Rahul Seth
P. Daniel Knott *Editors*

Gender Affirming Surgery of the Face and Neck

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Foundational Knowledge for Providing Affirmative Care to Trans and Gender Diverse Patients

1

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Foundational Knowledge for Providing Affirmative Care to Trans and Gender Diverse Patients

Physicians who perform facial surgeries for trans and gender diverse (TGD) patients have the mandate to provide affirmative care, but they also have the opportunity to challenge anti-TGD bias in the medical settings in which they work. However, to be able to provide culturally competent care to TGD patients, providers must understand the history of TGD people and the language TGD persons use to describe themselves and their experiences [1–3]. We hope that this introductory chapter will

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lead surgeons through the historical challenges faced by TGD patients seeking medical care so that practitioners may be able to continue their self-education to be equitable and affirming providers for their patients. We will provide information on TGD-affirming language, the history of how TGD people have been treated in the medical field and reasons for potential distrust of medical providers, as well as provide definitions and context on sex, gender, and intersectionality when working with TGD patients.

TGD-Affirming Constructs and Contributors to Gender

An individual's awareness as a male or female develops and changes during infant life and childhood, as influenced by parental and environmental interactions. This process has been studied and well described, but further studies are needed to understand when and how gender identity becomes solidified for the individual [4]. In the last several decades, an ongoing and developing knowledge is emerging to qualify and understand the factors that contribute to an individual's gender identity being inconsistent with their upbringing. It is likely that there is a complex interplay between biological, environmental, and cultural influences that formulate gender identity [5–7].

Throughout several centuries, there has existed an understanding that some men and women do not conform to the standards of binary sexual dimorphism. Over many cultures and continents, TGD communities have existed and often played central and sacred roles in their societies (e.g., the hijra of South Asian, the mahu of Polynesia, the galli and galla of ancient Greece and Rome, the Navajo nádleehi). Ultimately, and not until the twentieth century, was there a conceptual development that some people assigned "male" or "female" at birth did not identify their gender (as "man" or "woman" or another nonbinary gender) as aligning with this sex assignment [8]. In 1923, Magnus Hirshfeld first used the term "transsexual" and gave it the definition of an individual who desires to live a life that corresponds with their experienced gender as opposed to their designated gender at birth, and in the half century that followed numerous other authors further described gender identity [8–12]. While these authors described gender identity to be rigid and on a continuum, an expanded understanding shows that gender identity is not constant or able to be placed within a defined linear continuum. For instance, some individuals may concurrently experience rapid involuntary alteration between male and female, and others who do not identify themselves as any gender [13, 14].

There likely exists a biological correlation to gender identity that is present at birth [7]. Several biological findings support this. There is an inability to alter gen-der identity through medical means [15–17]. Identical twins have higher rates of transgender identity among both siblings than fraternal twins [18]. There are increased rates of male gender identity among persons with congenital adrenal hyperplasia who are exposed to excess androgen in utero [19], while those with complete androgen insensitivity syndrome have female gender identity [20]. These studies point to the role of prenatal androgens to potentially affect gender develop-ment although further studies are needed to elucidate the role of perinatal hormone levels in gender identity and sexual orientation [21]. Since not all patients changed

gender identity from that designated at birth, this further points to the complex interplay of multiple factors including social, genetic, and biologic. To provide further support the complexity of influences, studies have not shown differences in circulating sex hormone levels between cisgender and transgender individuals [22].

Traditionally in the medical field, there has been a differentiation between sex and gender by defining sex as a biological construct and gender as a social construct [23]. Sex has been defined as the biological, genetic, and physical traits that determine whether someone is male or female [23]. For example, if someone has XX chromosomes, their sex is assigned female. On the other hand, gender is how someone defines their identity based on what they feel and how they interpret their body and emotions within the context of their environment, regardless of biology [23]. Medically, we have understood that someone is TGD if their sex and gender "conflict" with one another and cisgender if their sex and gender "match." In terms of diagnosis and treatment, this is the easiest and most accurate way of understanding how the two constructs interact with each other [24, 25].

