

# Direct and Indirect Roles of Men in Determining Women Decision to Use Laser Procedures for Skin Care

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**Abstract:** Laser procedures for skin care is becoming increasingly popular and used by the global community and affect many aspects of human life. However, there is very little research on the role of men in women's decision to follow this dermatological procedure. This study aimed to identify the role of men in motivating women to choose laser-based procedure. A systematic literature review research design was applied in this study. A total of 27 papers were obtained by searching PubMed Central for the 2013–2022 editions. The extraction of samples and the motivation of patients or research respondents in choosing laser procedures for cosmetic treatments were conducted to obtain clues about the role of men in making these decisions. Only six studies explicitly reveal the role of men as motivators of women to perform laser-based dermatological procedures. Four of these six studies were conducted in Asia in countries with a high degree of collectivism. The remaining two studies reveal a minor role for men in women's motivation to choose dermatological procedures. Other studies only indirectly implicate the role of men through intrasexual competition, increased self-esteem, and the needs of the world of work. Limitations of the study lies in the non-specificity of the study sample in the female population, laser-based treatments, and the role of men in motivating women. The role of men in motivating women to perform laser-based skin care procedures is stated explicitly in collectivist cultures while only implicitly in individualist cultures. These findings indicate that the strategy of utilizing the added value of men to laser treatment procedures should be directed at the relationship between men and women in real terms in collective cultured countries.

**Keywords:** laser treatment, dermatologic procedure, beautification, culture, intrasexual competition

## Introduction

The beauty industry has become one of the most crisis-resistant industries.<sup>1</sup> Various marketing strategies are carried out to get consumers in the beauty sector. Various technologies are also utilized to support this strategy.<sup>2</sup> Social media allows millions of people to follow the latest fashion and makeup trends.<sup>3,4</sup> In addition, the emergence of information technology allows the existence of selfie portraits and filtered images to produce faces that are prettier than they are.<sup>5</sup> In addition, skincare is another cheap option that can be applied directly to the skin. In choosing the type of skincare, women use the traditional approach, which is trial and error, and the efficacy-based approach. The traditional approach uses subjective analysis wherein a person tries one product and switches to another when that product fails. The efficacy-based approach uses skin biophysical parameters and imaging techniques to get a suitable product. Recently, a precision approach has been developed that uses biomarkers.<sup>6</sup>

The use of lasers is an alternative to skincare-using creams. Laser technology has evolved dramatically in the last six decades to use for cosmetic purposes.<sup>7</sup> Significant changes have occurred, especially since the advent of picosecond laser technology in the late 1980s, where targeted destruction of specific tissues was possible without damaging the surrounding tissue using selective photothermolysis.<sup>7</sup> The picosecond laser works with a specific wavelength in a controlled manner on the target (hemoglobin or melanin) in a brief time interval (10–12 seconds), shorter than the

time required for the target to cool after irradiation.<sup>7</sup> The picosecond laser, initially used for tattoo removal, has begun to treat acne scarring, photoaging, and benign pigmented lesions/disorders.<sup>8</sup>

Researchers have found that women's efforts to beautify themselves have sexual roots from a biological and sociocultural point of view.<sup>9–11</sup> Although the roots of this behavior are well understood, there is still not a complete review of the role of the opposite sex in encouraging someone to decide to beautify themselves using laser technology. So far, the research has focused more on cultural and social factors which have not led to the sexual roots of these factors.<sup>12,13</sup> This study will aim to answer the following research question – what is the role of men in the choice of laser procedures for skin care by women? The results of this study allowed us to formulate the added value that men provided in developing this procedure.

## Theory

Men demand to women for improving their physical appearance can be explained from a biological and cultural perspective.<sup>14</sup> Biologically, men prioritize the physical attractiveness of the opposite sex in building long-term romantic relationships.<sup>15</sup> Women respond to the needs by performing beautification, a manipulation of physical attractiveness. However, beautification is only associated with short-term sexual attraction.<sup>10</sup> Short-term sexual relationships are also sociosexual as they target society, not specific individuals.<sup>11</sup>

The sociocultural perspective on beauty care behavior looks at the role of social factors in encouraging cosmetic surgery.<sup>16–18</sup> From a sociocultural perspective, human behavior in caring for the body is related to personal values and beliefs and the conditions of the cultural environment in which humans live.<sup>19</sup> Every culture has standards for a decent woman's appearance.<sup>20</sup> For example, cultural factors are beauty standards in different times and places are also different. From prehistoric times to the early modern century, tall women were seen as more attractive because they reflected fertility and guaranteed the species' survival. When the industrial era emerged with abundant food but health risks, slim women were considered more attractive than obese women. Recently, as the food industry has become more compliant with health standards, obese women have begun to be considered more attractive.<sup>21</sup>

Similarly, women with tattoos are considered good in one culture but bad in another.<sup>22,23</sup> In the West, women's tattoos signal openness and interest in sexual intercourse.<sup>24</sup> Women with tattoos are stigmatized because, in contemporary culture, women who have multiple sexual partners are considered bad.<sup>25–27</sup> Although tattoos are considered works of art by modern consensus, remnants of the past that were symbols of aggression, violence, and crime still linger on many people in the West.<sup>22</sup> Therefore, even though it is considered harmful, society also recognizes that women with tattoos look more robust and independent than women without tattoos.<sup>22</sup>

In individual cultures, the self-concept of each person prioritizes independence from their group. In contrast, in collectivist cultures, the individual's self-concept is tied to an awareness of interdependence with the group.<sup>28</sup> Values and norms become highly emphasized in collective culture to maintain community cohesion in one unit. These values and norms regulate one of which is taking care of the body and behaving sexually between men and women. These cultural differences have implications for the strong emphasis on relationships between individuals and other individuals or society in motivating behaviors such as performing dermatological treatments in countries with collective cultures. Individuals in individualist countries will emphasize individual problems such as physical, social, and emotional well-being as behavioral motivations to cover up other people's roles in these behaviors. However, because the sexual selection is universal, the role of cultural orientation here is more of a justification for this essentially sexually motivated behavior.

