CHAPTER 4

Facial Aging and its Influence on Facial Stereotypes and Trait Judgments

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The face is the fundamental canvas which guides nonverbal communication. Through the face, we read cues that allow us to make judgments about personality, identity, emotion, and group membership, as well as reading others' intent and the focus of their attention. These judgments often happen unconsciously and can vary in their accuracy, yet they shape the interactions we have and have a dramatic impact on real-world outcomes.

One of the most important sets of judgments people make from faces are trait inferences, or judgments about a person's personality. Inferences about many trait attributes, including a person's aggressiveness, trustworthiness, and competence from still portraits of the face are made very quickly and are consistent among raters even when a face is presented for less than a tenth of a second (Willis & Todorov, 2006). This high level of consensus, even across cultures, suggests that many of these processes are automatic and very fundamental to face perception. There might be some degree of validity to some of these impressions but many of them are wrong, as detailed later. Regardless of their accuracy, these judgments shape our interactions with others.

Most of the lab research on trait judgments from faces have used faces from young adults. However, aging leads to many consistent changes in appearance, which then may affect cues which underlie trait inferences. In addition, the presence of aging-related cues can evoke stronger stereotypes about older adults, which then lead to stereotypical trait judgments. This chapter examines how age-related changes lead to changes in how we judge traits from faces.

Judging Traits from Faces

As detailed earlier, we judge many personality traits, such as trustworthiness, competence, health, aggressiveness, and intelligence, from facial

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appearance alone. These judgments occur very quickly and are highly consistent, even across cultures. For instance, judgments from college students in the US are consistent with the trait impressions of individuals from indigenous tribes in the Bolivian rainforest (Zebrowitz et al., 2012). Children, younger adults, and older adults' ratings are all highly correlated, as has been shown in many studies (Cogsdill et al., 2014; Zebrowitz, 2017). These judgments also have important real-world effects, influencing hiring decisions, military promotions, and many other outcomes. For example, politicians judged to look more competent by older and younger adults are more likely to be elected (Todorov et al., 2005; Franklin & Zebrowitz, 2016). In addition, facial appearance can play a role in hiring decisions as well as criminal sentencing, with those seen as having desirable personality traits more likely to be hired and those seen as having less trustworthy personalities receiving harsher prison sentences (e.g., Wilson & Rule, 2016).

It is likely that people have used facial information to judge others' personal dispositions throughout all of human existence. Written records describing how certain face types were associated with personalities exist back to Greek philosophy and are scattered throughout history since then (see Zebrowitz, 1997). Many of these descriptions are quite consistent with the characteristics that are associated with personality judgments today. Throughout the nineteenth and early twentieth centuries, physiognomy developed as a pseudoscientific theory using facial characteristics to judge a person's personality and assess individuals' fitness for various tasks. For example, Francis Galton used photographs to make a composite of the faces of criminals in order to determine which facial characteristics could predict criminal behavior (Galton, 1883). Physiognomists used pseudoscientific methods and generalized very specific traits from only a few facial examples, so their conclusions were often wildly inaccurate.

Many studies have shown that inferences based on consensus judgments can accurately predict many traits (see Schwartzman & Rule, Chapter 2, this volume). However, in other cases, these judgments can be very inaccurate, especially when considering an individual perceiver's trait perceptions of a single face. One notable historical example of this inaccuracy is from the British captain of the HMS Beagle, Robert FitzRoy, who almost refused to hire Charles Darwin on his voyage to the Galapagos due to the shape of Darwin's nose, which he believed indicated a lack of determination and a lack of energy (Kutschera, 2018). Though Darwin was frequently seasick and suffered other illnesses throughout his lifetime, there is no question that Darwin had plenty of energy and determination to complete the voyage and develop his theories of evolution based on those findings.

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An Ecological Approach to Trait Impressions

One major research question examines why humans consistently judge personality traits from faces, even if those judgments are not always accurate. An ecological approach to social perception can explain this phenomenon. In an ecological approach to perception, the visual system is inherently linked to specific actions or behaviors, described as behavioral affordances (Gibson, 1979). Instead of accurately decoding the world, perception is disposed toward behaviors and is particularly attuned to pick up on that information which is most relevant for the perceiver's immediate action. Behavioral affordances provide adaptive information to an organism, which in turn guides behavior. Since the face contains many different sources of information relevant for social behaviors, certain cues in the face can then lead to specific affordances.

