Facial Trustworthiness Perceptions Across the Adult Lifespan

Didem Pehlivanoglu[1], Tian Lin[1], Nichole Lighthall[2], Robert C. Wilson[3], Gary R. Turner[4], R. Nathan Spreng[5], & Natalie C. Ebner[1,6,7,8]

[1]Department of Psychology, University of Florida, Gainesville, FL, USA

[2]Department of Psychology, University of Central Florida, Orlando, FL, USA

[3]Department of Psychology, University of Arizona, Tucson, AZ, USA

[4]Department of Psychology, York University, Toronto, Canada

[5]Department of Neurology and Neurosurgery, McGill University, Montreal, Quebec, Canada

[6]Department of Aging and Geriatric Research, Institute on Aging, University of Florida

[7]Florida Institute for Cybersecurity Research, University of Florida

[8]Evelyn F. and William L. McKnight Brain Institute, University of Florida

Author note

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Abstract

Trust is crucial for successful social interaction across the lifespan. Facial age and emotion as well as a perceiver's age have been shown to influence trustworthiness perception. but their complex interplay has not yet been examined. To address this research gap, the present study adopted an adult lifespan developmental approach by asking 87 young (25-39 years), 59 middle-aged (44-59 years), and 47 older (60-78 years) women and men to rate the trustworthiness of faces that systematically varied in age (young, middle-aged, older) and emotion (neutral, happy, sad, fearful, angry, disgusted) from the FACES Lifespan Database. Young, middle-aged, and older perceivers did not differ in their overall facial trustworthiness ratings; and across all perceiver age groups young faces were rated as most trustworthy. Furthermore, in addition to this overall "young facial trustworthiness effect", we observed age-related variability in the perception of differences in facial trustworthiness among middle-aged vs. older faces. In particular, while young perceivers did not differ in their trustworthiness ratings for middle-aged and older faces, both middle-aged and older perceivers rated older faces as less trustworthy than middle-aged faces. These patterns were further moderated by facial emotion, highlighting particular age-related differences for emotions signaling threat (fear, anger, and disgust; relative to neutral, happy, and sad expressions). These results underscore the importance of both perceiver characteristics and facial cues in their interplay on facial trustworthiness perception across the adult lifespan. This publication also provides normative data on facial trustworthiness for the FACES Lifespan Database for use in research.

Keywords: Aging, Faces, Trustworthiness, Emotion, FACES, Adult lifespan development

Introduction

Trust is crucial for establishing and maintaining successful interpersonal relationships through all phases of life. Evidence suggests age-related differences in the perception of trustworthiness of others across adulthood (see Bailey & Leon, 2019, for a review and meta-analysis). In particular, relative to young adults, older adults reported more trust (Li & Fung, 2013; Poulin & Haase, 2015) and were less accurate at detecting untrustworthy behaviors (Frazier et al., 2021). Older adults also rated untrustworthy faces as more trustworthy (i.e., more positive/favorable; Castle et al., 2012; Zebrowitz, Franklin, Hillman, & Boc, 2013; but see Zebrowitz, Boshyan, Ward, Gutchess, & Hadjikhani, 2017) and demonstrated greater bias in evaluating more trustworthy-looking individuals as "good trustees" (i.e., displayed greater reliance on facial cues of trustworthiness; Suzuki, 2018).

This evidence of increased trust with age is in line with Socioemotional Selectivity Theory (SST; Carstensen, Isaacowitz, & Charles, 1999), which proposes greater attention and better memory for positive than negative information (e.g., Pehlivanoglu & Verhaeghen, 2019; see Reed, Chan, & Mikels, 2014, for a meta-analysis), towards maximization of one's well-being. In fact, it is possible that greater trustworthiness perception among older adults is driven by reduced sensitivity to negative information (Cacioppo, Berntson, Bechara, Tranel, & Hawkley, 2011; Labouvie-Vief, 2003) and could contribute to greater vulnerability to financial exploitation (Spreng, Ebner, Levin, & Turner, 2021), email phishing (Ebner et al., 2020; Grilli et al., 2020), and misinformation (Pehlivanoglu et al., under review) among older adults (see Ebner, Pehlivanoglu, & Polk, Turner, & Spreng, in press, for an overview). For example, older, unlike young, adults did not adjust monetary investments into a trustee in a trust game after breach-of-trust feedback (Frazier et al., 2021); with lower insula (Castle et al., 2012) and amygdala (Zebrowitz, Ward, Boshyan, Gutchess, & Hadjikhani, 2018) response to untrustworthy-looking

faces among older than young adults as putative neural substrate of the age-related reduced sensitivity to cues of untrustworthiness (see also Suzuki et al., 2019, for reduced striatal engagement in older adults during trustworthiness impression formation).

