

Different Cosmetic Habits Can Affect the Biophysical Profile of facial Skin : SC_338

A Study of Korean and Vietnamese Women

SC_338

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Introduction:

Having a good appearance in modern society is becoming a big issue in regards to relationships. This trend of thinking is not just seen in Korean women, but is an increasing concern among Vietnamese women as well. But skin is the largest and outermost human organ, and plays various important functions, such as forming a protective barrier to exogenous factors, and various internal and external factors can affect functional state of skin, and biophysical parameters which are measured using commercial non-invasive methods are known to reflect the changes of skin conditions [1,2]. Recently, as young women (ages 20-49) have more opportunities to advance into society as well as improve their status, efforts to improve their appearance are increasing. The fundamental way to change your appearance is to make your skin beautiful or clean. Try using various cosmetics on the market by looking at them. However, it is not easy to judge which product is right for you amidst the flood of data. In order to properly care for the skin, it is possible to reduce the risk of skin damage and improve skin health by identifying and preventing factors in advance and solving problems. The skin is the largest organ that covers the entire body and plays a role in protecting it from various environmental factors such as ultraviolet rays and fine dust from the outside. Human skin usually begins to age after the age of 25. Although the stratum corneum contains 10 to 20% of water, as the age increases, the skin's ability to retain water decreases and the amount of sebum secretion also decreases, resulting in dry skin due to oil-water imbalance, become rough and rough in their 30s, more skin changes are occurring due to hormonal changes due to marriage and childbirth [3]. As a result, there are many biophysical changes related to depression due to cosmetic discomfort and decreased self-confidence [4]. By classifying an individual's skin type, he or she can know the characteristics of his or her skin and get an accurate prescription from it. A well-known skin type test is the Baumann test [5], which can diagnose four types of dry/ oily skin, sensitive/ resistance/ pigmented/ non-pigmented, and wrinkled/ elastic skin, sebum, acne, elasticity, wrinkles, and also check changes in skin condition according to environmental indices such as age, climatic environment, and UV index, so that customized prescriptions are possible. Vietnam has a tropical, subtropical, and temperate climate due to its long north-south territory. It has a strong monsoon climate, which results in a lot of rainfall and high humidity. The northern Hanoi and southern Ho Chi Minh cities are at the center of Vietnam's economic growth and show different characteristics. As a control group, changes in skin type according to cosmetic use behavior were observed among young Korean women, and skin changes by age and cosmetic use behavior of Korean Vietnamese women were compared. This study aimed to investigate the variations of biophysical parameters in Vietnamese and Korean women and to assess the association between these parameters and age, climate, and cosmetic habits.

Materials & Methods:

A healthy of 600 Vietnamese women volunteers (aged 20-49) were included in this study. As a control group, 200 Korean women were surveyed together to derive the results. We comparative analyses on the characteristics of skin type between Hanoi and Ho Chi Minh in Vietnam's largest cities and Seoul in Korea's largest city. The skin hydration, skin sebum content, TEWL, elasticity, and the wrinkles at crow's feet were evaluated on the cheek. And as a cosmetic use behavior analysis, the results were derived by comparing preferences for face wash, moisturizer, and functional(anti wrinkle and whitening) products by formulation.

1. Online Survey.

An online survey was conducted on 400 Vietnamese people to investigate and analyze the cosmetic usage patterns and preferred formulations of Vietnamese consumers. By city, the city was divided into Ho Chi Minh City and Hanoi city, and the survey age was divided into the young group (ages 20-34) and the old group (ages 35-49), and the household income standard was set as the upper group from A to B. For country-by-country comparison, 200 women residing in Seoul in Korea were additionally investigated to draw conclusions. The data were obtained between April 20, 2020 and June 12, 2020.

