclusively, we must determine how much acne prevention can be achieved while ensuring that the public consumes a healthy diet (Danby, 2005). We have little choice but to base our suggestions on the little evidence we have until the panel responds with a decision "beyond a reasonable doubt" in the case of diet and acne, where we have barely reached the first rung of the evidentiary ladder. (Wolf et al., 2004). In 2004, a comprehensive assessment of the literature found no solid evidence on the impact of diet on acne (Wolf et al., 2004). Before 2007, studies concluded that nutrition has no bearing on acne and that the ailment is generated due to genetic predisposition and hormonal influences (Blau et al., 1965; Magin et al., 2005). Well-designed, controlled, prospective studies, on the other hand, have substantiated the link between certain dietary variables and acne. In 2009, a critical evaluation of the previous literature on the link between diet and acne was published (Spencer et al., 2009). The Nurses' Health Study II (NHSII) included 47,355 women from the United States in the first statistically significant study examining the impact of nutrition in acne development (Adebamowo, 2005). Following that, mounting evidence from epidemiologic and controlled dietary studies proved beyond a shadow of a doubt that high glycemic load diets and higher dairy protein consumption promote acne development or worsening (Clatici et al., 2005; Cordain et al., 2002). Since the latest human diet/acne intervention was published 34 years ago, a mountain of evidence has accumulated indicating that diet-induced changes in hormonal and cytokine balance are the most plausible environmental cause causing acne development (Anderson, 1971). In a study examining the impact of dietary habits on acne development in Koreans, Jung et al. (2010) discovered that acne was linked to a high intake of junk food when compared to people who ate healthily. Acne is correlated to a lack of vegetables and fruits, although fish consumption protects against acne (Di Landro et al., 2016; Di Landro et al., 2012). Tan et al., stated in the Journal of the American Academy of Dermatology in 2001 that diet was believed to induce acne less commonly than hormonal or hereditary causes. AV impacts the quality of life and self-esteem of people from different cultural backgrounds, ages and cultures (Gallitano and Berson, 2017). Anxiety and sadness is associated with low self-esteem. High self-esteem, on the other hand, may operate as a protective factor when dealing with new or chronic illnesses and obstacles (Dalgard et al., 2008). We believe that there are three components to self-esteem: self-worth, self-efficacy, and authenticity. Two major theoretical advances in the social-psychological literature can be used to deduce this structure. Scholars in sociology and psychology have identified three motivational parts of the self that give direction to an individual. And once satisfied, make them happy. The desire to feel worthy and accepted, the motive to regard oneself as efficacious or agentic, and the motive to find significance, validity, and coherence in one's life are all examples of these aspects (Gecas 1986, 1991; Swann and Bosson 2010). Acne may appear to be a small aesthetic concern, but it can harm one's self-esteem and interpersonal connections (Dunn et al., 2011; Ayer and Burrows, 2006; Fried et al., 2005). Acne is linked to anxiety, sadness, suicidal ideation, and other psychological illnesses, in addition to its poor impact on self-esteem and mood (Ayer and Burrows, 2006; Fried et al., 2005; Fried et al., 2006; Gieler et al., 2015).

Acne Vulgaris

One of the most frequent dermatologic disorders is acne vulgaris (AV). Initially reported in the 6th century AD, acne affects up to 85 percent of teenagers and two-thirds of individuals over the age of 18 years, depending on age and ethnicity (White, 1998; Zaenglein and Thiboutot, 2012). Acne is a chronic inflammatory illness of the pilosebaceous unit, according to Tuchayi et al., (2015) and Taylor et al., (2011). It is most common during puberty, but it can also be seen in adults. Acne is a prevalent skin disorder that affects a considerable portion of the adolescent population, as well as adults. (Rea et al., 1976; Cunliffe et al., 1979; Smithard et al., 1990; Collier et al., 2008). Acne vulgaris is a prevalent dermatological illness that affects people all over the world. (Vos et al., 2012; American Academy of Dermatology, 2019). AV is a self-limited dermatological genetic-hormonal illness that begins with the formation of comedones, papules, and cysts in pilosebaceous locations and progresses to a more inflammatory process, resulting in pustules and abscesses, with frequent cicatricial success, and has a significant psychological impact on patients. (Azulay and et al., 2007). Acne is a condition of the sebaceous gland and hair follicle. Acne develops when these follicles become clogged with excess oil, allowing bacteria found on the skin to proliferate, resulting in non-inflammatory and inflammatory acne lesions (National Institute of Arthritis and Musculoskeletal and Skin Diseases, 2006). Acne is usually transitory and goes away by the mid-20s for the majority of people; however, more severe forms of acne can take longer to heal (American Academy of Dermatology, 2007a). The worsening of acne has a greater negative impact on one's quality of life (QOL) (Manwaring et al., 2006).