Extensive research has been to explore the factors that affect an individual's gender identity as a complex construct that can naturally change over a lifetime. Traditionally, there existed a binary gender assessment of male versus female and nondysphoric versus gender dysphoric [26]. Unfortunately, this construct does support gender-affirming understanding. Multiple factors have been identified as part of complex and dynamic network (Fig. 1.1)—gender development, body image,

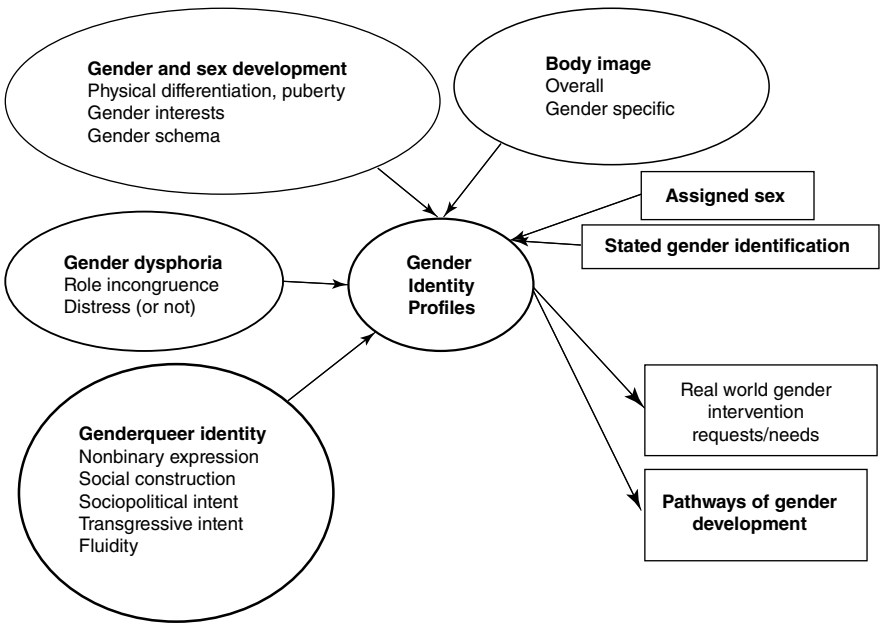

Fig. 1.1 Conceptual model of gender identity predicting dysphoria and intervention requests-From: McGuire, J.K., Morrow, Q.J. (2020). Pathways of Gender Development. In: Forcier, M., Van Schalkwyk, G., Turban, J. (eds) Pediatric Gender Identity. Springer, Cham

gender dysphoria/euphoria, and genderqueer or nonbinary [27]. Gender development includes understandings of gender schema and associated interests in childhood along with physical differentiation during puberty [28]. Body image reflects concerns regarding the body, particularly as they related to sex characteristics [29]. As stated previously, gender dysphoria has typically been associated with a binary context; however, a nonbinary approach to gender dysphoria is more broadly applicable. Further, gender dysphoria may does not account for those with gender incongruence and the nonbinary gender position of the individual at any given moment in the transition process. Genderqueer and nonbinary identities describe this fluid or nonbinary sense of self for an individual [30]. Taken together, McGuire et al. have described these multiple factors to influence an individual's concept of gender identity [27]. This important construct begins to understand the complexities of gender identity and represents an important concept for gender-affirming surgeons.

TGD Definitions and Terminology

The language we use and how we use certain terms has continued to evolve over time, especially as it relates to developing competencies in building TGD-affirming medical environments. Recently, there has been pushback and resistance on these assigned terms of "sex" and "gender" from TGD people over defining their physical bodies, especially pre-transition, as a sex different from the gender they know themselves to be [31]. While our understanding has evolved in knowing that gender is a social construct that is assigned dependent on the society, gender roles, expression, and culture, we have not had the same conversations about "sex." TGD advocates have asserted that "sex" is a social construct just as "gender" is, questioning the utility of assigning sex based on external and internal sex characteristics [31].

Throughout TGD history there has been a constant shift in the language used to describe the diversity of gender identities. While some terms have been accepted in the past (e.g., "transsexual" and "transvestite"), they are often no longer the preferred TGD-affirming terms (unless these are words that TGD patients use to self-describe). Foremost, it is important to understand that there is an infinite diversity of gender identities, and that TGD individuals use the words that are most salient to them [24, 25]. Additionally, the terms that TGD people use to describe themselves may change over time, or their gender identity may evolve. Due to the fluidity of accepted language, the individual's chosen language and identity is ideally used. It is important that providers work to rid themselves of their preconceptions of TGD-specific words and attempt to mimic client selected language [24, 25].

