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A Study on the Waxing Effectiveness of Sugaring

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Abstract

Purpose: The pursuit of beauty, which started from ancient times, is a basic human need, and many studies on the attractiveness of appearance are on the rise, and such research on human beauty is an important public value. Recently, interest and demand for waxing are rising, but the level of professional education on waxing is low and the understanding of skin changes and follow-up care after waxing is low, so the need for research on waxing is emerging. The purpose of this study is to find out the difference in skin condition and hair growth rate after Brazilian treatment according to the type of waxing and to present it as basic data, and to contribute to the public value in beauty culture.

Method: The subject of this study was a woman in her early 20s who had no experience with waxing, and waxed the bikini area between June and August 2022 using sugar wax and hard wax respectively.

For 4 weeks after Brazilian waxing, the skin condition (including ingrown hair, folliculitis, etc.) and hair growth length were compared and analyzed at weekly intervals. The results were analyzed after the mixed study using clinical trials and interview methods.

Results: As a result of comparative analysis of the skin condition and the length of the growing hair at weekly intervals after waxing, the condition of the skin showed that ingrown hair and inflammation occurred in the area where the sugar wax was applied, and the hair growth rate was slow. In the area treated with hard waxing, ingrown hair did not occur compared to sugar waxing, and the number of inflammations was significantly lower. The growth rate of cross-section hair was faster than that of sugar waxing, and it was confirmed that the thickness of the hair also grew thicker.

Conclusion: Sugar waxing had excellent effects on hair removal and hair thickness reduction, such as lower skin dryness, redness, and irritation of pores compared to hard waxing, but follow-up care is expected to be very important. If follow-up care is not performed properly after Brazilian waxing, it is thought that the risk factors for ingrown hair and folliculitis may be high.

Keywords: Sugaring, Waxing, Brazilian, Ingrown, Public Value

1. Introduction

Humans have a culture and history of adorning their appearance since ancient times [1]. In the past, the expression of beauty was differentiated according to class, but modern society has sufficient value for the beauty of the public [2]. This phenomenon appeared as women's economic activities became more active [3], consumption patterns changed through the Internet and multimedia according to the development of science and technology [4], and thoughts about youth, individuality, and the pursuit of beauty. Human desire for beauty is accelerating with the changing times. Beauty, which is influenced by politics, economy, society, culture, and art, creates public value [5]. Various beauty designs can be a sufficient research subject to have public value [6].

Appearance management is an important factor in human relationships along with self-awareness, and beautiful appearance helps to form favorable human relationships in modern life. Among appearance management, a new beauty field called 'Waxing' called 'Hair removal management', which removes body hair, is attracting attention[7].

Waxing refers to the removal of unnecessary hair roots from the body by melting wax[8]. Waxing not only removes hair, but also removes sebum, old dead skin cells, etc. to add cleanliness to the body. Unlike normal shaving, it removes even the root of the hair, so the growth of the next hair is slowed. After waxing, the waxed area becomes whiter and more pleasant to the touch as dead skin cells and scars are removed after waxing by making the waxed area smooth and making the hair wrinkles invisible[9]. The thickness of the newly grown hair root becomes thinner and the number also decreases.

Types of waxing include plucking, waxing(including sugaring), hair removal, bleaching, shaving, electrolysis, laser, Intensive Pulsed Light(IPL) and eflornithine 13.9% cream (Vaniqa, Barrier Therapeutics, Canada, and other Shire Pharmaceuticals)[10]. Looking at Waxing using the sugaring method, it has a long history as it has been used since ancient Egypt. In the time of Cleopatra in ancient Egypt, 'Oriental Sugaring(waxing technique using sugar, lemon juice, and water)' was popular[11]. Sugar Paste Sugaring refers to a hair removal method using edible natural sugar. It is a hair removal method in which sugar, which is not hot, about 36°C ~ 40°C, similar to the temperature of the human body, is directly taken out by hand and adhered in the opposite direction of hair growth and pulled out in the direction of hair growth. This method is a waxing method with less irritation to the skin[12][13].