Women who do not have the physical qualities men want can win the competition by utilizing several perceptual adaptation tricks, including coloring, cosmetics, and clothing.<sup>29</sup> Studies have shown that cosmetic products and procedures can enhance men's desired qualities, such as youth, femininity, health, and general attractiveness.<sup>30</sup> Makeup, for example, can make older women look younger.<sup>19</sup> Makeup manipulates sensory aspects such as touch, smell, and sight, which are essential for stimulating positive and psychological stimulation.<sup>31</sup> The protrusion of women's feminine facial features in makeup creates a halo effect where the viewer assumes that the woman also has other positive traits.<sup>32</sup> Using makeup allows women to attract more potential romantic partners, thereby obtaining high-quality romantic partners.<sup>19</sup> Research has shown that women who use makeup are more sexualized and more sexually active than women without makeup.<sup>11,33</sup>

On the other hand, women also develop the ability to recognize their rival's perceptual adaptation tricks.<sup>34</sup> This ability to recognize tricks explains the emergence of the cosmetic surgery paradox.<sup>1</sup> On the one hand, cosmetic surgery is a popular trend for women to improve the quality of their beauty. Nevertheless, on the other hand, the public also considers this engineering a forgery and does not accept any body modifications for the sake of beauty. As a result, cosmetic surgery is often a private procedure kept secret by the people who undergo it.

Competing for a partner can hurt women's psychology because it shows a failure to build a sense of agency. This negative impact can result in irregular eating patterns and lead to problems such as obesity or malnutrition.<sup>35</sup> Competition for a partner that is too high impacts body image dissatisfaction.<sup>36</sup> Women are willing to do beautification to gain self-confidence even though sometimes the procedures applied can pose a risk of physical injury.<sup>37</sup>

Some social critics take issue with the objectification of women in cross-gender relations. Objectification assesses women based on their physical attributes or body parts rather than personality and other more profound aspects of humanity.<sup>33,38,39</sup> According to objectification theory, beautification is oppressive and disempowering to women.<sup>40</sup> In line with this, women with makeup are more likely to experience objectification than women who do not use makeup due to the presence of association of makeup use with sex.<sup>33,38,39,41-43</sup> Research shows that objectified women are dehumanized.<sup>33</sup>

However, studies show that women can feel confident when they are made sexual objects to the extent that their romantic partners do.<sup>44</sup> Women their partners ask to wear attractive clothes and makeup, for example, experience increased assertiveness and positive mood.<sup>40</sup> This increase in self-confidence arises because women feel valued, even though the award is more on the physical or sexual aspects.<sup>44</sup>

Even if this partner is not yet available, women can objectify or sexualize themselves and experience a sense of comfort, freedom, and empowerment.<sup>45</sup> Self-sexualization is sexual behavior that is clear and considered normal with a mindset of an intention to increase sexual attractiveness.<sup>45</sup> Self-sexualization is the primary psychological motivation to attract potential romantic partners and beat romantic competitors.<sup>46</sup> This behavior is, for example, sharing sexual portraits or images online.<sup>46</sup>

This positive effect makes women try to allow themselves to be objects (pressured to appear according to their wishes and beauty standards) by their partners in sexual moments.<sup>45</sup> Beautification provides positive experiences for women, especially during stressful economic downturns.<sup>46</sup> As a result, there is a so-called lipstick effect, namely the tendency to increase beautification practices and consumption of cosmetics when economic problems occur.<sup>40</sup>