Acne Vulgaris and Glycemic Index

The glycemic index (GI) is a numerical measure for determining how much a carbohydrate causes a rise in circulating blood sugar. Acne does not occur in people who eat a low-glycemic-load diet and avoid refined sugars, wheat, milk, and dairy products (Melnik, 2012). Food with a low glycemic index is reported to affect sebum composition via metabolic effects and/or, secondarily, free testosterone and androgen levels (Costa et al., 2010). Several placebo and case-controlled studies have proven the effect of high glycemic load diets in the induction and exacerbation of acne (Burris et al., 2013; Melnik, 2015). Acne has been correlated with the consumption of a high glycemic load diet and dairy products (skimmed milk, chocolate) (Okoro et al., 2016; Di Landro et al., 2012; Shen et al., 2012; Spencer et al., 2009). Kaymak et al., (2007) disproved this notion by demonstrating that the glycemic index of a diet, glycemic weight, and insulin levels have no effect on the pathogenesis of acne in young individuals. However, this study has been criticised because it is the only one that contradicts widely held beliefs among specialists on the subject. In 2002, Cordain et al. found that acne is

non-existent in non-westernized populations and hypothesised that the high frequency of acne seen in modern societies is caused by high-glycemic-load diets (Cordian, 2002).

Diet

It is widely accepted that a well-balanced diet is essential for human health and well-being throughout life. (World Health Organization, 2009). According to an article by Team MenuSano (2021), Diet refers to the foods that a person consumes regularly. A healthy diet contributes to better health, more vitality, and more energy. It is also recognised to be effective in the treatment of a variety of disorders. Diet is a risk factor for acne pathogenesis in adult women (Landro et al., 2016; Zeichner, 2013). Another recent study found a link between deteriorating 'diet quality' (during a pre-examination time in university students) and acne exacerbation. (Chiu et al., 2003). A low glycemic index diet has been shown to reduce glycogen properties in body tissues (muscle and liver), thereby limiting sebaceous lipogenesis. Androgens govern sebum production, therefore lowering them may alter the composition of sebum. Smith et al., (2003). Acne sufferers frequently blame their ailment or its worsening on their diet, according to the research of various populations (Tan et al., 2001; Rigopoulos et al., 2007; Tallab, 2004; Al-Hoqail, 2003).

Western Vs. Non-Western Diets and Acne Vulgaris

"A dietary regimen embodied by excessive amounts of sugary desserts, refined carbohydrates, high protein, high-fat dairy products, and high-sugar drinks," is what a Western diet is characterised by (Lynn et al., 2016). It is hypothesised that western diets, which have high glycemic indexes, cause hyperinsulinemia and a cascade of endocrine effects (increased androgens, increased insulin-like growth factor 1, altered retinoid signalling pathways) that contribute to acne aetiology (Cordain et al., 2002; Thiboutot et al., 2002). A recent study affirmed a link between worsening diet quality (during a pre-examination period in university students) and aggravation of acne (Chiu, 2003). The absence of acne in select communities was related to their diet in a study including over 1,200 people from two non-Western societies. When compared to Western diets, their food has a significantly lower glycemic index (Cordain et al., 2002). According to two studies, the prevalence of acne rises as people adopt a Western diet as a result of migration or cultural shift (Bendiner, 1974). Components of the Western diet, notably dairy products, have been linked to acne in studies (Melnik, 2012). Karadag et al., (2019) investigated the impact of dietary factors on acne severity in young patients, finding that excessive consumption of chocolate and dairy products (more than three portions weekly) was linked to acne severity. Aalemi et al., (2019) evaluated a study on late teenagers in Afghanistan, finding that the frequent use of dairy products, chocolate, and other dietary items (i.e. eggs, potato chips, pizza) was statistically related to moderate to severe acne (three days per week). In India, Kaushik et al., (2017) conducted a study on young acne patients to examine common aggravating variables on acne prevalence, finding that fatty food and chocolate have a more frequent unfavourable effect.