An organism's ability to detect and act on specific affordances is described as attunements. Attunements reflect a perceiver's ability and sensitivity to decode affordances. Attunements are dispositions to perceive cues that are relevant for survival and prioritize speed over accuracy. Therefore, attunements can be inaccurate in some situations if the costs of this inaccuracy are outweighed by the benefits of accurately perceiving the cue in other situations. For example, the cost of failing to accurately recognize danger from someone's face may outweigh the benefit of accurately perceiving a face which conveys no danger, thus leading to a bias to perceive danger in some situations where it is not present. Attunements to affordances are based on innate survival principles but can be moderated by a perceiver's specific state and social goals. For example, fear expressions can capture any perceiver's attention, but this attention capture is stronger if a person is in a high-anxiety state (Mathews et al., 1997).

Attunements and affordances are powerful processes that allow people to respond to a complex social world. These processes, and other social perceptual processes, can lead to many accurate judgments about a person's personality or traits (see Chapter 2, this volume). In those cases, the ability to determine accurate personality information can provide a survival advantage, which may explain why those abilities exist. However, this chapter focuses on cases where trait judgments are inaccurate in order to explain why trait judgments may be incorrect, because it is less clear why inaccurate consensual trait judgments might exist, since they arguably contain less of a survival advantage.

Overgeneralization and Trait Inferences

The ability to detect affordances can explain how we form trait impressions from faces through a concept called face overgeneralization

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(Zebrowitz, 2017). Overgeneralization is when an adaptive response is applied in a context where it may not be accurate. As mentioned, an ecological model of perception predicts that many errors may exist in perception if the costs of the errors are lower than the benefits of having the affordance. Babyface overgeneralization is perhaps the most commonly studied (Zebrowitz & Montepare, 2008). From an ecological perspective, the faces of babies send important affordances involving caretaking or protecting behaviors, which helps to ensure human survival and reproductive success. Humans have specific attunements to the cues in babies' faces, such as large eyes and chubby cheeks, because it is evolutionarily important to take care of babies. In overgeneralization, these affordances are incorrectly applied in situations where the affordance is not relevant to the situation. In babyface overgeneralization specifically, a perceiver applies the same judgments they may make about a baby when perceiving an adult's face and then judges that person to have more childlike traits.

Another important overgeneralization involves resemblance to emotional expressions. The affordances communicated by the face are communicated through static cues, which are not changing, as well as dynamic cues, which can change moment to moment. Static cues should communicate information which does not change within a social interaction, such as a person's identity, gender, or age, whereas dynamic cues such as facial expressions can change and communicate different messages even within an interaction. Trait impressions are an example of a static cue, since a person's personality is generally not changing. However, the static and dynamic cues in a face can overlap to form compound social cues (Adams et al., 2011). This is because many of the same features of the face may be involved in static and dynamic cues and this perceptual overlap can influence how the face communicates information. In addition, static and dynamic cues may both communicate the same type of information (Adams et al., 2017). A trait judgment concerning a person's aggressiveness based on static facial cues and momentary angry expressions communicate similar information as the two cues both indicate possible threat.

The perceptual overlap between emotional expressions and face structure can lead to emotion overgeneralization. Many faces that are in fact neutral still have emotional signal value that can be present, either through how the face structure resembles emotions or through emotion residue, the muscle activation underlying emotional patterns that have been previously displayed (Albohn & Adams, 2021a, 2021b). If a person's static facial structure resembles certain emotional expressions, they may be judged to have traits associated with that emotion. Static, nonexpressive faces that resemble happy faces are seen as friendlier and

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more likeable and faces that resemble anger expressions are seen as less trustworthy and more threatening by both older and younger adult raters (Franklin & Zebrowitz, 2013; Zebrowitz et al., 2010). As discussed later, emotion overgeneralization plays an important role in why old adult faces can be seen as more negative than younger adult faces.