Unlike normal wax, sugaring can be applied to all skin types and is characterized by stable operation. It is a waxing method that has recently been spotlighted as a technique that can be performed on troubled skin with low irritation and low pain even during the procedure. Sugaring helps with blood circulation at the same time as hair removal, increasing skin elasticity and clearing skin tone, so it is effective for face reduction and skin improvement management[14].

The waxing industry has developed tremendously[15]. Among them, sugaring is positioned as a popular waxing method, and it can be performed regardless of the skin type of men and women, young and old. It is true that it is rapidly emerging as a new source of income for beauty industry workers.

Soft waxing refers to waxing while melting at a high temperature of 70 to 90 degrees or higher. It refers to waxing in which a thin layer of soft waxing is applied to the area to be waxed using a metal stick or a wooden stick, and then body hair is removed using a muslin cloth or a non-woven cloth[12].

The main component of hard wax is beeswax, which is a good wax for removing coarse hairs. It is a method of peeling off the wax itself by applying a thick layer of wax on the hair removal area[16]. Hard waxing is a fat-soluble hard wax that melts at a temperature of 40 to 60°C. It has a lower viscosity than soft wax and is also called non-strip waxing because it does not use a cloth. Hard wax is mainly applied to areas with thin and sensitive skin such as the face, armpits, and Brazilians[17].

Laser hair removal is safe and effective for most skin types[18]. Laser hair removal is a procedure that removes hair roots by irradiating laser wavelengths that respond to melanin to the skin. When the laser is irradiated to the desired area for hair removal, heat energy is absorbed by the melanin pigment and destroys the root of the hair. In damaged hair follicles, hair regrowth is inhibited, slowing the rate of hair growth. Because it does not respond to skin tissues other than hair, the frequency of side effects such as tissue damage is low, and semi-permanent hair removal effects can be expected if laser hair removal is regularly repeated[19].

Although it is clear that the demand in the domestic hair removal-related market is increasing, the current state of the domestic hair removal market mainly consists of marketing of related products made up of manuals without clinical data or accumulated professional know-how[20]. Although there are many studies on laser hair removal that corresponds to permanent hair removal, studies on the effect and satisfaction of hair removal that can actually help consumers,

such as temporary hair removal, are lacking[21].

Ingrown hair from waxing, folliculitis, pseudo folliculitis, and post-inflammatory pigmentation changes after waxing are common side effects of waxing. Waxing not only removes hair, it also removes dead skin cells. Occasionally, due to lack of skill, the epidermis of the skin is excessively removed along with the wax, which can act as a factor of side effects. The most common symptom is itching. Moisturize sufficiently and follow precautions after waxing [22].

New hair grows inside the skin and punctures the top layer of the dermis, a condition called "ingrown hair". New hair grows inside the skin and punctures the top layer of the dermis, a condition called "ingrown hair"[23][24]. The ingrown hair is shown in <Figure 1>[25].

Figure 1. The shape of ingrown hair.



If ingrown hair is left unattended, it can cause skin problems, because our body recognizes ingrown hair as a foreign substance and triggers an immune response. If ingrown hair is left unattended for a long time, folliculitis and irritant contact dermatitis may occur due to irritation of the hair follicles, and secondary pigmentation and scarring may occur [26], so it is necessary to safely remove and prevent it. Since sugar paste removes very short hair in the growth phase with less stimulation than other hair removal methods, the hair is removed from the dermal papilla of the skin, causing small wounds in the hair follicles and growing thinner and thinner hair.

There are two ways to prevent ingrown hair. The first method is a scrub after waxing. Those who have undergone the procedure should peel off the skin 3 to 4 times a week to maximize the effect of sugaring treatment. The skin moisture and oil content is higher after scrub than before scrub [27]. This is because the weaker hair can break through the skin only by removing the dead and hardened skin cells. The second method is moisturizing. Once the dead skin cells are removed, new skin cells that take their place must be gently held in place. When sufficient moisture is supplied to the skin, it provides sufficient moisture to the sweat glands, skin, and hair of the superficial layer, which greatly helps skin respiration and skin care. The new skin water treatment method enhances the skin's own self-cleaning and self-renewal power to increase skin immunity [28].