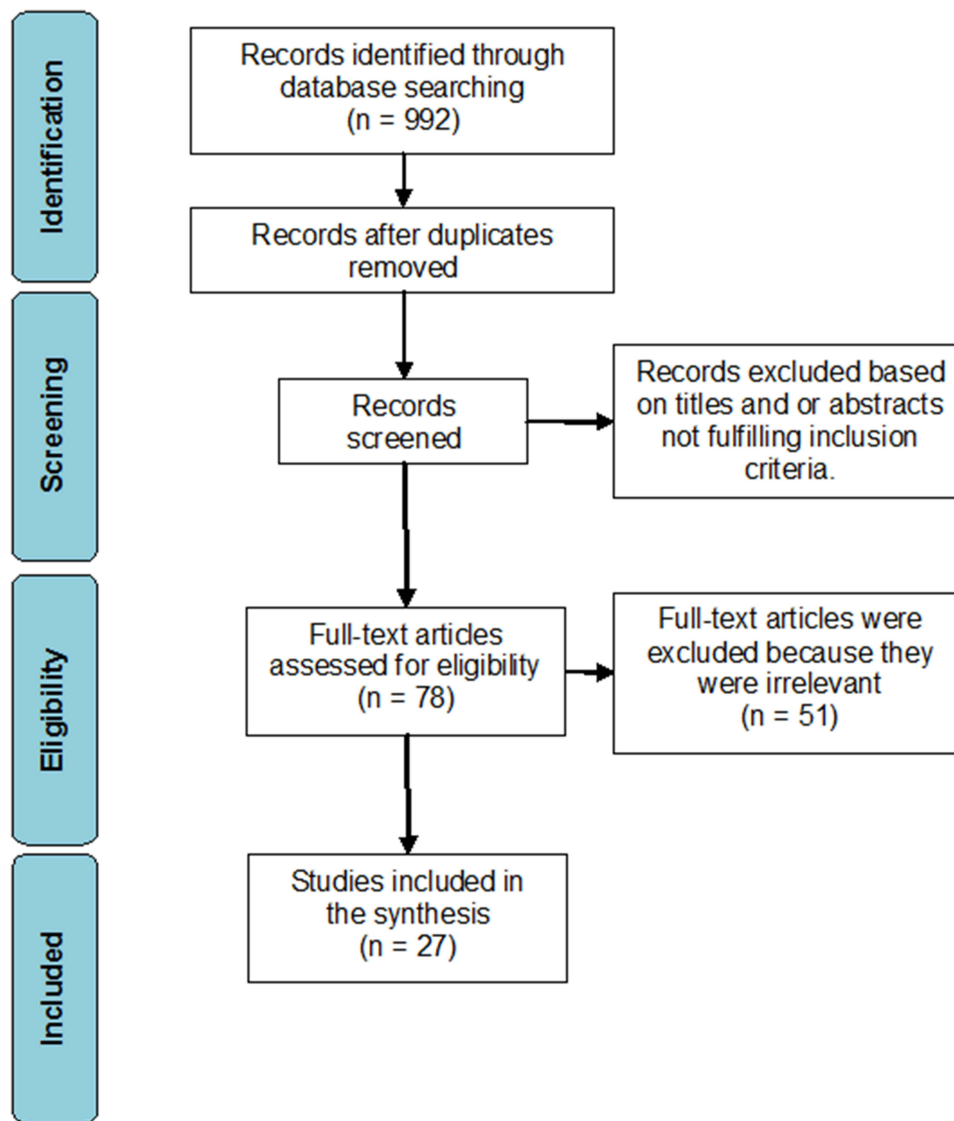
Since skin care can have a sexual motivation, there is an indirect relationship between women and men in encouraging women to use laser skin care. The gender role of men (man, masculine) or romantic/sexual partners can be directly seen in women's motivational narratives or implicitly in the primary goal of increasing beauty or skin smoothness. This issue will be explored further in this study by reviewing the previous research literature.

## Materials and Methods

The literature search and analysis were systematically carried out by minimizing the subjectivity factor and maintaining methodological precision and completeness. This methodological precision and completeness were ensured using the PRISMA framework (Figure 1). The search is carried out by critical actions in keyword identification and search databases. Articles selection using the PRISMA framework determines the assessment. The synthesis was then done using data extraction and categorization (Table 1). Next, the analysis is carried out by comparing the results and drawing conclusions from the data.

Before starting a search through the database, it is important to determine the scope of the research and identify the appropriate keywords to be used during the search process. A literature search was conducted at PubMed Central with the keywords "laser" or "minimally invasive aesthetic procedures" and "motivations". In addition, keywords such as "male", "opposite sex", "opposite gender", "partner", "husband", "romantic", "man", "beauty", "attractive", and "boyfriend" were used. If the keyword refers to a specific reference, that reference is included. Research is included if there is a description of how motivated the decision to use laser procedures is. In addition, to carry out the broadest possible literature analysis and obtain as many research papers related to the research topic as possible, a paper search was also conducted on similar articles recommended by PubMed Central.

Papers retrieved during the search were evaluated, and the PRISMA framework for paper selection was followed. Limits include publication dates within the last ten years and in English. The ten-year limit was chosen because laser-



**Figure 1** Study protocol flow diagram.<sup>75</sup>

**Note:** Adapted from Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Med* 6(6): e1000097.doi:10.1371/journal.pmed1000097.

based beauty technology has developed rapidly in the last decade and is therefore relevant for obtaining the latest research. Older studies may be included in the reference list if they provide meaningful content. This study does not distinguish excluding review articles and book chapters but excludes conference proceedings and non-English papers.

Content analysis is performed on the articles found in the search. Data from the selected articles were extracted and categorized according to country of location, the sample size and proportion of women in the sample, type of care, motivation, and the role of men in that motivation. This type of treatment can be more common than laser procedures, but laser procedures must fall within the type of treatment studied by the paper. For example, laser procedures are minimally invasive aesthetic surgery and are therefore included. To the extent that the paper does not limit it to a particular type of minimally invasive aesthetic surgery, it is acceptable for further analysis.

## Results

A total of 138 entries were considered duplicates of the 992 search results. Many articles were then excluded because they did not meet the criteria based on the title and abstract. Furthermore, some articles were issued as irrelevant