Overgeneralization may also occur through resemblance to specific perceptual patterns which may represent threat. Angularity and roundness are fundamental environmental cues which represent danger and safety in the environment. Therefore, it is not surprising that anger is associated with angular faces whereas happiness is associated with roundness in the face (Franklin et al., 2019). More angular computer-generated faces are seen as more threatening, even when not displaying emotion (Waiter, 2018).

Attractiveness and Trait Inferences

Attractiveness is a unique perceptual quality of the face because it does not represent a resemblance to another adaptive quality that is overgeneralized but is instead considered a message itself. In an ecological perspective, attractiveness can be considered an attunement to specific information which is relevant for social judgments (Zebrowitz & Montepare, 2006). Attractiveness judgments are very consistent among raters, even across different ages and different cultures (Langlois et al., 2000). Perceived attractiveness may represent many different forms of social information. Attractiveness judgments may represent processes related to sexual mate selection as well as nonsexual judgments such as aesthetic preferences, cognitive processing, and health judgments (Franklin & Adams, 2010). The cues which make a face attractive can be related to a person's fitness for reproduction, such as facial masculinity and femininity as well as cues that are not as directly related to reproductive fitness but more related to overall health, such as skin quality and face structure (e.g., symmetry and averageness, or how much a face resembles a computer-generated average of many faces). In addition, processes which make objects attractive, such as preferences for prototypes, also apply to faces, helping to explain why average faces are seen as attractive, since they more closely resemble a person's cognitive model of how a face should appear (e.g., Potter & Corneille, 2008).

Facial attractiveness is associated with many stereotypes that affect trait impressions, an effect termed the attractiveness halo (Dion et al., 1972). Individuals who are more attractive are seen as being more socially competent, intelligent, and trustworthy (Eagly et al., 1991). More recent research has indicated that the attractiveness halo may be more applicable to seeing unattractive faces as less healthy or competent, more so

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than a stereotype preferring healthy faces as attractive (Griffin & Langlois, 2006). As we describe below, attractiveness plays an important role in the relationship between aging and facial trait judgments.

Stereotyping and Trait Inferences

A second factor related to facial appearance and trait inferences is the role that stereotypes and stereotypical appearance characteristics have on trait inferences. Many studies have shown that the degree to which a person's face resembles the prototypical face of a group can influence stereotyping. For example, faces which have more Afrocentric features are more likely to provoke stereotypical judgments associated with African-American faces (Blair et al., 2002).

This stereotyping can be extended to how the faces of the elderly are judged. Aging is associated with many negative stereotypes, such as a person having poorer health as well as apparent declines in cognitive status. Old adults are stereotypically associated with negative emotions, including sadness and anger to a greater degree than younger adults (Freudenberg et al., 2020). Old individuals are also more likely to be judged as having more negative personality characteristics when compared to younger-appearing older adult faces (Hummert et al., 1997; see also Hummert, Chapter 6, this volume). It should be noted that the effect of specific facial aging cues (e.g., wrinkles) on stereotype activation has not to our knowledge been tested.

Age-Related Changes to Faces and Trait Judgments

Aging leads to many changes to facial structure, including fundamental changes to the skin, ligaments, musculature, and bony structure of the face. Some of these changes are due to biological processes that are due to aging and thus happen to everyone in a similar pattern. These facial changes may cause increased inaccuracy in trait judgments, as the changes are due to processes that are unrelated to a person's traits. However, other changes are strongly affected by individual differences in a person's health, lifestyle, and genetics, which in many cases may explain increased accuracy in trait judgments for older adults (see Chapter 2, this volume). Only the ones which are most relevant to trait inferences are summarized here.

Some of the most obvious changes related to aging occur to the skin. The skin becomes less elastic and loses fat, leading to wrinkles, which can be exacerbated by environmental factors (Cotofana et al., 2016). This wrinkling can change the shape of the face and impair the ability to detect emotions from faces (Hess et al., 2012). In addition, other lesions and

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spots can form due primarily to sun damage. These are generally associated with judgments of lower attractiveness and health.

