The Uncanny Valley: Implications for Facial Plastic Surgery

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From briefly glancing at someone’s face, the eyes rapidly glean a staggering amount of information. We quickly make an aesthetic judgment as well as categorize the face by gender, ethnicity, age, and familiarity. It is therefore not difficult to understand why most patients considering facial aesthetic surgery are so keen to avoid what is referred to as the “operated-on” look. This may refer to any number of things including unnatural changes of the face that may be the unwanted artifacts of surgery or, in some cases, the intended results. Casual observers tend to describe a vague eeriness when looking at an individual who looks radically different after cosmetic surgery. This phenomenon has become especially noticeable in some of the recent dramatic facial changes that certain pop culture celebrities have undergone.

In order to avoid these problems, plastic surgeons have largely focused on identifying and avoiding specific pitfalls, such as the overly-defined and upturned nasal tip that constitutes the “rhinoplasty look.” Such an approach reflects the way that beauty is operationalized in our discipline, which focuses on measurements and ratios that define what is beautiful, or at least normative. However, as other authors have pointed out, the perception of beauty is fluid, evolving, and dependent upon the ethnic and cultural context.

The question of context is an important one. According to the cognitive psychology literature, objects such as faces are evaluated by a complex process of contextual integration—often referred to as category processing or membership. These evaluations assimilate cues inherent to the object and to the larger environment that form a rich contextual basis for categorization. Objects that are congruent with their contextual setting “make sense” and are therefore perceived to be more beautiful.

In his 1970 thesis, Bukimi No Tani (translated “Uncanny Valley”), Japanese roboticist Dr Masahiro Mori postulated that the more closely a robot approximated human features, the more endearing it became until a point was reached when the subtle imperfections of appearance or behavior created an opposite effect—that of eeriness and revulsion. Several theories exist to explain why this response occurs and what elicits it, but it is this concept of category congruence that the authors believe to have the most explanatory power when applied to plastic surgery.

It is the authors’ intent to formally introduce the concept of the uncanny valley and explore its implications within the discipline of plastic surgery. Taking our cues from the cognitive science literature, we hypothesize that the uncanny valley is encountered when cosmetic procedures create category uncertainty. Examples where the uncanny valley is more likely to be encountered are when well-defined categories such as ethnicity, age, and gender are unconsciously violated, such as can occur in an Asian patient desiring a more Westernized nose or eyelid, or in a male patient with masculine features desiring a more refined nasal tip. While the changes taken in isolation may be successful, taken in context of the whole they may cause subtle incongruities and conflicting visual cues that lead to the uncanny valley. In order to overcome these difficulties, it is critical to be sensitive to this phenomenon.

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