**Table 1** Summary of Articles

Article	Year of Study	Population	Sample	Types of Treatment	Motivations	Male Roles
Agrawal and Agrawal <sup>55</sup>	2021	Social media users in Nepal	550; the female-to-male ratio of 1.24:1	Knowledge about common cosmetic dermatological procedures, including acne scarring treatment, hair transplantation, and laser hair removal	Multiple choice (percentage of top motivation): a. To improve the quality of life (26.4%) b. Feel happy or better overall (37.6%) c. Look young or fresher (30.9%) d. Be able to look good without makeup (30.9%) e. Repair damage to the skin (39.2%) f. To look better, prettier, or more attractive to oneself (29.7%)	Indirect
Alharethy <sup>50</sup>	2017	Saudi cosmetic surgery patients	1864 patients, 90.5% were females	Cosmetic procedures, including moles excision (0.8%), mentoplasty (0.5%), rhinoplasty (30.4%), facelift (0.7%), fillers (5.8%), scar revision (1.3%), otoplasty (0.6%), blepharoplasty (0.6%), liposuction (14.3%), laser hair removal (26.2%), and botox (19.0%)	Reason: a. To look younger than their spouse (28.6%) b. To improve self-esteem (4.5%) c. To cope with life changes (3.4%) d. To look younger than their age/friends (27.0%) e. To look more beautiful (31.0%) f. To please a significant other (2.8%) g. To accompany a milestone (wedding, 40th birthday, reunion) (2.0%) h. Other reasons (0.7%)	Spouse, friend, significant other, or husband
Amiri et al <sup>51</sup>	2021	University students in the United Arab Emirates	178 (91% were female)	General cosmetic procedures	Question: Do you think other people knowing you have done a cosmetic procedure will affect your chances of getting married? a. Yes, it will increase my chances (1.1%) b. Yes, it will decrease my chances (26.4%) c. No, it will not affect my chances of getting married (18.5%) d. I do not know (50.0%) e. Other (2.2%) f. Not answered (1.7%)	Future husband
Chen et al <sup>56</sup>	2021	Amazon Mechanical Turk participants	295 respondents (49.5% female)	Personal history of aesthetic treatments (eg, Neurotoxin injection, laser skin resurfacing, chemical peels)	Video calling use	Indirect

(Continued)

Table 1 (Continued).

Article	Year of Study	Population	Sample	Types of Treatment	Motivations	Male Roles
Childs and Jones <sup>57</sup>	2022	Online participants	306	Age concealment method	Women evaluated the targets most positively when age concealment was motivated by self-esteem, followed by employment, and least positively for romantic purposes. In contrast, men did not differ in their evaluations based on motivation.	Indirect, through the female participant intrasexual competition
Dobosz et al <sup>58</sup>	2022	Patients of the private aesthetic medicine clinic in Gdansk, Poland	199, female majority	Various aesthetic treatments	The most common motivations are the desire to achieve a fresh look, the will to reduce the signs of aging, and to invest in oneself.	Indirect
Fabi et al <sup>59</sup>	2021	Patients underwent Magnetic Muscle Stimulation (MMS)	110 participants, 75% female	Magnetic muscle stimulation for improvement of body satisfaction with the abdomen and buttocks	Top three motives: a. Appear more toned (90.3%) b. Look better in their clothes (62.5%) c. Feel more confident (54.8%)	Indirect
Goh dan Ho <sup>60</sup>	2016	Guideline	Guideline	Lasers for tattoo removal	Motivation for tattoo removal includes: a. New jobs or careers b. The need to portray a particular image at work or in new social circles c. New negative feelings towards old tattoos.	Indirect
Hoffman and Fabi <sup>61</sup>	2022	Review	Review	Minimally invasive aesthetic procedures (including botulinum toxin type A, soft tissue fillers, laser skin resurfacing, chemical peels, and intense pulsed light)	To improve physical appearance, mental and emotional health, and social well-being.	Indirect
Huang et al <sup>62</sup>	2022	Patients presenting to Ya'stovo Tattoo Removal, a large nonprofit clinic	862 patients	Lasers for tattoo removal	The most common reasons for tattoo removal were: a. Employment (66%) b. Readiness to change life (47%) c. Maturity (47%) d. Family (43%) e. Negative attention from tattoos (37%)	Indirect

Jin et al <sup>52</sup>	2022	Chinese college students	8089 students (55.6% female); 2.7% students (63.30% female) underwent minimally invasive facial cosmetic surgery (MIFCS)	MIFCS, including hyaluronic acid (HA), botulinum toxin, and laser treatments	Reasons for undergoing MIFCS: a. Unsatisfied with appearance (35.70%) b. For work (6.80%) c. For finding a mate (5.00%) d. For boosting confidence (28.50%) e. Others (24.00%)	A mate
Khunger and Pant <sup>63</sup>	2020	Guideline for adolescent cosmetic procedures	Guideline	All types of cosmetic procedures. Teens' top five nonsurgical procedures are laser hair removal, laser skin resurfacing, botulinum toxin, laser treatment of leg veins, and chemical peels. The top five surgical procedures include rhinoplasty, breast augmentation, breast reduction of male gynecomastia, otoplasty, and liposuction.	Want to fit in with their peers	Indirect
Kwon et al <sup>53</sup>	2021	East Asian social media users, including China, Japan, South Korea, Hong Kong, and Taiwan.	Total of 3088 participants from five countries. 47.8% had experienced at least one aesthetic procedure in the past. The female proportion from 54.3% to 70.8% of the country sample.	The aesthetic procedures were grouped into surgical procedures, injectable therapies, or laser therapy.	Internal factor: a. Self-investment (26.5%) b. Self-confidence (33.9%) c. Bring forth good fortune (4.1%) External factor – social a. Peer effect (12.8%) b. Intrigued by a celebrity (2.2%) c. Intrigued by an advertisement (3.9%) d. Suggested by partner/family member/friends (9.2%) External factor – career a. Changing to a new environment (4.5%) b. Needed for job-seeking (2.9%)	External factor, suggesting a partner or friend

(Continued)

Table I (Continued).