Aging also leads to changes in the musculature, ligaments, and cartilage of the face. The activity of muscles and loss of elasticity lead to wrinkles, especially in the forehead and around the eyes (Friedman, 2005). In addition, in some cases, nasal tip ptosis can form, which makes the tip of a nose droop. The physiognomist, Johann Kaspar Lavater associated this characteristic with negative personalities in his writings on physiognomy (Lavater & Gessner, 1848).

The bony structure of the face also changes with age. Facial aging results in absorption of bone around the eye socket, leading to orbital sinking and a more protruding forehead (Mendelson & Wong, 2020). In addition, changes to the bony structure of the nose result in more angularity around the nasal area and a larger jowl. These changes increase the angularity of the face and may increase the resemblance to anger. This has not been examined in older adults to my knowledge, but as discussed earlier, higher levels of angularity in a face are associated with faces being seen as angrier and more threatening.

Importantly, facial changes due to aging can cause the emotionally neutral face to resemble various emotions (Hess et al., 2008). Most notably, wrinkling and drooping can cause faces to resemble sad expressions (Fölster et al., 2014). Freudenberg and colleagues (2015) found that ostensibly neutral expression older adult faces were rated as more emotional than younger adult faces, including being perceived as angrier, happier, and for male faces, sadder, than younger adult faces. In addition, older adult faces objectively resemble negative emotions to a greater degree than younger adults (Albohn & Adams, 2020). This resemblance to emotions was also found to impair emotion recognition in old adult faces. These findings suggest that the structural changes that occur due to aging directly impact emotion perception, and thus can affect trait inferences through emotion overgeneralization and stereotyping.

Emotional resemblance in an actually neutral face can in many cases accurately indicate the presence of a trait or in other cases be misleading in how old adults are perceived. As discussed later, biological aging processes cause older faces to resemble emotions in ways unrelated to a person's experience. However, some evidence suggests that an individual's traits and emotional dispositions can influence facial appearance as a person ages (see also Schwartzman and Rule, Chapter 2, this volume). Malatesta and colleagues (1987) found that a person's emotional predisposition affected how their expressions were recognized. For instance, if an individual reported high levels of sadness, it was more likely that their other expressions were misclassified as sad. Adams and colleagues (2016) found that this extended to neutral faces. Raters were more accurate in

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their rating of how much positive affect a person experienced when rating older faces than younger faces, indicating that age-related changes more accurately communicated one's general positive affect. This effect was stronger for female faces, likely due to cultural norms which encourage emotional expression in women but not for men.

Health Judgments from Facial Appearance

Judgments of health based on facial appearance play an important role in social interactions and guide behaviors in many ways. Evolutionary theories suggest that health judgments may arise for two separate reasons: Positive evaluations of those who are healthy, because healthiness indicates good genes, and negative evaluations of those who are unhealthy, in order to avoid those with bad genes or those who are unhealthy (Zebrowitz & Rhodes, 2004). Whereas attraction to those who are healthy is important for reproductive judgments, most of the evidence suggests that we judge health in order to avoid those who are unhealthy and that health judgments are more influenced by this avoidance of low health rather than a preference for high health. This is important because avoiding those who are unhealthy may protect individuals from potential disease (Welling et al., 2007). In addition, avoiding disease is most relevant for examining how facial health is judged in older adults since it is less likely old adults are judged on their reproductive fitness.

Many studies have shown that people tend to avoid those whom they perceive to be unhealthy and that this effect is most pronounced for anomalous faces. The anomalous face overgeneralization hypothesis is based on the idea that individuals who have anomalous facial structures may be very unhealthy and/or be bad gene carriers and thus it has adaptive value to avoid these individuals (Zebrowitz & Montepare, 2008). This behavioral affordance to avoid anomalous faces then is overgeneralized to individuals who may have mild facial abnormalities or have facial structures which might resemble anomalous faces.

Supporting the anomalous face overgeneralization hypothesis, health judgments have been found to be most accurate for younger adult faces that are unhealthier than average than those that are healthier than average (Zebrowitz & Rhodes, 2004). In addition, the attractiveness halo, the stereotypical association where more attractive faces receive more favorable trait judgments, is stronger for those faces that are unattractive than attractive (Griffin & Langlois, 2006). Given that attractiveness is a very powerful cue for health, these findings indicate that health judgments are much more about avoiding negative cues.