The results of previous research on sugaring are as follows. Woo Ji-hyeong(2018) conducted a study on skin reactions according to the methods of soft waxing and sugaring waxing, and found significant results in the difference in the degree of stimulation according to the treatment method, skin satisfaction, the need for follow-up care, and the difference in intention to purchase continuously. The irritation was less and the skin satisfaction was high, which is expected to increase the recognition of Sugaring for bikini waxing and face waxing in the future. In addition, compared to soft waxing, the need for follow-up care and continuous purchase intention for sugaring were higher, and a large area would be used for soft waxing. It was argued that sugaring would be effectively used to increase skin satisfaction by minimizing skin irritation in the treatment of sensitive areas [29].

Shin Eun-ha(2018) conducted a study comparing the difference between satisfaction and re-use intention and recommendation intention after soft waxing and sugaring waxing. It can be seen that sugaring was higher than soft waxing in satisfaction, reuse intention, and recommendation intention. When looking at the contents of this study, it can be seen that among soft waxing and sugaring, the study subjects preferred sugaring more [30].

The purpose of this study is to consider the market and value of waxing in the beauty industry in the future and to use it as a basic data for development by recommending suitable wax to consumers as a hair removal method that minimizes skin irritation according to the type of hair removal and has a superior hair removal effect.

2. Research Method

This study was conducted from June to August 2022, and women living in Jeonju participated in the study. Due to the nature of waxing, the psychological burden of exposed areas during the treatment and the photographing of the research subjects were required to sign the consent form for waxing treatment and research participation. These procedures include, in accordance with bioethics, protection of the subject's privacy, guarantee of anonymity, and voluntary consent. The researcher gave the research subjects a full explanation about Brazilian waxing, and signed the consent form, which included asking for consent and approval, so that the subjects could directly recognize the contents[31].

Interviews(qualitative research method[32][33]) were conducted to study subjects in order to more in-depth research on various psychology about waxing, satisfaction after waxing, and follow-up care. The 5th study was conducted from June to August 2022, which consisted of in-depth interviews and observation of participants to understand the actual conditions and effects of waxing of study participants and ingrown hairs. Each participant observed and interviewed for about 60 minutes.

In order to objectively and simultaneously compare and analyze the differences and effects of sugaring and hard waxing, the study subjects were selected as women without waxing experience who did not experience the advantages and disadvantages of sugaring and hard waxing. This is because, in order to accurately compare the amount of hair that grows after waxing and the thickness of hair, the subject of the study must have no experience in a waxing shop, self-waxing, or hair removal before waxing.

Sugaring(left) and hard waxing(right) sections of the bikini part of the woman's skin were divided in half, and waxing was performed at the same time. In the case of using different waxes at the same time, a clinical test method was selected to find out about each skin condition and hair removal effect according to the characteristics of sugaring and hard wax materials and their usage techniques. The waxing products used in the study were "Play beauty sugar paste(for sugaring)" and "Semsa fine hard wax(for hard wax)".

This study used a mixed study method including a waxing clinical trial of the subject and an interview of the subject. The procedure of this study is shown in <Table 1>.

Table 1. Research procedure.

Procedure	Period	Research progress on waxing subjects
Before waxing	20 June 2022 - 4 July 2022	Counseling of research subjects according to the selection of waxing subjects, writing and signing a written prior consent form, observing the waxing area, analyzing the skin, and taking pictures of the treated area
After waxing	4 July, 2022	Consultation, observation of the waxing area, taking pictures of the treatment area, and explanation of side effects after waxing and personal home care tips for ingrown hair
1 week later	11 July, 2022	Home care and after-care consultation after waxing
2 weeks later	18 July, 2022	
3 weeks later	25 July, 2022	Interview
4 weeks later	1 August, 2022	Observation of waxing area
		Taking pictures of the treatment area

3. Research Method

3.1. Research analysis

The subjects of this study were women, in their early 20s, unmarried, and living in Jeonju. She was a college student, had no experience with waxing at all, and had expectations for the effect of waxing and fear of pain during the procedure. As shown in the following <Table 2>.