However, it is still important to know the general meaning of terms used to describe TGD people and terms used by the TGD community to describe them-selves and their experiences. In contrast to "cis," "trans" is often used as an umbrella term to describe individuals who are a gender that does align with the sex they were assigned at birth [24, 25, 31]. A "transgender/trans man" is a person who was assigned the female sex at birth, but who identifies as a man. A "transgender/trans woman" is a person who was assigned as male at birth, but who identifies as a

woman. Of note, "trans" is an adjective and maintains that signifies that trans people can be men or women, with the addition of the "trans" term as a separate word functioning as an adjective modifier. "Non-binary" and "genderqueer" are terms to describe people whose gender does not exist within the binary of "man" or "woman" [24, 25, 31]. "Non-binary" is also an umbrella term and includes multiple identities such as "agender" (individuals who have no gender), "genderfluid" (individuals whose gender may move over multiple identities over time), and "bigender" (individuals with two genders) [24, 25, 31].

Terms like "passing" and "stealth" are controversial among TGD people, so they are best used within the TGD community and not by cisgender providers. Previously, these terms described how well someone's gender expressions fit within cisgender norms of womanhood and manhood. It is because of these terms' reliance on cisgender norms that they have fallen out of favor. However, you still may hear clients speak about their desire to "pass" or "go stealth," meaning that the public wouldn't be able to tell they are TGD [24]. A complete description of current, recommended terms and those that are used throughout this textbook are provided in Table 1.1 [32, 33].

Table 1.1 Summary of relevant terminology and definitions

Biological sex, biological male or female	These terms refer to biologic construct of genetic and physical traits that determine whether someone is male or female and typically assigned at birth. These terms can be imprecise and promote binary and permanent states, therefore they are avoided
Cisgender	An umbrella term for those people whose gender identity and/or gender expression is similar to the sex assigned at birth
Gender-affirming treatment	Refers to a treatment, procedure, or medication for those who want to adapt their bodies to the experienced gender, typically by means of hormones and/or surgery. This term is broadly applicable to various treatments, for example, "gender-affirming hormone therapy," "gender-affirming facial surgery." Terms that are similar but are now less commonly used are "gender reassignment" and "gender-confirming"
Gender affirmation, gender transition	An overall process of alignment of physical characteristics and/or gender expression with gender identity. "Gender confirmation" is a similar but less commonly used term
Gender dysphoria	This is the discomfort, distress, and/or unease experienced if gender identity and sex recorded at birth are not completely congruent. In 2013, the American Psychiatric Association released the fifth edition of the DSM-5, which replaced "gender identity disorder" with "gender dysphoria" and changed the criteria for diagnosis. Not all transgender persons have dysphoria.
Gender expression	This refers to an individual's external manifestations and communications of gender, expressed through one's name, pronouns, clothing, haircut, behavior, voice, speech, or body characteristics
Gender identity, experienced gender	One's internal, deeply held sense of gender. Most people have a gender identity of man or woman (or boy or girl). For some people, their gender identity does not fit neatly into one of those two choices. Unlike gender expression, gender identity is not visible to others

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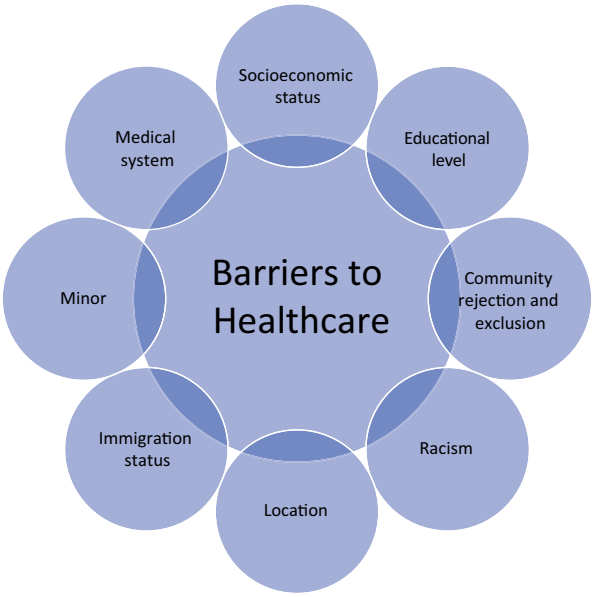

Fig. 3.1 Cumulative and interlocking barriers to healthcare for transgender and gender diverse individuals

one expects to experience [12]. These factors alone can contribute to significant anxiety and depression. This section of the chapter analyzes the different healthcare and community-related barriers and challenges that ultimately lead to experienced vulnerability and stigmatization (Fig. 3.1).