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Health Judgments and Aging

As noted, judgments of health and the anomalous face overgeneralization hypothesis have a powerful effect on how individuals read personality traits from older adult faces. It was also argued that age-related changes cause declines in attractiveness, which can be exacerbated by poor health. As a result, older adult faces are judged to be less healthy than younger adult faces. This is reasonable as aging does lead to worse health on average and there is a strong stereotype associating aging with declining health. In addition, older faces structurally resemble anomalous faces to a greater degree than younger faces, which supports the idea that older faces will be judged as less healthy on average through anomalous face overgeneralization (Zebrowitz et al., 2003).

When judging faces on how healthy they are, older and younger adult raters have high levels of agreement in who they perceive as healthy (Zebrowitz et al., 2013). Zebrowitz also found that older adults judge faces as healthier than younger adults regardless of their age, which is consistent with other trait ratings, which also show a positivity bias for own age faces. These findings show that both older and younger adults likely use the same inference processes when determining what faces are healthy.

Zebrowitz and colleagues (2014) examined health judgments of older and younger faces in more detail to determine what factors were used in judging health from faces and whether those judgments were accurate. Health judgments are generally accurate regardless of face age but are much more accurate for older faces. Both older and younger adult ratings of how healthy a face appeared were significantly correlated with how healthy older individuals were rated by doctors, how many functional abilities they had, and their self-ratings of fitness. These effects were true for faces that were both below and above the median in health, so that these ratings were accurate for all faces. This is different than for younger adults, as indicated earlier, where health ratings were most accurate for the faces of unhealthy individuals than for those who were more healthy.

The demonstrated accuracy of health judgments suggests that older faces convey more cues that accurately indicate health than younger faces do. For instance, Zebrowitz and colleagues (2014) investigated which cues were correlated with health judgments and whether those cues were predictive of health. Attractiveness and how "old looking" a face appeared were cues that were correlated with facial health for older adults but not for younger adult faces. Therefore, these cues were valid cues for older faces but not younger faces. Raters used these cues when judging the health of all faces, so when these cues were used, they increased the accuracy of judgments for older faces and not for younger faces.

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Another effect that may support the increased accuracy of judging health from older faces is that older and younger adults show higher differentiation when judging the health of older faces (Ng et al., 2016). That is, raters use more nuanced judgments when rating the health of older faces using more of the scale points when making their ratings. Older raters show higher differentiation than younger raters when rating older faces, which Ng and colleauges suggest may be because health judgments are more salient for older raters because older adults are more acutely aware of health than younger adults.

Aging Stereotypes and Health Judgments

Another important factor to consider in judging health from older adult faces is that older adults are stereotypically associated with having poorer health. The stereotype that older adults are frail, more likely to be injured, and more likely to be sick is a significant impediment to the experience of older adults, particularly those who are in good health (Knight et al., 2022). However, very little research exists on how judgments of health from facial appearance affect older adults in real-world settings, so the actual mechanisms by which this may work needs further research.

Health judgments play an important role in older adult interactions with medical professionals. Medical professionals, like any individual, are biased by trait inferences and their judgments of health then can guide patient interactions. A physician may be more likely to treat an individual more acutely if they perceive that person to be in poor health. For example, older adults are perceived to be in greater pain than younger adults (Matheson, 1997) and physicians are no better at judging pain from older adult faces than non-medical professionals (Lautenbacher et al., 2018). These stereotypes about health exist even though many conditions that are quite painful for younger adults can in some cases be less painful for older adults. For example, myocardial infarctions (heart attacks) often present as not painful for older adults, which can lead to missed diagnoses because crushing chest pain and the appearance of poor acute health is important for diagnosis (Gregoratos, 2001).

Facial Competence and Intelligence

Competence judgments also play an important role in social interactions and influence real-world outcomes. Studies have shown that individuals who are judged as more competent and more dominant are more likely to be successful as CEOs (Rule & Ambady, 2008) and more likely to be elected (Todorov et al., 2005), among other benefits. Having a more

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competent-looking face predicts success and this effect is stronger for outcomes related to popularity than to performance (Giacomin & Rule, 2020). As many politicians and CEOs are older adults, these studies show that judgments of competence play an important role in how older adults are treated, even if they have not specifically investigated the effects of aging.