Contrasting these findings, however, is work demonstrating age-equivalence in the perception of trustworthiness and/or trust-related behaviors (Rieger & Mata, 2015; Sutter & Kocher, 2007). For example, monetary investments into trustees in a trust game were comparable between college students (mean age 22 years), working professionals (mean age 32 years), and retired individuals (mean age 68 years) (Sutter & Kocher, 2007; see also Rieger & Mata, 2015). Additionally, several self-report studies did not observe age-related differences in facial trustworthiness (Cortes et al., 2019; Petrican et al., 2013).

This mixed body of evidence suggests a complex interplay of factors involved in the perception of another's trustworthiness. One such factor could be the perceived age similarity between the self and the other person. Supporting this notion, in a trust game both young and older adults returned more money to individuals from the own compared to the other age group (Holm & Nystedt, 2005). Similarly, Bailey et al. (2015) found that although both young and older adults perceived older trustees as more trustworthy than young trustees in a trust game, older adults invested more money to own-age than other-age trustees. Older adults also showed greater bias toward thinking that someone from their own (vs. the other) age group was telling the truth in a lie detection task (Slessor et al., 2014). Thus, it is possible that, similar to an own-age bias in attention and memory (He et al., 2011; Strickland-Hughes, Dillon, West, & Ebner, 2020; Wiese, Schweinberger, & Hansen, 2008), an own-age bias is at work in trustworthiness perception. Such own-age bias may be due to greater expertise in identifying (more familiar) own-age than (less familiar) other-age stimuli. However, while the own-age bias in face

recognition memory has been studied quite extensively (Rhodes & Anastasi, 2012) the role of perceived age similarity on facial trustworthiness perception is not well understood. Given that facial age constitutes a particularly relevant feature when processing faces (He, Ebner, & Johnson, 2011; Lin, Fischer, Johnson, & Ebner, 2020) and that it has been shown to affect behavior in trust related decision making (e.g., lie detection, Slessor et al., 2014; trust game, Bailey et al., 2015), examination of its effect on facial trustworthiness perceptions in perceivers across the adult age range is warranted.

Another factor with relevance to age-related differences in trustworthiness perceptions is the emotional expression of the faces (Éthier-Majcher, Joubert, & Gosselin, 2013). Research with young adults has shown that trustworthiness judgments are an extension of judgments made based on a continuum between positive and negative emotions (Todorov, 2008). Building on this evidence, age-related deficits in lie detection were found to be driven by older adults' poorer recognition of negative facial emotions (Ruffman, Murray, Halberstadt, & Vater, 2012; Stanley & Blanchard-Fields, 2008). More recently, Éthier-Majcher et al. (2013) found that a correlation between facial anger and facial trust evaluations was evident only in older but not young adults. Thus, facial emotion may moderate the interplay between perceiver age and facial age when evaluating facial trustworthiness of others. While the effects of facial emotion on age-related differences in attention to faces has been studied previously (Ebner et al., 2013; Fölster, Hess, & Werheid, 2014), the role of facial emotion on facial trustworthiness perception has not yet been examined. Given evidence of an age-related shift in processing positive (e.g., happy) over negative (e.g., angry, sad, or fearful) faces (positivity effect; Mather & Carstensen, 2005) combined with findings on age differences in the utilization of facial emotion when judging trustworthiness (Éthier-Majcher et al., 2013; Ruffman et al., 2012; Stanley & Blanchard-Fields,

2008), a thorough understanding of the interplay between perceiver age, facial age, and facial emotion on facial trustworthiness perception is needed.