Self-esteem

An individuals' self-esteem is defined as their negative or positive attitude toward themselves (Rosenberg, 1979). "The logical or justifiable sense of one's value or importance" is how self-esteem is defined (Merriam-Webster, 2017). Self-esteem is linked to anxiety, depression, and increased reports of general psychiatric symptoms. Whereas low self-esteem is linked to anxiety, depression, and increased reports of general psychiatric symptoms. (1989, Rosenberg). From childhood until maturity, the skin plays a vital role in self-esteem and socialising (Koblenzer, 1983). Low self-esteem, poor body image, social disengagement, & depression are associated with severe acne (Tan et. al., 2001). Anxiety and sadness are linked to low self-esteem. High self-esteem, on the other hand, may operate as a protective factor when dealing with new or chronic illnesses and obstacles (Dalgard et al., 2008). When we believe that we are valuable and that others think well of us, we encounter positive feelings of high self-esteem. When we believe we are inadequate and unworthy in comparison to others, we suffer unpleasant sentiments of low self-esteem (Stangor, 2014). Many things influence our self-esteem, including how we see our performance and attractiveness, as well as how content we are with our interpersonal interactions (Tafarodi & Swann, 1995). When we believe that we are excellent and worthwhile and that others think well of us, we experience positive sentiments of high self-esteem. When we believe we are insufficient and unworthy in comparison to others, we suffer unpleasant sentiments of low self-esteem (Stangor, 2014). Many elements influence our self-esteem, including how we see our performance and attractiveness, as well as how content we are with our interpersonal interactions (Tafarodi & Swann, 1995). Some studies amid subjects with acne have confirmed an influence on global self-esteem. (Mallon et al., 1999; Uslu et al., 2008). Patients with acne have instant psychological repercussions such as low self-esteem, poor self-image, self-consciousness, and shame, according to a study (Dunn et al., 2011). Acne can affect patients' quality of life at any age, leading to a negative body image and low self-esteem, (Bergfeld 1999; Shuster et al., 1978; Cunliffe, 1986).

Self-esteem, Young Adults and Acne Vulgaris

The majority of studies on acne patients' self-esteem have been conducted on adolescents (Do et al., 2009; Tasoula et al., 2012; Dalgard et al., 2008; Vilar et al., 2005; Eroğlu et al., 2019; Gokalp et al., 2017; Yoqub et al., 2019; Uslu et al., 2008). Age at the outset of the condition was another factor that influenced self-esteem. The most common age group is adolescence and young adulthood, a time of identity formation and sexual maturation. It is often characterised by low self-esteem and changes in social dynamics (Thomas, 2004). As a result, the appearance of acne lesions causes a higher drop in self-esteem and behavioural changes, because patients in this age group cannot deal with the psychological impact of AV deforming lesions (Teixeira and França, 2007). Low self-esteem can lead to social withdrawal, anger, and frustration, and interfere with school and/or job performance during the adolescent years, when the effects of puberty are taking their toll and social interaction and independence are of utmost importance

(American Academy of Dermatology (2007b)). Acne was found to be associated with lowered self-esteem in boys and poor self-worth in girls in a questionnaire-based assessment of 3775 students (Dunn et al., 2011). Purvis et al. (2006), conducted a secondary analysis of a national health and well-being survey done to 9,567 New Zealand secondary school students aged 12 to 18 in 2001. Self-reported acne, depressive symptoms, anxiety, and self-reported suicide attempts were among the outcomes assessed. High school students in Athens, Greece, ranging in age from 11 to 19, answered surveys on self-esteem and quality of life. Acne had a considerably larger influence on the quality of life in students aged 14.1 to 16.4 years compared to students aged 11 to 14 years and 16.5 to 17.5 years (Tasoula et al., 2012).