Emotion overgeneralization and babyfacedness play an important role in how faces are judged to be competent. Competence judgments are related to displays of facial dominance and so subtle resemblance to anger can lead faces to be perceived as more competent (Oosterhof & Todorov, 2008). In addition, faces that resemble surprise expressions are seen as less competent and more naive (Franklin & Zebrowitz, 2013). The babyface overgeneralization effect also impacts competence judgments. Babies are seen as less competent so those faces with very little babyfacedness are seen as more competent (Zebrowitz & Montepare, 1992). Supporting this, babyfacedness is negatively predictive of hypothetical voting decisions (Franklin & Zebrowitz, 2016).

Like health judgments, older and younger adult raters agree on which faces they find competent (Zebrowitz et al., 2013). Unlike with health, older and younger adults did not differ in their mean ratings of facial competence. Interestingly, older and younger adults may use different processes when judging facial competence as babyfacedness is positively associated with older adults' judgments of competence but not with younger adults' judgments (Zebrowitz & Franklin, 2014). This may be because older adults value cues associated with youthfulness more than do younger adults, who see babyish cues as indicating lower competence. Nonetheless, the high level of agreement between the raters indicate that many of the same cues or processes are being utilized.

Competence Judgments and Aging

Aging itself plays an important role in how facial competence is judged from the face. However, in contrast to health judgments, aging does not improve the accuracy of competence judgments. This is possibly because aging is not associated with specific overall changes in competence, or at least not to the degree to which aging is associated with health declines. As with health, Zebrowitz and colleagues (2014) examined how older and younger adults determined competence judgments from older and younger faces, which cues they used, and whether these judgments were accurate. Older faces (ages 55–70) were rated as more competent than younger faces (ages 17–39). Age differences in mean competence ratings may be specific to this set of photographs; nonetheless this suggests that there was no bias toward seeing older faces as less competent in general.

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Competence ratings of older faces were to some degree accurate, as these ratings were significantly correlated with older adults' vocabulary and reasoning scores. However, they were not correlated with other measures of competence, such as overall IQ, processing speed, and short-term memory measures, which are each measures of fluid intelligence. Ratings of younger adult faces' competence were correlated with fluid intelligence measures, which suggests that age-related facial changes may inhibit the accuracy of determining one's fluid intelligence. However, one limitation of this research is that fluid and crystallized intelligence are not necessarily the same concept as competence and thus it may be problematic to classify this correlation as accuracy.

Attractiveness, facial expression, and how mature or old looking a face appears were all cues that positively correlated with individuals' trait judgments of competence. However, these cues were generally not predictive of measures of intelligence, and thus are inaccurately used by raters. Attractiveness was correlated with vocabulary scores and emotional expression was marginally correlated with reasoning scores, which were the only two measures that were related to competence ratings for older faces. However, these cues were related to younger adults' scores on measures of fluid intelligence. This again suggests aging-related changes can impair accuracy of determining competence based on facial appearance, especially for measures of fluid intelligence, which decline as people age.

One potential reason for this lack of accuracy is that fluid intelligence is more likely associated with genetic fitness whereas crystallized intelligence measures are associated with processes such as educational achievement and lifelong learning, which are more associated with life experience and opportunity. Supporting this argument, attractiveness was related to crystallized intelligence for both younger and older adult raters, which may reflect the advantages in life that come with being attractive (Zebrowitz & Montepare, 2013).

Competence Judgments and Stereotypes

Stereotypes also interact with how competence is judged from older and younger faces. Aging is associated with many stereotypes that may affect competence judgments, including stereotypes about increased wisdom but declining functional abilities and fluid intelligence. This leads to mixed stereotypes regarding aging and competence. Older adults are often judged to be wise and have experience but are seen as less likely to be adaptable and flexible (Hummert, 2011). Older adults often have to address negative stereotypes regarding competence, particularly in situations where they might have to make judgments about changing technology or decisions seen as unique or modern.