2. Home Using Test (HUT).

This was conducted to understand consumer perception and satisfaction with the test product through a two-week product attraction survey from August 20, 2020 to October 12, 2020. The subjects of the survey were 20-49-year-old Vietnamese women, 100 from Ho Chi Minh City and Hanoi, for a total of 200, and 100 women from Seoul and Seoul, Korea as a control group. For age comparison, as with the online survey, the young group (ages 20-34) and the old group (ages 35-49) were divided into the same number of people. The face wash has two formulations (A. Alkaline soap-based foam cleanser, B. Weakly acidic gel-based gel cleanser), and the moisturizer has two formulations (A. A gel formulation with a low oily base compared to moisture, B. An appropriate oil and moisture as a base cream formulation), the functional agents are anti-aging products (A. hydrophilic softener-based serum formulation, B. lipophilic softener-based cream formulation) and trouble & whitening effect products (A. polymer gel-based serum formulation, B. Cream formulation based on powder dispersion). By alternately using two formulations developed for each category for one week, the preference of each formulation is identified through HUT attraction survey to identify consumer perception and satisfaction, and through discussion meetings, the strengths/disadvantages and improvement factors of each formulation are identified to determine the direction of product development. derived. In order to evaluate the quality satisfaction by formulation, the products provided for each formulation were evaluated for 2 products for face wash, 2 products for moisturizer, 2 products for anti-aging products and 2 products for trouble & whitening by function. Basically, quality evaluation minimizes interference. It is designed to increase the reliability of quality evaluation by providing cleansing water and skin toner that act as makeup removers (Table 1).

Table 1. HUT Products

Products	Facial Wash		Moisturizer		Anti-Aging Care		Whitening Care	
	Cleansing Gel (A)	Cleansing Foam (B)	Gel Cream (A)	Emulsion Cream (B)	Serum (A)	Cream (B)	Serum (A)	Cream (B)
Texture								
Additional Products	Makeup Remover				Skin Toner			

3. Clinical Test

The subjects of this study were 358 women residing in Vietnam and 962 women residing in Korea, who were evenly selected from their 20s to 50s (In Korea : 962 women from 2011 to 2019, In Vietnam : 200 women in 2012, 221 women in 2020). Comparative analysis was carried out with 8 items, including moisture content, sebum content, TEWL, pH, elasticity (R2), wrinkles, pores, and skin brightness. Moisture content, sebum content, TEWL, pH and elasticity were measured around the cheeks, and the rest were measured whole face.

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Results & Discussion:

1. The Results of online Survey More than 60% of Vietnamese women perceive that their skin is oily and corresponds to pigmented skin that is prone to spots/freckles. Relatively, 20-34 years old (young group) recognized sensitivity, and 35-49 years old (old group) was found to have high wrinkle recognition intensity (Table 2). When looking at the preferred ratio by formulation, cleansing gel was found to be the highest (31.8%), and the most important properties were 'oil-moisture balance after washing face' (Figure 1). Vietnamese women prefer cream formulations the most(42.2%), the most important properties of moisturizing products are 'smoothness and richness when applied' (Figure 2). Compared to Korean women, the skin of Vietnamese female consumers has high moisture and low sebum secretion. High TEWL properties make it easy to feel dryness, and aging management is needed where elasticity decreases and wrinkles increase rapidly with increasing age.

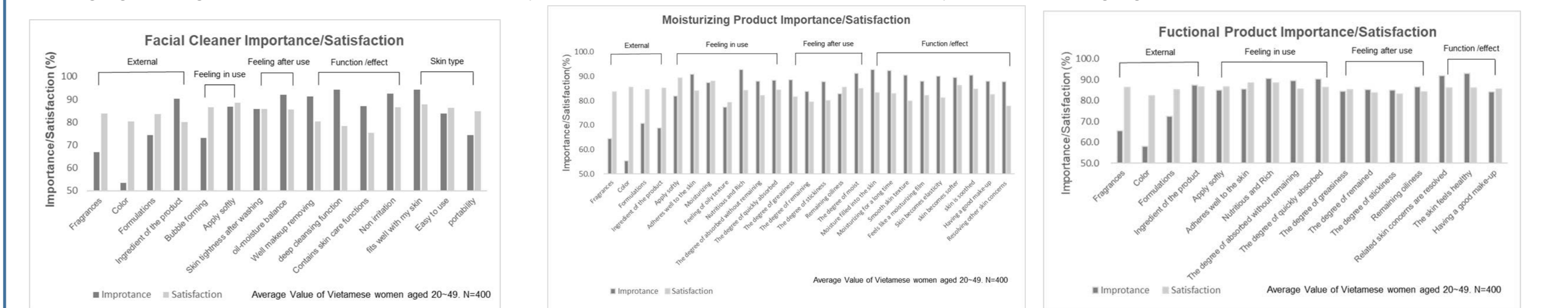


Figure 1. facial Cleanser Importance/Satisfaction Figure 2. moisturizing Product Importance/Satisfaction Figure 3. functional Product Importance/Satisfaction