The present study specifically addressed this research gap and, going beyond previous studies that exclusively compared young and older adults (see Bailey & Leon, 2019, for an overview), also included middle-aged adults to allow for examination of age of perceiver, facial age, and facial emotion effects on facial trustworthiness perceptions across the entire adult lifespan. In particular, young, middle-aged, and older adults were asked to rate the trustworthiness of faces that systematically varied in age (young, middle-aged, older) and emotion (neutral, happy, sad, fearful, angry, disgusted) from a large standardized faces database (FACES Lifespan Database; Ebner, Riediger, & Lindenberger, 2010). This study design also allowed for the provision of picture-specific normative data regarding facial trustworthiness; accessible for download for scientific use under https://faces.mpdl.mpg.de/imeji/.

Method

Participants

This study comprised 194 adults recruited through Amazon Mechanical Turk (MTurk), all with reliable past performance (HIT approval rate > 98%) and experience (Number of HITs approved > 1,000). Only White participants were included based on evidence that racial category can affect face perception (Meissner & Brigham, 2001) and given that all faces used in this study were from White face models. Data from one participant were excluded from analyses due to use of the same rating score in more than 90% of the responses. Of the remaining 193 participants, 87 were young (M = 30.98 years, SD = 4.46, 25-39 years, 28% female), 59 middle-aged (M = 51.91 years, SD = 6.09, 44-59 years, 64% female), and 47 older (M = 65.64 years, SD = 4.22, 60-78 years, 70% female). Age by gender groups did not differ in self-reported vision (*How would*

you describe your overall vision?; scale from 1 = *Poor* to 5 = *Excellent*; M = 4.39, SD = 0.76), cognitive functioning (*How would you describe your overall cognitive functioning*?; scale from 1 = *Poor* to 5 = *Excellent*; M = 4.45, SD = 0.71), or years of education (M = 15.25, SD = 3.23). They did, however, differ in health (*How would you describe your overall health?*; scale from 1 = *Poor* to 5 = *Excellent*), with better self-reported health among young women (M = 3.75, SD = 1.03) and men (M = 4.21, SD = 0.83) as well as middle-aged women (M = 3.82, SD = 0.93) and men (M = 4, SD = 1.00) than among older women (M = 3.61, SD = 0.93) and men (M = 3.29, SD = 1.2; $F(2, 187) = 5.61$, $p = .004$, $\eta_p^2 = 0.04$).

Stimuli

Face stimuli were from the FACES Lifespan Database (Ebner, Riediger, & Lindenberger, 2010), a standardized database that contains naturalistic, high-quality colored still photographs of facial images from 58 young (19-31 years), 56 middle-aged (39-55 years), and 57 older (69-80 years) individuals, approximately half women and half men. Each face identity in the database is represented in two parallel sets (Set A and Set B; 1,026 face images in each set) of six prototypical facial emotions (neutral, happy, sad, fearful, anger, disgusted); for a total of 2,052 face images.

Procedure

All study procedures were approved by the University of Florida Institutional Review Board. Data collection was conducted remotely, via Qualtrics on MTurk. Prior to study enrollment, all participants electronically signed an informed consent form. Then, participants filled out a short demographic profile and general health questionnaire (see single items listed above). The study consisted of three sessions, completed on three separate days over the course of one week at the participants place of choice (with the instruction to complete the study in a

quiet place free of interruptions/disturbances). At the beginning of each session, participants responded to the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) regarding their present mood (*To what extent do you feel* [emotion adjective] *right now?*; scale from 1 = *Very slightly or not at all* to 5 *Extremely* to evaluate each adjective (e.g., *excited, afraid*; 10 positive and 10 negative adjectives). Next, participants rated a set of faces on facial trustworthiness (*Face Rating Task* described below). Finally, participants filled out the 6-item General Trust Scale (Yamagishi & Yamagishi, 1994) that assesses trust in other people (e.g., *Most people are trustworthy*; *Most people are basically honest*; scale from 1 = *Strongly disagree* to 5 = *Strongly agree*).

Each session took about 1 hour to complete. Participants received $4 compensation at the end of each session and a $3 bonus upon completion of all three sessions. Of the 193 participants, 164 (85%) completed all three sessions, while 29 (15%) partially either completed one (N = 23) or two (N = 6) sessions.