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One particular situation where stereotypes affect trait judgments of competence is through an interaction with facial emotion and emotion overgeneralization. Certain emotional displays are stereotypically associated with competence, such as happiness, whereas emotions such as sadness can be associated with less competence. Whereas happiness makes faces look more competent regardless of age, the overgeneralization of judgments of less competence for sadder faces was much stronger for older faces than younger faces (Barber et al., 2019). This effect is arguably based on the stereotype that older adults are sadder due to their loss of function, and then may lead to older adults being treated in ways that conform to the stereotype. Interestingly, anger is an emotion that can be seen as competent in certain circumstances, and older adult faces are typically seen as angrier than younger adults (Albohn & Adams, 2020). However, anger is also stereotypically associated with a loss of control or an inability to make reflective decisions, so the anger stereotype would negatively affect older adults particularly because older adults who are seen as having less control can be stereotypically associated with dementia (Hummert, 2011).

A second cue that relates to competence perceptions and stereotyping in faces is graying hair. Graying hair is strongly associated with aging and leads to stronger stereotyping as old (Barber et al., 2019). The stereotypical association of gray hair and lower judgments of competence is ancient and is found in some of the earliest Greek poetry (Miller, 1955). As discussed later, this effect is strongly moderated by face sex, as women are much more stigmatized due to gray hair than are men.

Facial Trustworthiness and Aggressiveness Judgments

As has been noted before, knowing whom to trust and whom to avoid are important aspects of social behavior and therefore can convey an adaptive benefit. This also extends to reading personality cues from the face, as it is socially important to know who is honest and who might be dangerous. One example of this is Lavater's early pseudoscientific physiognomic work, which identified several facial cues that indicate dishonesty (Lavater & Gessner, 1848). This also extends to modern stereotypes about reading a person's honesty through their face, particularly their eyes (e.g., lying eyes).

Recent laboratory studies suggest that judgments of honesty or trustworthiness from faces are highly consistent and have social ramifications but may not be accurate. In addition, trustworthiness judgments affect how people behave in many situations, with those perceived as being more trustworthy being more likely to receive votes or receive higher pay (see Olivola et al., 2014, for a review). However, these judgments are only

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partially accurate. Zebrowitz, Voinescu, and Collins (1996) found that more honest-looking men become more honest as they aged, when compared to less honest-looking men. However, the effect was switched for women, with less honest-looking women becoming more honest. These findings suggest that gender stereotypes can affect the accuracy of honesty ratings.

Related to trustworthiness, an individual's aggressiveness or hostility can be judged from facial appearance. Aggressiveness ratings are highly consistent and they can be quite accurate, especially for males. Facial width-to-height ratio is associated with testosterone levels, such that wider faces are seen as more aggressive and those individuals with wider faces behave more aggressively, as measured by a variety of lab-based and real-world measures (Carré & McCormick, 2008). Both younger and older adult raters are accurate in judging from photographs how aggressive individuals are and accurately use cues such as width-to-height ratio when making these judgments (Boshyan et al., 2014).

Trustworthiness and Aggressiveness Judgments and Aging

As is obvious from the previous discussion, aging and the changes that occur to an aging face affect how trustworthiness and aggressiveness are judged from the face. This also interacts with stereotypes to create an effect where old faces are considered to be less aggressive and more trustworthy than younger adults (Zebrowitz et al., 2013). These judgments also affect hypothetical behavior toward older and younger adults. For example, raters rate older investment trustees as more trustworthy than younger trustees, but do not invest more money with older trustees (Bailey et al., 2015). This may be because older adults can be perceived as less competent, so the competence and trustworthiness impressions changes counteract each other.

There has not been much research investigating how the aging-related changes to faces specifically impact how aggressive or how untrustworthy a face appears to be. Some research shows that age-related cues may be used differently by older and younger adults when making these judgments, as older adults tend to judge very mature-looking (not babyfaced) older faces as less trustworthy than more babyfaced-looking older adults, whereas younger adults do not show the same effect for older faces (Zebrowitz & Franklin, 2014).