Table 2. The skin type in vietnamese women

Skin Type	Total		AGE		Region	
	20-34	35-49	20-34	35-49	Ho Chi Minh	Hanoi
Dry skin	400	200	117	183	122	178
City skin	289	673	117	556	122	551
Dry skin	131	228	63	165	78	150
Sensitive skin	180	450	97	353	115	235
Resistant skin	200	550	100	450	108	442
Pigmented skin	250	325	130	195	140	185
Non-pigmented skin	150	175	70	105	78	97
Wrinkled skin	153	382	59	293	54	328
Tight skin	247	638	141	497	126	512

3. The Result of Skin Characteristics

Compared to Korean women, the skin of Vietnamese women consumers has the characteristics of high moisture and low sebum secretion, but it has a high TEWL characteristic, which makes it easy to feel dry, and it is an early stage where elasticity decreases and wrinkles increase rapidly with increasing age. It has skin characteristics that require aging management. (TEWL : Vietnamese 17.96g/m²/h ; Korean 15.07g/m²/h, Elasticity change : Vietnamese 0.78 ~ 0.62 E/mm ; Korean 0.78 ~ 0.67 E/mm, Wrinkle change : Vietnamese 13.36 ~ 16.85 μ m ; Korean 13.60 ~ 16.39 μ m) (Figure 8).

2. The Results of HUT

It was confirmed that the cleansing foam, moisturizer cream, functional cream were the number one priority for Vietnamese consumers.