Socioeconomic Status and Education Level

Socioeconomic status is intimately associated with health outcomes. TGD individuals who earn less than $50,000 per year have a greater likelihood of being denied overall medical care when compared to those whose annual salary is greater than $100,000 [13]. Higher income permits provider choice and possibly enables travel across further distances to a preferred provider. Those who achieved higher education were less likely to be refused healthcare. Each increase in educational level is associated with better chances of avoiding healthcare restrictions. Those without a high school diploma were more than two times as likely to have care refused as compared to those who completed high school or equivalent [13]. Similarly, those with an associate's degree were more commonly denied care as compared to those with a bachelor's degree [13].

Community

Many TGD individuals face rejection from their friends and family as they transition [14]. The lack of a support system leads to increased mental distress. This is

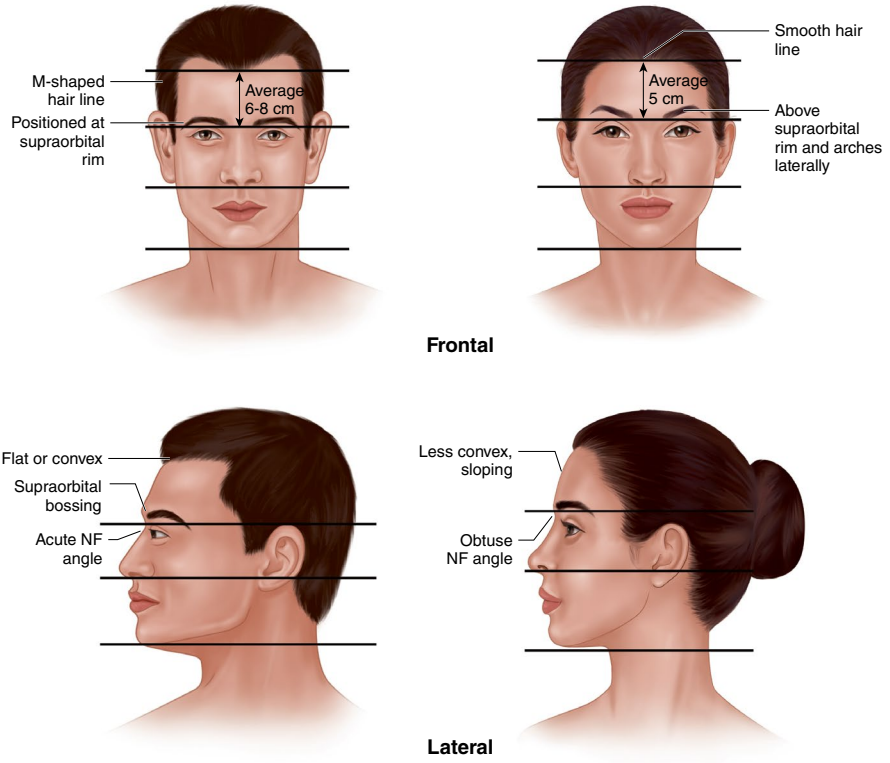

Fig. 8.1 The upper third of the face contains specific differences between men and women. Take special note of the forehead contour, hairline, and brow position

[7, 10]. The female forehead possesses a smooth convexity with a continuous mild curvature from the orbit to vertex. Contrastingly in males, the forehead displays supraorbital bossing with a prominent anterior convexity. Frontal sinus development likely contributes to the greater convexity of the medial forehead in males, leading to a discontinuous curvature compared to the female skull [10, 11].

In males, the medial supraorbital ridge blends into the glabella which creates greater glabellar projection [8, 9]. Also of importance in this region is the nasofrontal angle which tends to be more acute in males and more obtuse in females [12]. The naso-glabellar region represents the transition between the nose and forehead and should be considered as an entity for affording facial harmony between upper and middle thirds during surgical planning [13].

The female brow tends to have a club-shaped appearance medially, starting at or slightly below the rim, and arching laterally to where it peaks at the lateral third. The most lateral portion of the female brow lies 1–2 mm above the medial aspect, and the entire brow lies at or above the superior orbital rim [8]. In contrast, the male brow tends to be thick, flatter, and lie at the level of the superior orbital rim [12, 13].

Middle Third

Analysis of the middle third should include examination of the orbital and periorbital tissue, nose (including specific characteristics like the nasal dorsum, tip, and alar base width), zygomatic width, and zygomatic prominence (Table 8.2; Fig. 8.2).