Article	Year of Study	Population	Sample	Types of Treatment	Motivations	Male Roles
Maisel et al <sup>64</sup>	2018	Adult patients presented for cosmetic consultation or treatment in 13 dermatology practice sites in the United States.	511 (86.1% female)	Acne scarring treatment (n = 42), botulinum toxin (n = 165), cellulite treatment (n = 14), chemical peel (n = 15), facial contouring surgery (n = 8), laser hair removal (n = 32), lasers for brown spots or melasma (n = 85), laser for redness, rosacea, or red spots (n = 40), lasers for rejuvenation (n = 39), leg vein treatment (n = 17), liposuction (n = 12), microdermabrasion (n = 8), noninvasive fat reduction (n = 22), soft-tissue fillers (n = 94), tattoo removal (n = 11), wrinkles and jowls or skin-tightening treatment (n = 55)	<p>Specifics for laser treatments:</p> <ol style="list-style-type: none"> <li>1. Laser hair removal               <ol style="list-style-type: none"> <li>a. Have clear-looking or beautiful skin (65.6%)</li> <li>b. Look better or prettier or more attractive to oneself (65.6%)</li> <li>c. Increase self-confidence (46.9%)</li> <li>d. Get rid or reduce a feature always disliked (56.3%)</li> <li>e. Feel happier or better overall or improve the total quality of life (43.8%)</li> </ol> </li> <li>2. Lasers for brown spots or melasma               <ol style="list-style-type: none"> <li>a. Have clear-looking or beautiful skin (81.2%)</li> <li>b. Look younger or fresher (62.4%)</li> <li>c. Look better, prettier, or more attractive to oneself (61.2%)</li> <li>d. Repair damage to looks (58.0%)</li> <li>e. Maintain current appearance longer (47.1%)</li> </ol> </li> <li>3. Lasers for redness, rosacea, or red spots               <ol style="list-style-type: none"> <li>a. Have clear-looking or beautiful skin (85.0%)</li> <li>b. Look better, prettier, or more attractive to oneself (62.5%)</li> <li>c. Repair damage to looks (60.0%)</li> <li>d. Be able to look good without makeup (50.0%)</li> <li>e. Look younger or fresher (52.5%)</li> </ol> </li> <li>4. Lasers for rejuvenation               <ol style="list-style-type: none"> <li>a. Have clear-looking or beautiful skin (76.9%)</li> <li>b. Look younger or fresher (76.9%)</li> <li>c. Look better, prettier, or more attractive to oneself (59.0%)</li> <li>d. Repair damage to looks (51.3%)</li> <li>e. Maintain current appearance longer (59.0%)</li> </ol> </li> <li>5. Tattoo removal               <ol style="list-style-type: none"> <li>a. Feel happier or better overall or improve the total quality of life (36.4%)</li> <li>b. Look more like oneself again (27.3%)</li> <li>c. Increase self-confidence (27.3%)</li> <li>d. Feel more relaxed, less anxious, and less obsessed with worry (18.2%)</li> <li>e. Restrictions related to having to wear only specific clothing, wearing hair only one way. (9.1%)</li> </ol> </li> </ol>	Indirect

Martinez-Gonzalez et al <sup>65</sup>	2014	General population	770 (71.6% women)	Aesthetic dermatology, including treatments (peeling, laser, fillers)	Motivations items include: a. Enjoying themselves b. Going out c. Cheerful d. Look for relaxing distractions e. Good mood f. Convey happiness g. Enjoy meals	Indirect
McKeown <sup>66</sup>	2021	Patients presenting at a single center for the first time for aesthetic treatment of the face with minimally invasive aesthetic procedures	33 (91% women)	Minimally invasive aesthetic procedures	Psychological motivations for seeking treatment include lost self-confidence and social avoidance resulting from deterioration of their facial appearance or embarrassment owing to disproportionate facial features.	Indirect
Merianos et al <sup>67</sup>	2013	Plastic surgery advertising	21 brochures from three cosmetic surgery centers	Invasive and non-invasive procedures, including, among others, laser hair removal	Consumer motivation for cosmetic surgery is elective	Indirect
Pearlman et al <sup>68</sup>	2022	Review	Twenty studies published from 2002 to 2021 focused on cosmetic surgical procedures among young adults.	Cosmetic surgery included minimally invasive cosmetic procedures such as laser hair removal.	Factors include: a. Body dissatisfaction b. Importance of appearance to self-worth c. Concern with social standing and attractiveness d. Investment in appearance e. Media influence on body image f. Positive attitudes towards celebrities	Indirect

(Continued)

Table I (Continued).