Aging-related changes can have inconsistent effects on trustworthiness and aggressiveness. Faces tend to appear to be longer as people age, which decreases facial width-to-height ratio. In addition, facial changes cause older adult faces to appear sadder (Hess et al., 2012) and sadder faces should be seen as less aggressive through emotion overgeneralization, though this has not been directly tested. These effects will directly

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make faces appear to be less aggressive. Increased wrinkling and other changes can make faces appear to be less trustworthy by making eyes appear to be smaller, a cue which is negatively related to trustworthiness (Zebrowitz et al., 1996). In addition, and as noted earlier, aging can cause faces to appear more angular, a cue that is directly related to how angry and aggressive a face appears (Franklin et al., 2019).

In regard to judgments of trustworthiness and especially aggressiveness, it is possible that stereotypes play a much stronger role than the direct effects of age-related changes to facial appearance. The increase of age-related cues increase how strongly faces are given age-related stereotypes (Hummert, 1994). Thus, aging-related cues should directly evoke greater stereotypes of trustworthiness and less aggressiveness, despite how these age-related changes may cause faces to be judged through other mechanisms. This idea has not been tested in the literature, however.

Facial Aging and Interactions with Sex

One notable area that has received little research is how sex and sex stereotypes interact with the effects discussed earlier. It is well known that the impact of facial aging affects women and men differently. Cues related to aging are much more significant for women, leading to more negative stereotypical associations. Women reportedly suffer stronger effects of ageism, especially feeling less engaged and more erased from social life as a function of aging, and these effects are enhanced with more aging-related cues (Ward et al., 2008). The authors argue that this is due to the intersection of sexism and ageism, such as stronger appearance stereotypes for women, the impact of multiple low-status identities, and societal expectations that stigmatize aging for women more so than men. The fact that women spend much more effort and money to try to mitigate age-related changes in facial appearance is consistent with this line of reasoning.

Though very little research has investigated how aging and sex interact in judging traits from faces, it is plausible to argue that sex and age can interact to enhance each effect (see also Hedgecoth et al., Chapter 5, this volume). Women and older adults are both judged to be warmer and less competent than men and younger adults (Cuddy & Fiske, 2002). However, one study that looked at the interaction between age and sex in how stereotypes are applied to others did not find that sex significantly moderated age stereotypes (Andreoletti et al., 2015). Older women were seen as more trustworthy and less competent than any other group, but this was no more than would be predicted by the age and sex stereotypes individually. Still, this is an area that warrants more research.

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However, age and sex can interact with attractiveness to create even more complex effects on trait judgments. Attractiveness declines with age for both men and women, but this decline is stronger when men rate the attractiveness of women, versus any other rating condition (He et al., 2021). In another example, Palumbo and colleagues (2017) found that age and sex interacted such that older female faces were seen as less competent than older male faces due to the decreased attractiveness judgments of older female faces. These complex effects warrant further research.

A final aspect in which age and sex interact in trait judgments is due to changing views in aging, especially in women. Traditionally, aging-related changes are seen as more positive for men than women and thus, men may be more willing to embrace aging-related changes. As noted before, the most obvious example of this is graying hair, which can be seen as distinguished and attractive to men, but is traditionally seen as less desirable for women. More recently, however, many women have embraced aging-related changes such as gray hair in order to feel authentic (Cecil et al., 2022).

Summary

Aging leads to many changes in facial appearance, which in turn affects social interactions in older adults. This volume details many of these changes, showing just how important it is to consider these age-related changes and their effects on social behavior. Specifically, this chapter reviewed the work on aging and the perceptions of personality traits based on just faces. Though these judgments are quite consistent across perceivers and vary in their degree of accuracy, they play a large role in how individuals are responded to in real-life situations, such as employment decisions and who gets elected.

This chapter summarized evidence that suggests how age-related facial changes can affect trait impressions, but this research is still quite limited. Some lab studies have shown how aging changes can affect judgments of traits, but these studies are seldom linked to real-world behavior. Likewise, other studies have looked at older and younger adults in the real world but have not specifically controlled for specific facial-related changes. What is missing in the research is direct evidence about how specific age-related changes lead to specific social outcomes.

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