Table 8.2 Middle third

Middle third	Female	Male
Orbits	Wider, slight positive tilt	Narrower, neutral tilt
Zygomatic width	Slightly less wide	Wider
Zygomatic prominence	More prominent	Less prominent
Cheek hollowing	Varies by culture	Varies by culture
Nasal dorsum	Straight or slightly concave	Straight or dorsal hump
Alar base width	Much narrower	Wide

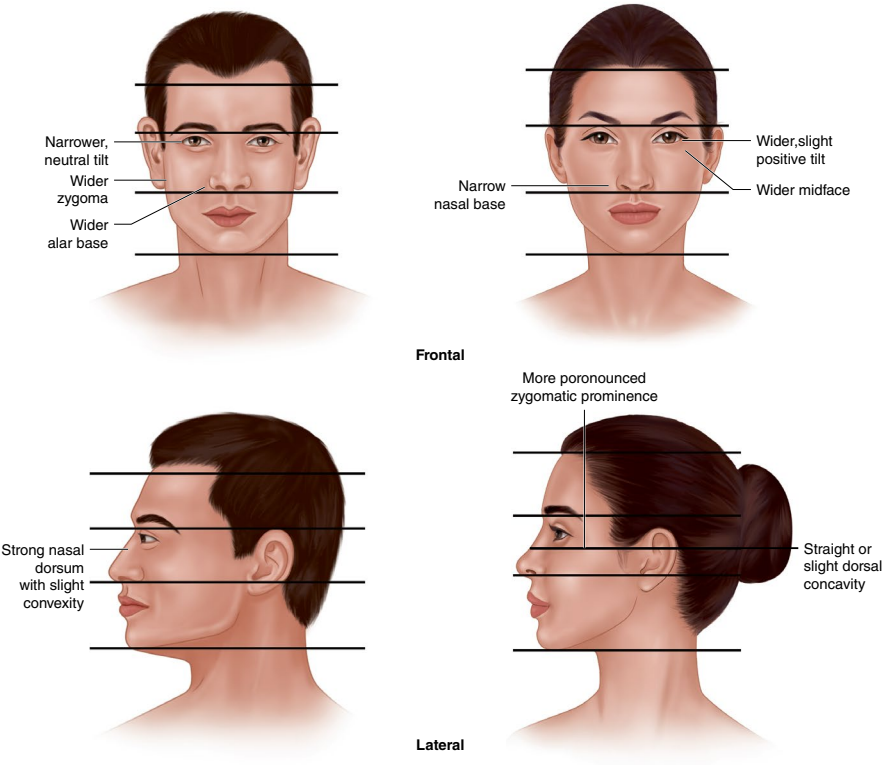

Fig. 8.2 Note the key differences between the middle third of the face in men and women. These include the orbital shape, nasal features, as well as the zygomatic prominence and cheek volume