Face Rating Task

Participants were instructed to sit 57 cm away from the computer screen for a comfortable viewing distance, received written task instructions and three practice trials. They were informed that they would see various faces displaying different facial emotions and were asked to give their spontaneous, personal judgment regarding the trustworthiness of each face (i.e., *How trustworthy is this face?*). In each trial, a color face image appeared in the center of the screen on a gray background with a sliding scale underneath that ranged from 0 = *Not at all trustworthy* and 100 = *Extremely trustworthy*. The task was self-paced with each face presented for at least 5 seconds. Once participants gave their response and at least 5 seconds had passed, they could click on a button on the screen saying *Next* to proceed to the next face. A cue

prompted participants to take a 5-minute break after rating half of the faces, and the program advanced only after this break.

Across the experiment, participants rated up to 1,026 faces selected either from the A or B set of the FACES Lifespan Database. Face presentation order was pseudorandomized and counterbalanced across participants, with three lists in total (one per session, each containing 342 faces, 57 faces per facial emotion). Within each pseudorandomized list, each facial identity was presented twice, each time displaying a different facial emotion. The same face identity and facial emotion were not repeated more than two times in a row.

Design

The study adopted a 3 (Perceiver Age: young, middle-aged, older; between-subjects) x 3 (Facial Age: young, middle-aged, older; within-subjects) x 6 (Facial Emotion: neutral, happiness, sadness, fear, anger, disgust; within-subjects) mixed design.

Data Analysis

We used multilevel random intercept models (Gelman & Hill, 2007). Specifically, we conducted a cross-random effects analysis with cross-classification of perceivers and faces, and a nesting structure for repeated observations within perceivers (see Ebner et al., 2018; Riediger, Voelkle, Ebner, & Lindenberger, 2011, for a similar analytical approach). This crossed-random effects model allowed for *(i)* ratings given by the same perceivers to be correlated across various face images; and *(ii)* dependencies among ratings for the same face image given by different perceivers.

The outcome variable was facial trustworthiness rating. We considered the fixed effect of all predictors including Perceiver Age, Facial Age, Facial Emotion, and all their interactions. We also estimated the random intercept of ratings for faces and perceivers, respectively. The total

number of faces rated by a perceiver, gender of the perceiver, counterbalancing order, face picture set, as well as self-reported mood (measured via PANAS) and interpersonal trust (measures via the General Trust Scale) were entered as covariates in the analysis.

We applied maximum likelihood for estimations of all model parameters. Significance of main effects and interactions was determined by Wald tests. For significant interactions, we computed and plotted predicted marginal means from the estimated model parameters, corrected for multiple comparisons (Bonferroni). All analyses were performed in Stata, version 16.1 (StataCorp, 2019).

Results

Table 1 summarizes means and standard deviations of facial trustworthiness ratings by facial age and facial emotion for young, middle-aged, and older perceivers.

The Perceiver Age main effect was not significant ($\chi^2_{(2)} = 3.35$, $p = 0.187$). That is, young ($M = 50.46$, $SD = 24.86$), middle-aged ($M = 50.82$, $SD = 21.45$), and older ($M = 51.81$, $SD = 21.14$) perceivers did not differ in their overall trustworthiness ratings across all faces. The Facial Age main effect was significant ($\chi^2_{(2)} = 67.87$, $p < .001$), with this effect qualified by a significant interaction with Perceiver Age ($\chi^2_{(4)} = 202.38$, $p < .001$). In particular, all perceivers rated young faces as most trustworthy. However, while young perceivers did not differ in their trustworthiness ratings for middle-aged and older faces ($z = 1.06$, $p = .999$), both middle-aged and older perceivers rated older faces as less trustworthy than middle-aged faces (zs > 3.28, ps < .011).

Further qualifying this main effect and the two-way interaction, however, the interaction between Perceiver Age x Facial Age x Facial Emotion was significant ($\chi^2_{(20)} = 83.49$, $p < .001$). To decompose this significant three-way interaction and facilitate interpretation, we conducted

separate follow-up analyses within each facial emotion category. As depicted in Figure 1 across Panel A, B, and C, young, middle-aged, and older perceivers showed a comparable pattern in their trustworthiness ratings for neutral, happy, and sad faces. In particular, all three perceiver age groups rated young neutral, happy, and sad faces as more trustworthy than middle-aged and older faces displaying these emotions (zs > 2.84, ps < .049), with no differences in trustworthiness ratings between middle-aged and older faces displaying these emotions (zs < 1.92, ps > .635).