Self-esteem, Gender and Acne Vulgaris

Women with acne were more likely to have higher self-consciousness (Hassan et al., 2009) and self-perceived stress, lower self-esteem (Do et al., 2009) and feelings of self-worth, poorer body satisfaction, lower self-attitude, and higher feelings of uselessness, according to the majority of researchers (Dalgard et al., 2008). Acne can create psychological problems at any age, and a survey of female patients with severe acne revealed that they have a poor body image and low self-esteem (Balin and Kligman, 1989; Zara et al., 2013). The discovery of poorer self-esteem, usefulness, pride, and self-worth among females with acne backs up findings from a UK study in which female acne patients aged 16 to 39 years had considerably lower self-esteem than male acne patients when measured using the whole Rosenberg scale (Mallon et al., 1999). In contrast, a single study in Egypt found that male acne patients had considerably worse self-esteem than female acne patients (Abdel-Hafez et al., 2009). We discovered two significant sex differences, although both sexes have decreased self-esteem. (1) When boys have moderate to severe acne, their views toward themselves deteriorate. This connection was not seen in girls with moderate to severe acne. (2) In the presence of moderate to severe acne, girls' self-worth is much reduced, whereas boys' self-worth is unaffected. One explanation could be that boys have more severe acne than girls (Dalgard et al., 2008b).

Self-esteem and Acne Vulgaris Severity

The severity of acne is another aspect that can have an impact on self-esteem. Many researchers have looked at the association between self-esteem and acne severity, whether subjective or objective (Gallitano et al., 2018; Do et al., 2008; Hosthota et al., 2016; Uslu et al., 2008; Abdel-Hafez et al., 2009; Loney et al., 2008). Patients with worse acne had a lower quality of life, according to Vilar et al. (2015), but there was no link between acne severity and self-esteem. In one of the investigations, poor self-esteem was found in 38 per cent of patients and 16 per cent of controls, which was statistically significant (P.<0001). Acne severity and self-esteem were found to have a negative relationship (Hosthota et al., 2016). Patients with grade 1 acne had higher self-esteem than those with other grades of acne, according to our findings. Similarly, using the RSES questionnaire, Uslu et al., (2008) discovered a direct link between acne severity and poorer self-esteem in a cross-sectional study. At an acne clinic, fifty patients were asked to rate the severity of their acne. Their subjective assessments revealed that those who assessed their acne as more severe had lower self-esteem than those who rated their acne as mild (Loney et al., 2008). There was a strong association between subjective acne severity and self-esteem in a research of 550 students in Turkey, but no relationship between objective acne severity and self-esteem (Uslu et al., 2008). Embarrassment and low self-esteem were observed in all acne patients compared to their unaffected counterparts, according to Tasoula et al. (2012). However, it was more common in those with more severe AV, occurring in up to 89.3 per cent of these individuals. Several investigations demonstrated a link between moderate-to-severe AV and lower quality of life and self-esteem, as determined by a medical professional (Abdel-Hafez et al., 2009; Hosthota et al., 2016; Lasek and Chren, 1998).

Suggestions

Previous research has established the theoretical foundation for a link between food and acne. Much research on the role of diet in the pathogenesis of acne has been undertaken during the previous 37 years, providing evidence suggesting food does have an impact on this dermatosis (Costa et al., 2008). However, interventional, randomised, double-blind trials with a control group, evaluating numerous nutritional variables, must be published. Despite the availability of views and perceptions among acne patients concerning the significance of nutrition in the development of acne (Purdy et al., 2003) and the inundation of epidemiologic studies, most of which are of poor quality, there is a paucity of solid data. Because non-Western groups do not have acne, there is an inclination to explore the eating habits of non-Western populations as a starting point for detecting the influence of dietary habits in acne vulgaris. There are no processed foods, dairy, sweets, or refined oils in their diet. They eat mostly fresh foods like fruits, vegetables, pork, chicken, and grilled seafood (Schaefer,1971; Verhagen et al., 1968; Ratnam et al., 1979; Park, 1968; Hitch et al., 1961). Future research evaluating the diet–acne theory should start with diets that closely resemble the nutritional properties of diets as seen in non-westernized populations that are known to be acne-free (Cordain et al., 2002). Because the average Western diet is more of a high-glycemic, insulin-resistant diet, it may exacerbate a change in sebum production and, as a result, inflammation and acne (Smith et al., 2007; Smith et al., 2008). More research is required to discover whether a low-glycemic diet may effectively treat or even prevent acne. Acne sufferers frequently make dietary changes. Although they do not usually have the same nutritional repercussions as dietary restrictions used in other illnesses, they can nevertheless be inconvenient for patients. There is insufficient evidence to support their efficacy or otherwise. Convincing trials are scarce. "Most of the dietary modifications proposed by non-professional advisors seem more geared to punish rather than to cure," according to an academic dermatologist, "and none are backed up by experimental proof" (Marks, 1985). A complete examination of the function of food in the development of acne should consider not only the quantity but also the quality of individual dietary components, as well as the availability of fresh, natural nutrients as opposed to industrial, highly processed foods. Other potential biases, such as family history, lifestyle (including smoking habits, physical and working activities, mental stress), and environmental factors, should always be taken into account when designing randomised controlled experiments - aiming at determining the relevance of single dietary items. Because of the extensive access to the Internet, most health-related information about diet and acne is often collected by patients online from web pages that include self-proclaimed experts' recommendations that are not supported by medical research (Khanna et al., 2018). It is therefore critical to warn patients that many