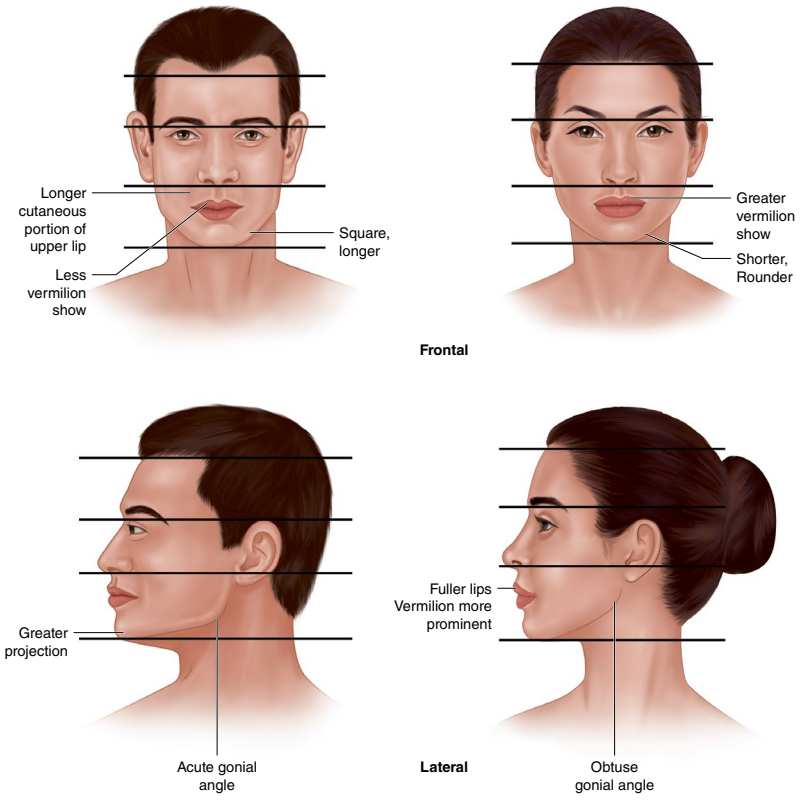

Fig. 8.3 The male lower third of the face differs from the female mostly with the shape and prominence of the mandible. The perioral region in the female contains fuller lips with greater vermilion show

of platysmal banding or rhytids should be noted, as these suggest changes to the bony architecture, affecting how one may modify or accentuate certain features. The mandible in the male is larger and thicker, with greater mandibular body height, especially at the symphysis. The male mandible is often heavier and taller, with a somewhat greater vertical height to the chin than in females [7]. In addition, males have more mandibular flare due to muscular mandibular attachments, resulting in a wider jaw [18]. The overall appearance for the male is a square or heavy-set jaw with a taller chin.

The mandibular angle should be assessed for its definition and sharpness and is generally less than 125° in both sexes. However, females tend to have a more obtuse angle than males by approximately 2.7°, resulting in a softer, less angular appearance [7, 18]. This creates a softer transition in females from the mandibular body to ramus, and a narrower mandibular width.

The chin and lower jaw is usually longer in males by as much as 20% and is often, but not always, more prominent in profile [12]. The shape is more trapezoidal

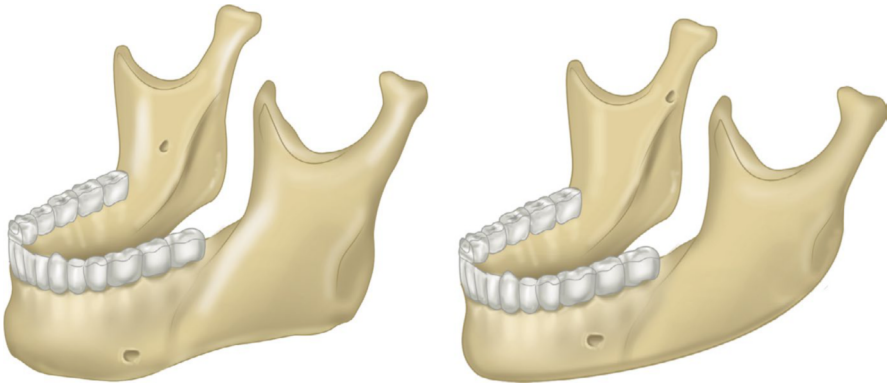

Fig. 9.5 Typical mandible shape and size differences between male and female

Mandible

While shape dimorphism may already exist in the mandible by birth, the growth rate during puberty is greater in males, resulting in a mandible that is larger in size with a more prominent angle, more elongated body, taller ramus, and lateral flaring with a greater inter-ramus distance (Fig. 9.5) [60, 61]. Additionally, the mandibular height-to-width ratio is larger in males, and the chin and lower jaw may be up to 20% longer than in females [16, 25]. The result is a more protruded and broader mandible in males that extends steeply downwards before squaring off at the basal symphysis, creating a rectangular facial structure. In comparison, females tend to have a narrower and more rounded or pointed chin, creating a heart- or inverted pyramid-shaped facial structure. The larger mandibular size in males may be in part due to the presence of denser masseteric attachments, which additionally contribute to the wider appearance of the male jawline. Lastly, it is important to note that malocclusion of dental structures may affect an individual's cephalometric relationships within the lower third of the face [16].

Additional Considerations

It is important to note that characteristics described here represent overall trends, and that both degree of difference in facial structure between sexes and aesthetic ideals may vary by individual. Furthermore, facial structure may be modified by additional factors such as age and ethnicity.

Age-related morphologic alterations in facial features occur due to cellular turnover, alterations in hormone levels, and environmental damage (e.g., sun exposure) that result in skin thinning, fat redistribution, soft tissue descent, and bone resorption. Morphological changes in the skull, such as widening of the cranium and retrusion of the forehead, reduce the accuracy of sex classification using bony features, with a trend towards masculinization in females [3]. Additionally, loss of osseous