In contrast, perceiver age differences in facial trustworthiness ratings were observed for faces displaying fear, anger, and disgust; with these differences mostly between young vs. middle-aged/older perceivers. In particular, comparable to the pattern described above for neutral, happy, and sad faces, young perceivers rated middle-aged and older fearful faces as equally trustworthy (z = 1.47, p = .843), but as less trustworthy than young fearful faces (zs > 4.95, ps < .001). Young perceivers' trustworthiness ratings for angry faces, however, did not vary by facial age (zs < 2.19, ps > .172), while they rated older disgusted faces as least trustworthy and young disgusted faces as most trustworthy (zs > 2.67, ps < .045), with middle-aged faces falling in between. Different from young perceivers, middle-aged and older perceivers' trustworthiness ratings for young, middle-aged and older faces did not vary by fear, anger, and disgust display. Rather, both middle-aged and older perceivers rated older fearful, angry, and disgusted faces as least trustworthy and young faces displaying these emotions as most trustworthy (zs > 2.86, ps < .039), with middle-aged faces falling in between.[1]

Discussion

[1] To control for perceived facial attractiveness, for each picture we entered attractiveness rating scores, averaged across the three perceiver age groups respectively obtained in Ebner et al. (2018), as covariate in the analysis. The pattern of findings from the control analysis was comparable to the results reported in text.

Extending previous work on facial trustworthiness perceptions (Castle et al., 2012; Cortes et al., 2019; Petrican et al., 2013; Zebrowitz et al., 2013, 2017), the present study systematically varied facial age and facial emotion and documents their modulatory role on facial trustworthiness ratings by young, middle-aged, and older perceivers. By considering the interplay between perceiver and facial characteristics as well as by including in the design perceivers and faces of middle-aged individuals as a currently understudied population, our study goes significantly beyond previous work, advancing knowledge about factors underlying the perception of facial trustworthiness and allowing the capture of cross-sectional patterns across the entire adult lifespan. Our study generated various novel findings, as discussed in the following. Also, this study makes available to the scientific community normative data on facial trustworthiness ratings for the FACES Lifespan Database (https://faces.mpdl.mpg.de/imeji/).

On an aggregated level, we found that young, middle-aged, and older perceivers did not differ in their overall facial trustworthiness ratings. This finding is in line with some prior studies suggesting no age-related differences in facial trustworthiness perception (Cortes et al., 2019; Petrican et al., 2013; but see Castle et al., 2012; Zebrowitz et al., 2017; Zebrowitz et al., 2013, for evidence that older compared to young adults rate untrustworthy faces as more trustworthy).

We also found that overall young faces were rated as most trustworthy, when compared with both middle-aged and older faces. This “young facial trustworthiness effect” appears to reflect variation in trait attribution as a function of facial age. Perhaps young faces were perceived as more naïve and inexperienced compared to middle-aged and older faces (Grühn, Gilet, Studer, & Labouvie-Vief, 2011; Heckhausen, Dixon, & Baltes, 1989), thus eliciting higher perceived trust. In contrast, middle-aged and older compared to young faces may have been perceived in more negative terms (e.g., sneaky, rigid; (Gluth, Ebner, & Schmiedek, 2010;

Hummert, 1990; Hummert, Garstka, O'Brien, Greenwald, & Mellott, 2002; Lin, Ankudowich, & Ebner, 2017), resulting in lower perceived trust. To confirm this possible interpretation, future research should combine facial trustworthiness ratings with ratings for attitudes such as self-esteem and intelligence, as well as experimentally probe the hypothesis that modulating trait attribution influences facial trustworthiness perception, and perhaps as a function of facial age.

Furthermore, in addition to an overall "young facial trustworthiness effect", we observed age-related variability in the perception of differences in facial trustworthiness among middle-aged vs. older faces. Specifically, while young perceivers rated the trustworthiness of middle-aged and older faces as equivalent, middle-aged and older perceivers both differentiated between middle-aged and older faces in that they rated older faces as less trustworthy than middle-aged faces. This finding is developmentally interesting as it suggests the role of life experience/expertise on evaluating facial trustworthiness (e.g., young adults may not be as experienced with middle-aged and older faces than middle-aged and older adults; Bartlett & Leslie, 1986; Ebner et al., 2018; Goldstein & Chance, 1980).