Table 2. Research subject information.

	Gender	Age	Residence	Marital status	Education	Waxing experience
Exam subject	Woman	21	Jeonju city	Single	College student	No

3.2. Condition of skin and hair of study subjects before Brazilian waxing

Interview

(Operator): You became involved in waxing as a research subject. For what purpose did you participate?

(Subject): The genital area was wet due to a lot of pubic hair. A lot of my acquaintances recommended Brazilian waxing, so I thought it would be better if I got waxed.

(Operator): There may be pain during the waxing procedure.

(Subject): I have heard the stories of my acquaintances about pain, so I have some expectations. They say that they have ingrown and itchy, but that part worries me.

(Operator): For Ingrown, scrub and moisture management are important. Moisturize every day and scrub 2-3 times a week.

(Operator): Symptoms may appear after waxing. For example, fever, stinging, itching, redness, soreness, etc., before menstruation, overwork, or sensitive skin, symptoms may last for 3 to 5 days.

(Subject): Yes, I understand.

The condition of the skin and hair before Brazilian waxing is as in the picture. As shown in the following <Figure 2>.

Figure 2. Before the Brazilian waxing procedure(july 4, 2022).



3.3. Skin and hair condition of study subjects after Brazilian waxing

Interview

(Operator): Did you have any pain during the waxing procedure?

(Subject) : Although there was pain, it was not as painful as I was worried about.

(Operator): You performed sugar waxing and hard waxing at the same time, which waxing method was more painful?

(Subject): Sugar waxing was painful when applying the product, and hard waxing was painful when removing it. Overall, hard waxing felt more painful.

(Operator): Please read the precautions after waxing.

- Please shower only with water on the day of the shower (Do not use body wash or oil products).
- Avoid drinking and smoking, scratching your hands, irritating underwear, excessive exercise, sexual intercourse, and other activities that irritate the waxing area.
- Do not use saunas, swimming pools, or tanning for 48 hours immediately after the procedure.
- After waxing, the dead skin cells on the skin are exfoliated, so it can be dry, so pay attention to moisturizing.
- Moisturize daily and scrub 2-3 times a week.

When the sugaring (left) and hard waxing (right) parts were compared immediately after the procedure, the sugaring (left) part showed higher skin moisture and smaller pores than the hard waxing (right) part. It was found that the difference in skin tone did not change much before and after the procedure.

After hard waxing, the skin area was accompanied by red erythema, and it was confirmed that the skin was dry and exfoliated. Because the size of the pores is in the opposite direction of hair growth, it was stimulated and the pores were recalled and it was confirmed that the size of the pores was enlarged. In addition, during the waxing procedure, more hairs were found in the sugaring area (left) than in the sugaring area (left) without being removed to the root of the hair <Figure 3>.

Figure 3. Immediately after waxing (July 4, 2022).



3.4. Condition of skin and hair after 1 week of Brazilian waxing

Interview

(Operator): Please tell me how you feel after waxing.

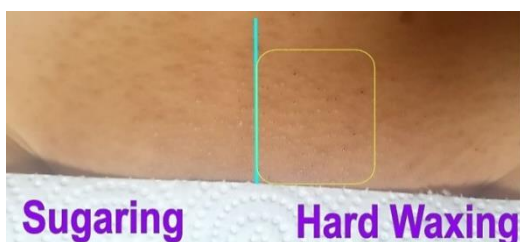
(Subject): It was good because the area to be waxed seemed clean. And since it was summer, it was very humid, but I am satisfied that it is not humid.

(operator): Is there any itching or discomfort?

(Subject): It is not itchy, and there is a feeling that the hard waxed part has rough hair and gets caught in the underwear.