of the results of such web searches could be not just false but also misleading. As a result, there is a need to disseminate accurate and simple-to-understand information via evidence-based and authoritative educational health information sources to encourage sensible and effective individual adjustments in acne patients' eating habits. Finally, future studies must be structured to avoid study constraints such as a small sample size, a lack of proper controls, potential recollection bias, an inaccurate clinical description, and results that are poorly reported and undetailed (Khanna et al., 2018). Even though studies on diet and acne have limitations, there is evidence that diet has a role in acne and its therapy. Acne can have a significant impact on an adolescent's quality of life, self-esteem, and mood. A higher frequency of anxiety, depression, and suicidal ideation has been linked to acne. When treating acne victims, the presence of comorbid psychological illnesses should be taken into account. Patients at risk for the negative psychological impacts of acne may benefit from a strong physician-patient connection and careful history taking. Isotretinoin treatment for acne effectively reduces depressive symptoms and improves the overall quality of life. Other topical and systemic acne treatments have not been studied for their impact on psychological issues (Dunn et al., 2011). Acne is more probable than any other skin disorder to emerge in a patient's lifetime. Only recently has the psychodermatologic literature begun to examine the feasibility of acne having a mental and emotional impact (Do et al., 2009). Adequate therapy of any condition should include not just the treatment of the ailment, but also the psychological and social repercussions of the disease on the individual (Sandra et al., 2008). Although the psychological toll on younger populations is well known, the psychological toll on older patients should not be overlooked (Gallitano and Berson, 2017). Lasek and Chren (1998) and Hassan et al. (2009) both found that in elderly patients, overall self-consciousness and anxiety about the look of acne were significant. Because many societies place a premium on youth and beauty, having imperfections at a later age can have an even larger negative impact on self-esteem. Patients can assess their AV. In addition, if people believe their acne is worse than objective assessments, a more aggressive approach to treatment may be required (Özkesici Kurt, 2021b). Teixeira et al., (2009) also denote that predicting the true impact of AV on self-esteem is challenging since it can be influenced by a variety of factors, including age, baseline self-esteem, familial support, and subordinate psychiatric disease (Taborda et al., 2010).

Conclusion

Even though studies on diet and acne have limitations, there is considerable evidence that diet has a role in acne and its therapy. Nutritionists should learn more about the complexities of skin and sebum production, and dermatologists should not dismiss nutritional studies. Acne is largely connected with the components of Western diets, particularly dairy products. Because the usual Western diet is more of a high-glycemic diet, it may exacerbate a change in sebum production, resulting in inflammation and acne. Low-glycemic diets have been demonstrated to improve acne outcomes in the majority of cases. Acne vulgaris is a skin condition that harms a person's appearance. Dermatologists must be wary of psychological issues in acne patients and understand the necessity of basic psychosomatic treatment in addition to medical treatment in the treatment of acne. In terms of self-esteem, acne impacts teens more than adults. Acne, on the other hand, has a psychosocial influence on both teenagers and adults. Findings show that having acne affects both girls and boys' self-esteem and that this psychological effect appears to manifest differently in boys and girls. Early and effective treatment can help these people cope with the physical and psychological effects of acne.

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