Article	Year of Study	Population	Sample	Types of Treatment	Motivations	Male Roles
Pikoos et al <sup>54</sup>	2020	Patients in nonsurgical cosmetic clinics in Melbourne, Australia	146 (141 women)	Minor cosmetic procedures	<p>Extrinsic expectations</p> <ul style="list-style-type: none"> <li>a. People will enjoy working with me more</li> <li>b. People will want to include me</li> <li>c. This procedure will boost my social media profile</li> <li>d. New people will want to get to know me</li> <li>e. People close to me will want to be seen with me</li> <li>f. I will get more social media followers</li> <li>g. My luck will change for the better</li> <li>h. My job prospects will improve</li> <li>i. I will enjoy my job more</li> <li>j. My close relationships will improve</li> <li>k. I would be happier to use social media</li> </ul> <p>Intrinsic expectations</p> <ul style="list-style-type: none"> <li>a. My confidence will improve</li> <li>b. I will look wonderful</li> <li>c. I will like the way I look in the mirror</li> <li>d. My overall mood will improve</li> <li>e. I will be happier</li> <li>f. I will feel more confident in attending social events</li> <li>g. I will not feel embarrassed about the way I look</li> <li>h. I will look better in photographs</li> </ul>	Partner in close relationships
Ramirez et al <sup>69</sup>	2021	Asian and Caucasian patients who sought treatment	624 (86.9% female)	Openness to treatment by Botox, filler, laser, and other treatments	<p>Intrinsic motivation</p> <ul style="list-style-type: none"> <li>a. I want to do it myself</li> <li>b. Look the way I feel</li> </ul> <p>Extrinsic motivation</p> <ul style="list-style-type: none"> <li>a. Preparing for a milestone</li> <li>b. Dealing with a life-changing event</li> <li>c. To please others</li> </ul>	Indirect
Redaelli et al <sup>47</sup>	2020	Users and non-users of aesthetic medical procedures from Colombia, Russia, Thailand, Turkey, and the United Arab Emirates	Survey 1: 300 (94% female) Survey 2: 160 (99% female)	Laser/light/energy-based procedure, body implant, botulinum toxin, breast augmentation/reconstruction, chemical peel, dermal filler, facial implants, liposuction, microdermabrasion, and non-invasive fat reduction.	<p>The prime factor for undergoing the first aesthetic medical procedures:</p> <ul style="list-style-type: none"> <li>a. For a special event (3–13%)</li> <li>b. Dissatisfaction with appearance (20–60%)</li> <li>c. To improve career prospects (0–3%)</li> <li>d. To improve confidence (0–30%)</li> <li>e. To look younger (3–30%)</li> <li>f. Other reasons (13–30%)</li> </ul>	Indirect
Sarwer <sup>70</sup>	2018	Review	Review	Minimally invasive treatments	Body dissatisfaction	Indirect

Shah et al <sup>71</sup>	2021	Adult subjects visiting a cosmetic dermatology practice with a history of at least one cosmetic procedure and consideration of at least one cosmetic procedure in the past 12 months	153 adults (89.5% female)	Injectable neurotoxins, soft tissue fillers, and laser or light therapy	Improving psychological health and well-being	Indirect
Sobanko et al <sup>49</sup>	2015	Patients at an urban academic medical center in United States	72 (70 female)	Adjuvant skin-care treatments: cosmeceuticals (46.4%), chemical peels (22.5%), topical retinoids (41%), lasers (11.2%), medical esthetician (18.3%), and spa treatments (12.5%)	Motivations: a. Mental health reasons (50%, which is four times greater than non-aesthetic treatments) b. Pressure from spouses (2.7%) or children (1.4%)	Spouse
Waldman et al <sup>72</sup>	2019	Adults who had undergone or were considering minimally invasive cosmetic dermatologic procedures.	30 patients	Minimally invasive cosmetic dermatologic procedures.	Motivations categories: a. Mental and emotional health b. Cosmetic appearance c. Physical health d. Work or school success e. Social well-being f. Cost and convenience g. Procedural perceptions h. Timing of treatment	Indirect
Walker et al <sup>73</sup>	2021	Women users of social media	118 (100% female)	Rhinoplasty, soft tissue fillers, botox, laser skin resurfacing, and microdermabrasion	Body dissatisfaction	Indirect
Yazdandoost et al <sup>74</sup>	2016	Iranian population	90 participants (all females, 30 invasive aesthetic surgery, 30 minimally invasive aesthetic surgery, and 30 control)	Invasive and minimally invasive aesthetic surgery	Lack of physical satisfaction	Indirect

(Figure 1). The remaining 27 articles were discussed and commented on (Table 1). It should be noted that none of the studies specifically focused on lasers alone but covered many types of cosmetic treatments.

The research reviewed in this study comes from some countries such as Nepal, Saudi Arabia, United Arab Emirates, Iran, Turkey, Russia, Poland, Spain, United Kingdom, China, East Asia, Thailand, Singapore, Australia, Colombia, and the United States. A total of nine studies were conducted exclusively in the United States, seven in Asian countries, one in Australia, and four in Europe. One study used samples from countries on three continents at once: America (Colombia), Europe (Russia), and Asia (Thailand, Turkey, and the United Arab Emirates).<sup>47</sup> The remaining five studies are non-empirical. It can be seen that there is a gap in the sample of the population on the African continent. The African population is crucial because it has its ethnic skin in laser-based treatments.<sup>48</sup>

Studies conducted in Asia have a marked difference from studies conducted in America and Europe, where the male influence is more directly visible in Asia. There is only one study in America that shows men directly motivate women to choose laser procedures,<sup>49</sup> while in Europe none at all. On the other hand, four out of seven studies in Asia, involving samples from East Asia and West Asia, indicated explicitly that men were the reason women chose laser procedures.<sup>50–53</sup> It is also interesting to note that the only study in Australia also shows direct male influence, in the form of partners in close relationships, as a source of motivation for choosing cosmetic procedures.<sup>54</sup>

## Discussion

Several studies included in this review used an entirely female sample.<sup>73,74</sup> Most studies use a mixed sample in which women dominate. The percentage of women can even reach more than 90% in some studies. However, some studies use relatively balanced samples and male dominance.<sup>56</sup> There are also articles in the form of content analysis in brochures or literature reviews.<sup>61,67,68,70</sup>

There are no studies that focus entirely on laser procedures. The motivation for following a laser procedure is the same as for any other dermatological procedure. This equal treatment is questionable, based on the only study specific to the motivation for each type of treatment by Maisel et al.<sup>64</sup> The study specifically reviewed motivations for dermatological treatment across 16 types of treatment, including five that were explicitly laser-based. They found that patients who requested laser treatment for pigmentation or erythema were most motivated by cosmetic appearances, including the desire to have brighter, younger, more beautiful skin and to remove the damage to their appearance. In addition, patients who are interested in using lasers for brown spots are more important to maintain their appearance. In contrast, lasers for red spots users are more motivated to look good without wearing makeup. The results mean that the use of lasers as a dermatological procedure strongly favors cosmetic needs. This trend differs from other procedures such as liposuction, non-invasive fat reduction, and cellulite which generally focus on emotional well-being and increasing self-confidence.