With our experimental design that systematically varied both perceiver and face characteristics, we were further able to demonstrate a moderation effect of facial emotion on the above reported effects. In particular, quite comparable across the three perceiver age groups, young neutral, happy, and sad faces were perceived as more trustworthy than middle-aged and older faces with these emotions. In contrast, age-related differences in facial trustworthiness perception were observed for faces displaying fear, anger, and disgust, particularly between young vs. middle-aged and older perceivers. This pattern of findings suggests that age effects in facial trustworthiness perceptions may be at work for faces serving a threat-signaling function (i.e., fear, anger, disgust). Additionally, perhaps the high emotional arousal associated with fear,

anger, and disgust (also relative to neutral, happy, and sad facial expressions) may have enhanced age-differential perception of trustworthiness for these emotions. The interpretation that emotional arousal associated with faces may impact facial trustworthiness perception differently for perceivers of different ages is also in line with findings that only older but not young adults showed similarities between facial trust and facial anger evaluations (Éthier-Majcher et al., 2013). Future studies will be able to follow up on this possibility by systematically varying arousal levels of faces in their effect on facial trustworthiness perception across the adult lifespan.

Furthermore, while for neutral, happy, sad, and fearful faces, young perceivers rated the trustworthiness of middle-aged vs. older faces as equivalent and as less trustworthy than young faces, their perceived trustworthiness of angry faces did not vary by facial age. It is possible that high arousal and strong negative valence associated with angry faces overrides the impact facial age has on young perceivers' facial trustworthiness ratings. In particular, processing of angry faces may be associated with a heightened startle response as the social threat conveyed by an angry face triggers a strong psychophysiological reactivity (Springer, Rosas, McGetrick, & Bowers, 2007). Along these lines, a previous study found larger pupil dilation in young adults in response to processing of angry faces only (Pehlivanoglu, Jain, Ariel, & Verhaeghen, 2014). Moving forward, this interpretation could be tested via assessment of physiological responses (e.g., skin conductance, pupil dilation) during facial trustworthiness ratings and would allow identifying the mechanisms underlying facial emotion effects on trustworthiness perceptions across adulthood.

Also, the pattern of findings for disgusted faces further varied from other emotion expressions. In particular, deviating from the observed young perceivers' overall tendency of

giving comparable trustworthiness ratings to middle-aged and older faces, they rated older disgusted faces as lower in trustworthiness than middle-aged and young faces. Given evidence of a negative aging stereotype (Gluth et al., 2010; Hummert, 2011) Hummert et al., 2011) viewing older faces, and especially among young adults (North & Fiske, 2012), expressing disgust may trigger negative feelings (e.g., disapproval; Haidt, 2003; Miller, 1998), and particularly in young perceivers, perhaps lowering their perceived trustworthiness of these faces.

Quite different from young perceivers, both middle-aged and older perceivers gave comparable trustworthiness ratings for fearful, angry, and disgusted faces, with higher ratings for young, followed by middle-aged and then older faces expressing these emotions. This is also in contrast to the pattern summarized for neutral, happy, and sad faces for which middle-aged and older adults rated middle-aged and older faces as equally untrustworthy. This pattern of findings could imply that middle-aged and older perceivers particularly distrust older faces when those faces express fear, anger, or disgust; a strategy that could be self-protective in light of negative age stereotypes and serve the maintenance of a positive self-view. In fact, maintaining a positive self-view contributes to successful aging (Baltes & Baltes, 1990; Levy, Slade, & Kasl, 2002) and older adults have been shown to identify themselves with positive rather than negative age-stereotypical information by distancing themselves from their own-age group when their own-age group is depicted as negative (Lin et al., 2017; Weiss & Freund, 2012). The present study's findings extend this phenomenon to perceptions of facial trustworthiness. Future experimental studies could move forward with specifically probing the role of (both explicit and implicit) age-stereotypes on facial trustworthiness perception among adults of different ages.