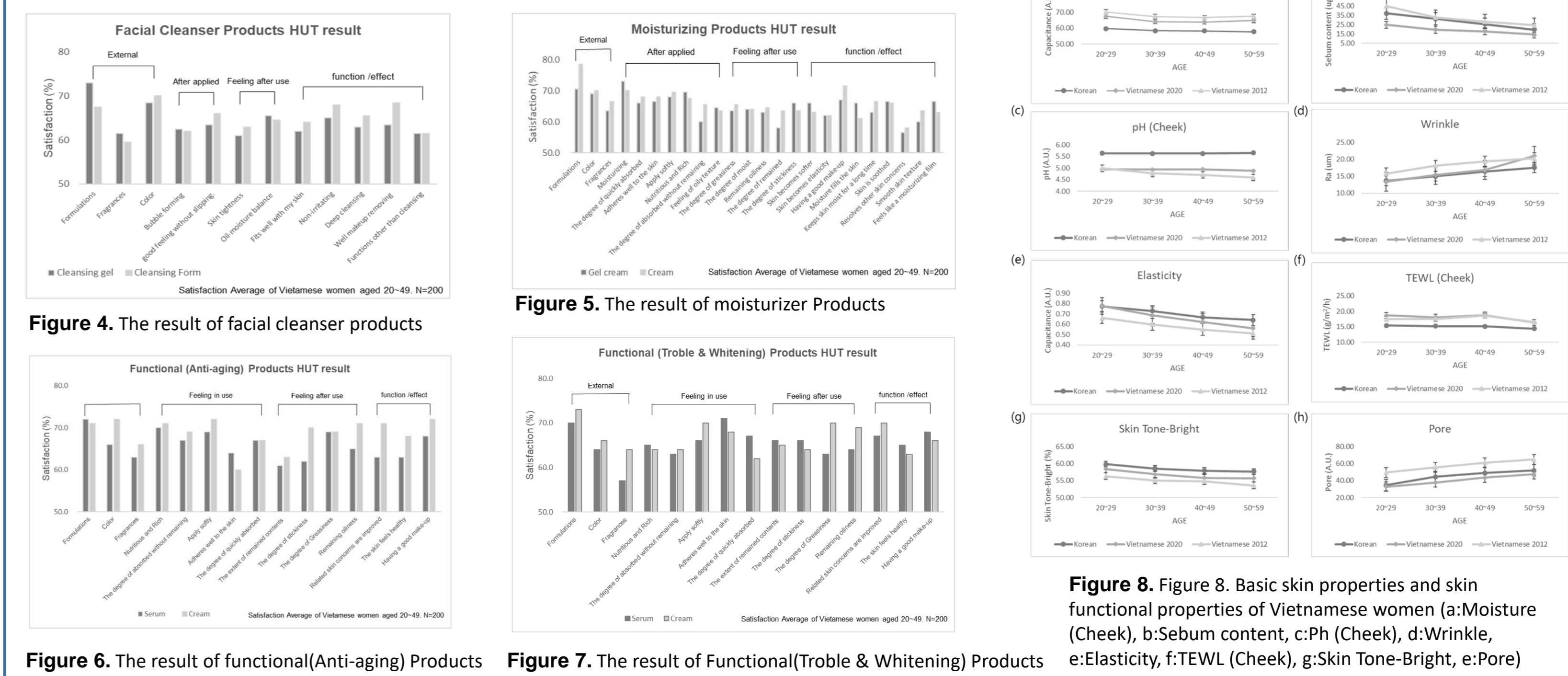


Figure 4. The result of facial cleanser products Figure 5. The result of moisturizer Products Figure 6. The result of functional(Anti-aging) Products Figure 7. The result of functional(Trouble & Whitening) Products Figure 8. Figure 8. Basic skin properties and skin functional properties of Vietnamese women (a:Moisture (Cheek), b:Sebum content, c:pH (Cheek), d:Wrinkle, e:Elasticity, f:TEWL (Cheek), g:Skin Tone-Bright, h:Pore)

Conclusions:

This study revealed that Vietnamese women and Korean women have different skin characteristics and prefer different cosmetic formulations. Korean women are changing from OSNT(Oily, Sensitive, Non-pigmented, Tight skin) to DRPW(Dry, Resistant, Pigmented, Wrinkled skin) as age increases, and Vietnam, which has a high temperature and humid climate, is changing from ORNT(Oily, Resistant, Non-pigmented, Tight skin) to ORPT(Oily, Resistant, Pigmented, Tight skin). Vietnamese women had higher TEWL values compared to Korean women, and the decrease in elasticity and wrinkle formation increased rapidly with age, indicating that skin aging was rapidly progressing. (Vietnamese women : TEWL (17.96g/m²/h), Elasticity change with increasing age (from 0.78 E/mm in 20's to 0.62 E/mm in 40's), Wrinkle change with increasing age (from 13.36 μ m in 20's to 16.85 μ m in 40's), Korean women : TEWL (15.07g/m²/h), Elasticity change with increasing age(from 0.78 E/mm in 20's to 0.67 E/mm in 40's), Wrinkle change with increasing age(from 13.60 μ m in 20's to 16.39 μ m in 40's). In the case of face wash products, women in Ho Chi Minh prefer cleansing gel formulations, and women in Hanoi prefer cleansing foam formulations, while Vietnamese women prefer moisturizing cream formulations, while Korean women prefer moisturizing gel cream formulations. In the case of functional products, Vietnamese young group(20 ~ 34 years) preferred the serum formulation and old group(35-49 years) preferred the cream formulation. As a result of the importance of face wash products, detergency, hypoallergenicity, and oil-water balance are important core functions. In the case of functional products, creams with a high usage rate are relatively heavy formulations, so satisfaction with properties related to post-absorption appears to be low [7]. As a result of comparing with Korean consumers on the facial cleansing, moisturizing, and functional formulations preferred by Vietnamese consumers, Vietnamese consumers had a higher preference for cream formulations compared to Korean consumers' preference for gel cream formulations, and for anti-aging formulations, showed that Korean consumers had a higher preference for cream formulations than for serum formulations, and Vietnamese consumers had a higher preference for cream formulations. In the case of Ho Chi Minh consumers who use relatively high global products, The preference for the cleansing gel formulation was high, indicating that it was different from the high preference for the cleansing foam formulation of consumers in Hanoi. In the case of the anti-aging formulation, the Young group (20-34 years old) had a high level of preference for the serum formulation. As the preference is high, the old group (35-49 years old) has different characteristics from the high preference for cream formulations. Therefore, it is necessary to selectively develop products according to consumers who are mainly targeted in Vietnam to develop more successful local customized formulations.

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