Tattoo removal is a dermatological procedure with a different motivation from other laser-based procedures. The common reasons put forward are not related to cosmetic needs but rather to the needs of the world of work, such as a job or career changes.<sup>60</sup> Other reasons that arise from tattoo removal efforts that cannot be found in other laser procedures are the need to show a specific image in the workplace or social environment. Other reasons are negative feelings about tattoos, maturity, readiness to change a life, negative attention, increasing quality of life, self-confidence, less obsession with worry, and restriction related to having to wear only specific clothing or hairstyle.<sup>60,62,64</sup>

The male partner's role was generally not disclosed in the studies reviewed. Only a few studies have shown this role as a spouse, significant other, or potential husband. A study in Saudi Arabia with a sample of 90.5% women showed that 28.6% of respondents chose cosmetic procedures to look younger than their spouse, and 27.0% said to look younger than their age/friend. In addition, 2.8% stated the goal to please a significant other, and 2.0% stated to accompany a milestone, which includes a wedding.<sup>50</sup> A study in the United Arab Emirates with a sample of 91% of women also revealed that 26.4% of respondents believed that if they were caught doing cosmetic procedures, they would have more difficulty finding a marriage partner. On the contrary, 1.1%, or just two respondents, believed that this disclosure would increase the likelihood of getting married.<sup>51</sup>

A Chinese study with 63.3% of women sample revealed that the reasons for finding a mate were chosen by 11 or 5.0% of the sample.<sup>52</sup> Another study that took samples from five countries in East Asia with female proportions between 54.3% to 70.8% revealed that 9.2% or 136 respondents performed aesthetic procedures because they were suggested by a

partner, family member, or friend.<sup>53</sup> A study in Australia on a sample of 96.6% of women showed that some patients believe that minor cosmetic procedures will make people close to them want to be seen with them and their close relationships will improve.<sup>54</sup> Finally, a study in the United States on a sample that included 97.2% of women stated that two or 2.7% of patients said they took cosmetic procedures because of pressure from their spouses.<sup>49</sup> As the proportion in the research extremely low, the number could be used to argue that sexual factors do not play a significant role in the respondents' motivation to choose cosmetic procedures. Even so, the main reason in the research, namely mental health, can be triggered by sexual problems such as dissatisfaction in relationships or failure to meet social expectations regarding what is expected in sex, gender roles, and sexual attitudes and norms.<sup>26</sup>

In addition to the above aspects, it is also known that four of the six studies that reveal the role of men in aesthetic procedures come from Asia, namely Saudi Arabia, United Arab Emirates, and East Asian countries. This finding seems to contradict the view that the dehumanizing effect of sexualization is most intense in Western countries.<sup>33</sup> However, one research shows no difference in the effects of dehumanization in Western and Eastern countries.<sup>76</sup> The problem lies more in the cultural characteristics of collectivism in the East. Communities in collectivist cultures emphasize the aspects of togetherness and identification of a person as a group member so that individuals are more strongly bound to social standards or norms regarding what is permitted in sexual behavior.<sup>28</sup> Individualism scores (as opposed to collectivism) for these countries are much lower than Australia (scored 90) and the USA (scored 91), namely 48 for Saudi Arabia, 36 for the United Arab Emirates, 20 for China, 25 for Hong Kong, 17 for Taiwan, 18 for South Korea, and 46 for Japan.<sup>77</sup> Studies in Australia show that the male partner's motivation also has a shallow score. In the study, the mean for "people close to me will want to be seen with me" was 1.55, while the score for "my close relationships will improve" was 1.72. This mean value is much lower than the value of intrinsic motivation items above 2.50.<sup>54</sup> It can be concluded that the collectivist cultural orientation factor plays a vital role in making explicit the role of men in using laser procedures for women for skin care.

In line with the role of collectivism in making explicit the sexual motivations of cosmetic procedures, individualism encourages this sexual motivation to be implicit by focusing these motivations on individual rather than relational aspects. Study reveals aspects of intrasexual competition in encouraging negative judgments about age concealment for romantic purposes.<sup>57</sup> Intrasexual competition causes a woman to feel displeased with other women of the same age because she is a competitor in the mating strategy. This competition gives rise to the phenomenon of MWD (Madonna-Whore Dichotomy), where a woman is judged in two extreme poles: very good or very bad. MWD monitors and limits women's sexual expressions, including expressions in the form of age concealment, on their influence and power over men and reduces solidarity between women.<sup>78</sup> Women who feel competitive "slut shaming" other women who are considered too beautiful.<sup>78</sup> MWD is not productive for laser-based beauty businesses or other technologies because the women who use the procedure will not tell other women about it. In married women, MWD decreases relationship satisfaction because women become focused on beating competitors. On the other hand, this phenomenon has an influential male role because it supports patriarchal ideology and strengthens male power over women.<sup>78</sup>