Our study is not without limitations. For example, use of a facial trustworthiness rating task on still images limits generalization of the results to more interactive, dynamic task contexts.

For instance, some previous studies employed trust/investment game, where trustworthiness judgments were based on repeated interactions with trustees during the game (Bailey et al. 2015; Holm & Nystedt, 2005). Likely, both facial appearance (e.g., facial characteristics of the trustee) and experience-based factors (e.g., behavioral interactions with the trustee) play a major role in trustworthiness evaluations in real-life interactive contexts. Future studies can test the extent to which varying levels of trustworthiness cues available (e.g., facial appearance and/or experience-based) and amounts of interaction required (e.g., passive vs. low vs. high) impact trustworthiness perceptions across decision-making contexts (e.g., financial trust game, deception detection). Also, the present study employed a cross-sectional design. Longitudinal research in which facial trustworthiness ratings are collected from same, different-aged individuals over time (e.g., cross-sequential study design) is warranted to dissociate age from cohort effects and to capture both inter- and intra-individual differences in facial trustworthiness perception across the adult lifespan.

Conclusions

We adopted an adult lifespan developmental approach to the study of facial trustworthiness perception by systematically varying the age of the perceiver in addition to facial age and facial emotion. The findings revealed both age-related similarities and differences in the impact of age and emotion on facial trustworthiness evaluation, underscoring the important interplay of both perceiver characteristics and facial cues on perceiving another's trustworthiness. The findings obtained here shed light on factors influencing trust in others and have potential to inform understanding of processes involved in fraud and exploitation across the adult lifespan. Accompanying this publication are picture-specific normative data on facial trustworthiness ratings for the FACES Lifespan Database for use in research.

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DP and NCE designed the study. DP collected the data. DP, TL, and NCE developed the formal analytical strategy. DP and TL processed the data, conducted analyses, and reported the findings. DP, TL, and NCE wrote the Methods. DP and NCE wrote the introduction. DP and NCE wrote the discussion. All authors contributed to manuscript conceptualization and editing and approved the final manuscript.

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Table 1. *Means (Standard Deviations) of Facial Trustworthiness Ratings (from 0 = Not at all trustworthy to 100 = Extremely trustworthy) by Facial Age and Facial Emotion for Young, Middle-Aged, and Older Perceivers.*

Young Perceivers							
		Facial Emotion					
		Neutral	**Happy**	**Sad**	**Fearful**	**Angry**	**Disgusted**
Facial Age	**Young**	61 (21)	76 (19)	51 (23)	49 (24)	43 (26)	44 (25)
	Middle-Aged	55 (22)	71 (21)	49 (23)	45 (24)	41 (25)	41 (25)
	Older	53 (23)	70 (21)	49 (24)	44 (26)	41 (25)	39 (26)
Middle-Aged Perceivers							
		Facial Emotion					
		Neutral	**Happy**	**Sad**	**Fearful**	**Angry**	**Disgusted**
Facial Age	**Young**	57 (22)	78 (20)	54 (21)	52 (23)	40 (22)	44 (22)
	Middle-Aged	50 (22)	74 (21)	48 (21)	46 (22)	37 (21)	38 (21)
	Older	48 (22)	73 (21)	47 (21)	43 (22)	35 (21)	34 (21)
Older Perceivers							
		Facial Emotion					
		Neutral	**Happy**	**Sad**	**Fearful**	**Angry**	**Disgusted**
Facial Age	**Young**	57 (22)	79 (17)	52 (21)	53 (22)	44 (23)	47 (22)
	Middle-Aged	52 (22)	75 (18)	49 (20)	48 (21)	41 (22)	43 (21)
	Older	50 (23)	72 (19)	47 (21)	44 (21)	39 (22)	38 (21)

Figure 1. *Estimated marginal means for facial trustworthiness ratings by facial age and facial emotion in (A) young, (B) middle-aged, and (C) older perceivers. Solid black lines represent young faces, dotted black lines middle-aged faces, and dashed gray lines older faces. Error bars denote standard errors. The y-axis ranges from 30 to 85 to reflect the actual range of trustworthiness ratings selected by perceivers in this study; the theoretical range was from 0 = Not at all trustworthy and 100 = Extremely trustworthy.*