No significant difference in appearance was observed in the skin condition after hard waxing and sugar waxing after 1 week after the procedure [13]. However, after sugaring, very small new hairs were observed to grow thin. After hard waxing, when looking at the skin surface, it was found that some thick broken hair had risen. As shown in the following <Figure 4>.

Figure 4. One week later (July 11, 2022).



3.5. Condition of skin and hair after 2 weeks of Brazilian waxing

Interview

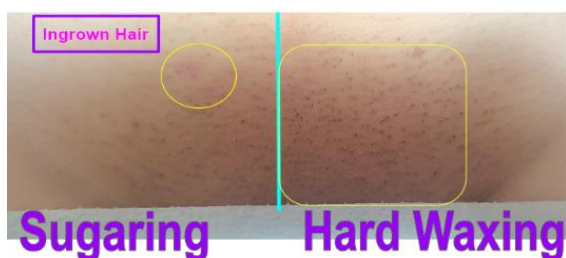
(operator): Is there any itching or discomfort?

(Subject) : It is not itchy, and the feeling of being caught in the underwear has become stronger as there are many new, rough hairs.

The results of comparing the sugaring(left) and hard waxing(right) parts of the skin condition 2 weeks after the procedure are as follows. After sugaring, 1 ingrown hair and 2 folliculitis were found in the skin area. In terms of hair removal effect, it was confirmed that the sugaring area had fewer hairs than the hard waxing area, and the thickness of the hair grew thinner.

When observing the skin area after hard waxing, it was confirmed that there were more cut thick hairs than new thin hairs. As shown in the following < Figure 5>.

Figure 5. Two weeks later(july 18, 2022).



3.6. Condition of skin and hair after 3 weeks of Brazilian waxing

Interview

(Operator): It has been 3 weeks since waxing. Are there any inconveniences?

(Subject) : It was not wet or itchy, but the rough hair was uncomfortable and I scratched it with my hands.

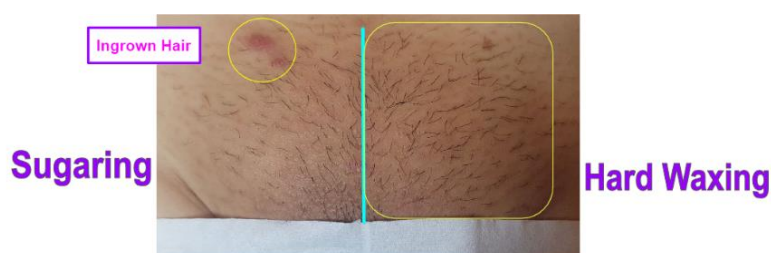
(Operator): Did you manage ingrown hair, that is, scrub and moisturize well?

(Subject): In the first 1 or 2 weeks, my skin is soft and not itchy, so I used a toner that cleans up dead skin cells, and I thought it would irritate the skin, so I softened and softened the scrub, and it seems to have ingrown hair.

(Operator): Waxing is effective not only for hair removal but also for exfoliation, so dead skin cells are regenerated after waxing. If the dead skin cells clog the pores during the process of keratin formation, the newly growing hair cannot break through the dead skin cells, which can lead to ingrown hairs. Scrubs and moisturizes are essential to prevent and prevent.

Three weeks after the procedure, sugaring(left) and hard waxing(right) were observed and compared. As a result, a right-handed study subject had ingrown hairs in areas frequently touched by hand. After the sugaring procedure, it was clearly seen that more hair came up to the edge of the skin surface area after hard waxing than on the skin surface area. As shown in the following <Figure 6>.

Figure 6. After 3 weeks(july 25, 2022).



3.7. Condition of skin and hair after 4 weeks of Brazilian waxing

Interview

(Operator): Did you have any discomfort?

(Subject): There was no inconvenience, but I was concerned about the hair getting caught in the underwear and protruding out of the underwear.

(Operator): Did you do well with ingrown hair care, that is, scrub and moisturizing?