The rest of the studies reviewed indirectly express the role of men with the word beauty, such as have a clear looking or beautiful skin or looking young or fresher.<sup>47,55,64</sup> Other reasons are to look better, prettier, or more attractive to oneself.<sup>55,64</sup> Although the narrative is self-directed, the theory of sexual selection emphasizes that this is a sexual signal to the opposite sex.<sup>32</sup> The statement to look beautiful for oneself is a mating strategy to attract men who are driven to like beautiful young women.<sup>79</sup> By showing a fresher appearance, women bring themselves into a sexualized condition and experience objectification.<sup>80</sup> This action, however, poses a risk of dehumanization, especially from other women who feel rivaled, but can reward the desired sexual attraction of a male partner.<sup>44</sup> As a result, women face two risks: adverse events due to cosmetic procedures and being challenged by rival women and irresponsible men.<sup>81</sup> Adverse events can be bruising, bump (nodule), infection, discoloration, scarring, burn, ulceration/necrosis, misplacement of product, skin deformity, nerve damage, and facial droop.<sup>81</sup> The risk of dehumanization can be in the form of sexual harassment and slut shaming.<sup>78</sup>

Other factors that appear to be sexually unrelated, such as self-esteem and employment, can have sexual roots. Increased self-esteem is a positive impact commonly found in minimally invasive facial cosmetic procedures.<sup>82</sup> Self-

esteem can be seen more as body esteem or shame, related to self-objectification.<sup>36</sup> That is, the feeling of self-esteem appears as a form of positive body image which will attract the attention of the opposite sex.

Meanwhile, work requirements often require female workers to look psychosexually attractive, for example, by wearing high heels or having clean and smooth skin.<sup>37</sup> In this case, the world of work utilizes men's sexual instincts to gain business benefits without violating the norms of gender equality and not appearing to exploit women. This emphasis on the world of work is in line with the neoliberal emphasis on investing in oneself, one of which is improving appearance to be more attractive.<sup>58,83</sup>

Improving mental and emotional health is also a common reason individuals use cosmetic procedures.<sup>52,61</sup> Men pay more attention to the appearance of their potential partners, and the media also portrays the version of beauty that men like. These two factors provide mental and emotional pressure on women to look attractive through cosmetic procedures. Success in meeting these two demands leads to better mental and emotional health in women.

Increased social well-being can occur when women gain greater freedom in choosing a partner due to beauty procedures. The reduction in aging produced by dermatological procedures also promotes social well-being by bringing in more potential partners that women can select to get the best quality men they want. Increased social well-being results in better social functioning and confidence.<sup>61</sup>

The added value of men in laser procedures can be drawn from how men take a role, either consciously or unconsciously, in motivating women to make decisions. This added value may vary depending on the culture. As has been shown in this study, women from collective countries tend to be more explicit in attributing the role of men in encouraging them to make dermatological treatment decisions. The reason is either to show a younger appearance than their partner, pressure women to improve themselves, and tend to be closer, will improve a close relationship with the woman, give advice on following aesthetic procedures, marry the woman, be happier, and become more romantic. The promotion of dermatological procedures with the added value of this male role will provide more significant benefits for businesses operating in collectivist cultured countries. The promotion of the role of men indirectly through increasing self-confidence and employment opportunities for women is an added value for the promotion of dermatological procedures in Western countries. That is, the role of men becomes an added value to the collective culture directly and to the individualist culture indirectly. In line with the research findings and support from the theory of sexual selection, if the role of men is shown differently in different cultures, it will add value to the promotion of dermatological procedures for beauty. In this case, the role of men becomes a social value that describes the added value of product offerings to the community. This value-added information enables women to be more interested in following laser procedures offered by service providers as far as relevant to the cultural orientation prevailing in their country. If it is not relevant, then there is a possibility of resistance due to intrasexual competition in individualist countries and reluctance in collectivist countries.

## Conclusion

The demand for laser-based cosmetic procedures has increased as lasers for dermatological therapy have become increasingly safe. However, no systematic literature review assesses the motivation of people, especially women, to use lasers for dermatological treatment. We tried to determine the role of men in motivating women to perform minimally invasive cosmetic procedures using lasers. This systematic literature review suggests that men directly or indirectly motivate women to use cosmetic procedures. Men directly motivate women to use cosmetic procedures by putting pressure to the women to beautify herself, using his power as a spouse, friend, significant other, husband, future husband, mate, or partner in close relationship. Indirectly, men motivate women to use cosmetic procedures by valuing women facial and body appearance as important in social-closeness.

However, this literature review is limited by the non-specificity of the study sample in the female population, laser-based treatments, and the role of men in motivating women. While majority of the studies almost exclusively women oriented, some other studies have more balanced proportion of sex. For the sake of the research purpose, which is oriented toward women motivation in relation to men pressure, the balanced sex sample would skew the result since some samples were men and the research reviewed did not delineate between men and women motivation. Almost all of the reviewed research, except one, study women motivation to do general cosmetic treatments, not specific to laser-based

treatment. Finally, no research mentioned explicitly that men motivated women to perform laser treatment. Researchers should infer the conclusion from clues such as husband, partner, and spouse. All of these limitations called for future empirical research that address all the limitations in this research in a comprehensive manner. A research on the women's motivation to perform laser-based treatment, which qualitatively explored the men's role in the decision, accounted for cultural differences such as performed in collectivist and individualist countries is the logical consequence of the limitations of this research.

The important thing that must be applied in the marketing practice of laser procedures for skin care is to emphasize the relationship between women and men in East and South American countries with collectivist cultures. Meanwhile, for an individualist country, marketing efforts need to emphasize individual aspects such as self-esteem and employment. This strategy will take advantage of the added value of sexual selection by men over women in the beauty industry, particularly those involving laser technology. More vigorous research on this role and added value can be done through empirical studies involving human samples, especially from the female population, and content analysis studies on skin care service brochures.

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