(Subject): After paying more attention to scrub and moisturizing care, ingrown hair did not occur anymore. However, the site where the ingrown occurred was itchy and involuntary scratching caused inflammation, but now it is in a better state.

(Operator): What is the effect of Brazilian waxing?

(Subject): I had vaginitis, but after waxing, the genital area was not humid, the ventilation was good, so the smell was reduced, and it was good because it seemed to help with vaginitis. I want to actively recommend waxing to my acquaintances who have never had Brazilian waxing.

(Operator): If you are getting waxed again, which treatment method will you use, sugar waxing or hard waxing?

(Subject): I remember that hard waxing was painful, so I want to receive regular treatment with sugar waxing. I have experienced ingrown hair, and now that I know how to manage it, I am more confident in preventing it.

Four weeks after the procedure, the results of comparison by observing and comparing the surface area of the skin treated with sugaring(left) and hard waxing(right) are as follows. Four weeks after sugaring, it was confirmed that the hairs on the surface of the skin grew slightly in the center and sparsely at the edges. However, after 4 weeks of hard waxing, it was clearly observed that the hairs on the surface of the skin had long hairs from the center and the edges. Therefore, the density of skin surface hair after hard waxing was much higher than that of hair after sugaring. As shown in the following <Figure 7>.

Figure 7. After 4 weeks(august 1, 2022).



4. Conclusion

Beauty culture is a value-added business regardless of age or gender. Among them, 'waxing' can be said to be a recent trend in the beauty and beauty industry[34]. Conspiracy theories are becoming an increasingly common practice among women of all social and demographic groups[35].

The results of this study are expected to provide useful information to those who are new to grafting and waxing in waxing education. The results of this study are summarized as follows. As a result of experimenting with two types of waxing methods, sugaring and hard waxing, with Brazilian waxing of a woman in her twenties, the waxing area using sugaring had less breakage compared to the hair root area, and the skin condition showed less damage. could confirm that In the area of the skin that was waxed using hard wax, it was confirmed that the shape of the hair was broken, the condition of the skin was very dry, and the keratin was removed.

After the Brazilian waxing procedure, the skin condition and the length of the growing hair were compared and analyzed at 7-day intervals. As a result, the condition of the skin was ingrown hair and

inflammation in the area where sugaring was applied, and the hair growth rate was slow. In the area treated with hard waxing, ingrown hair did not occur compared to sugaring, and the number of inflammations was significantly lower. The growth rate of cross-section hair was faster than that of sugaring, and it was confirmed that the thickness of the hair also grew thicker.

Ingrown hair after sugaring was a factor caused by insufficient follow-up care of the study subjects, and the effect and satisfaction with sugaring were high. In addition, a study subject who had frequent vaginitis had an opinion about vaginitis relief after sugaring, suggesting that Brazilian waxing is effective in reducing cold and odor, such as vaginitis. Women complain of hygienic discomfort because there is a lot of secretion before and after menstruation. Even in this case, waxing helps prevent female diseases[22].

In the future, after sugaring and other waxing methods, a comparative study will be conducted on the side effects that occur when the follow-up care is done well and when the follow-up care is insufficient.

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6. Appendix

6.1. Authors contribution

	Initial name	Contribution
Lead Author	SK	<ul style="list-style-type: none"> -Set of concepts <input checked="" type="checkbox"/> -Design <input checked="" type="checkbox"/> -Getting results <input checked="" type="checkbox"/> -Analysis <input checked="" type="checkbox"/> -Make a significant contribution to collection <input checked="" type="checkbox"/> -Final approval of the paper <input checked="" type="checkbox"/> -Corresponding <input checked="" type="checkbox"/>
Corresponding Author*	JL	<ul style="list-style-type: none"> -Play a decisive role in modification <input checked="" type="checkbox"/> -Significant contributions to concepts, designs, practices, analysis and interpretation of data <input checked="" type="checkbox"/> -Participants in Drafting and Revising Papers <input checked="" type="checkbox"/> -Someone who can explain all aspects of the paper <input checked="" type="checkbox"/>

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