

## Facial Perceptions:

### Age's influence on People's Perceptions of Facial Modifications

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**A 2x7 between-subject experiment examined the affect of age on people's perceptions of facial modifications. Researchers instructed participants aged 18-60 to complete two online surveys. One survey contained 10 modified faces (facial piercings and neck tattoos) and the second survey contained 10 non-modified faces. Participants were instructed to look at each face and rate the face using a 5 point Likert scale on five traits: Trustworthiness, Attractiveness, Confidence, Intelligence and Friendliness. Modified faces were rated higher and perceived more positively than the non-modified faces by participants in all age groups. There was an effect of modification on age groups one (18-23 years old), two (24-29 years), five (30-35 years) and six (36-41 years) for the traits Attractiveness and Confidence. These findings suggest people's perception of strangers' is influenced by their own age at the time of the encounter and the age of the faces.**

Social interaction is a part of our everyday lives and is also, an important means of communicating with others and forming bonds and relationships.<sup>1</sup> While people are sometimes judged by the content of their character, their physical appearance most often influences another person's social perception of them.<sup>2</sup> During first time encounters, perceptions not only influence people's first impression of strangers but also influence their decision to socialize or interact with someone and possibly pursue a relationship with them.<sup>3</sup> External cues are very important in evaluating and influencing people's perception of strangers because they provide information about a stranger's social groups and social traits.<sup>4</sup> For humans and animals, the face serves as an important, primary external cue. A person's face communicates their feelings, emotions, thoughts and certain behavioral tendencies and as such, is often observed and analyzed by people during social interactions.<sup>5</sup> Many people believe they can assess an individual's personality through facial appearance alone.<sup>6</sup>

Like faces, body modifications, particularly tattoos, signal and convey information about a person.<sup>7</sup> Generally, people associate certain personality characteristics with body modifications. Men with tattoos are perceived as attractively dominant, masculine and risk-takers.<sup>8</sup> Nevertheless, body modifications are perceived differently in different cultures, different age groups and by different people.<sup>9</sup> Decades ago, people with body modifications were viewed as trouble-makers and rebels and ostracized from conventional society.<sup>10</sup> During the 1970s however, the punk culture began rising which increased the amount of exposure

people had to body modifications during that time period and later on.<sup>11</sup>

In spite of the increased exposure, there is still a stigma associated with tattoos and piercings. People with body modifications are often perceived more negatively than people without tattoos and facial piercings. In a recent study in which participants looked at hand drawn images of tattooed women, Swami and Furnham (2007) found that women with tattoos were rated as more sexually loose, less attractive and heavier drinkers than non-tattooed women; such associations became stronger when the number of tattoos increased.<sup>12</sup> Therefore, although perceptions can facilitate new bonds and relationships based on perceived similarities, they can also lead to negative attitudes, unfair assumptions and preconceived notions that inhibit and limit the interaction between individuals.<sup>13</sup>

Since the face is a primary, influential external cue especially in social interactions and encounters, individuals with facial modifications may be subjected to harsher treatment and rejection as a result of preconceived negative perceptions. For this reason, it is important to better understand the impact or influence that visible facial piercings and tattoos have on a stranger's perception of an individual. If exposure does indeed influence or mediate the stigma associated with facial modifications, then negative perceptions may presumably be affected by age.

In general terms, the experiment reported here was designed to investigate the effect of age on an individual's perceptions of people with facial modifications. The present study is neither the first to manipulate stimuli to

incorporate tattoos in order to assess people's perceptions of tattooed individuals nor the first to investigate how facial appearance affects people's perceptions. As far as we know, the present study is the first to incorporate facial piercings. The methodological approach of the current study is loosely modeled on previous studies that have used facial stimuli and a Likert scale to assess people's perceptions on similar characteristics.<sup>14</sup> The methodological approach of the Porter et al. (2008) study was to individually present target faces of known criminals and award winners varying in trustworthiness for either 100 ms or 30s. First, participants were asked to assess and rate each face on three traits: trustworthiness, kindness, and aggressiveness. Then, researchers revealed to the participants that there were two face categories (award winners vs. criminals) and subsequently asked the participants to re-evaluate each face but only on the target's group membership (whether the face shown was an award winner or criminal). While the present study also presented faces varying on a certain condition (modification), unlike the Porter et al. (2008) study, faces of unknown, random individuals were used rather than faces of known criminals and award winners. Using photos of known criminals (FBI ten most wanted) and award winners (Nobel Peace prize recipients) and presenting the face stimuli to participants could have confounded the results if the participants recognized the faces of the men and rated them on all three traits accordingly. Thus, unknown, random faces of people were used in the current study to avoid this problem. Nonetheless, Porter's et al. (2008) findings converge and are consistent with Borkenau and Liebler's (1993) findings that people's perceptions are not only influenced by facial appearance but are also able to accurately assess a person's trustworthiness based on face alone.<sup>15</sup>

Borkenau and Liebler's (1993) study was inspired by previous, converging studies on first impressions but differed from previous studies in that it mainly focused on assessing the accuracy of strangers' first impressions and used a different method of doing so. Participants described themselves on camera, were videotaped and later, given an IQ test. A five trait domain was used to assess people's perceptions of strangers. Whereas Borkenau (1993) focused on the accuracy of the strangers' perceptions, the present study focused on people's perceptions of strangers' faces in relation to their age. Several judges (strangers) rated each participant on each Big Five trait (extraversion, conscientiousness, etc). Some judges were shown silent videotapes of participants and others were shown videos with audio. Borkenau and Liebler (1993) found that strangers' ratings

and perceptions of the personality traits of other strangers based on external cues alone were very accurate. They also found no correlation between the amount of information given about the participants and how it is given (silent/audio) as long as strangers were exposed to the same information.<sup>16</sup>

Therefore, both Borkenau's and Liebler's (1993) findings and Porter's et al. (2008) findings show that strangers are indeed capable of forming accurate impressions of other strangers using external cues alone. While the focal interest of the current study is on the positivity or negativity of such impressions in relation to a person's age, both Borkenau's and Liebler's (1993) study and Porter's et al. (2008) show that giving people external cues/stimuli of faces is a reliable and valid way of assessing people's perceptions. Later, an experiment conducted by Rydell et al. (2008) added to and/or furthered Borkenau (1993) and Porter's et al. (2008) findings by showing that specific changes in facial appearance influences a person's perceptions of an individual.<sup>17</sup>

Rydell's et al. (2008) study focused on the effect association cues had on implicit and explicit attitudes.<sup>18</sup> Though their study also focused on stigmatized groups and the faces of the targets were modified like the faces in the current study, Rydell's et al. study (2008) focused on obese individuals rather than tattooed persons and manipulated the photos of non-obese people to indicate obesity. In the Rydell et al. (2008) study, participants first received detailed, verbal information about a stranger's behavior and were subsequently instructed to express their implicit and explicit attitudes via ratings. Rydell et al. (2008) found that cues associated with a person's facial appearance i.e. obesity influenced a stranger's implicit attitudes towards the target. Additionally, the level of perceived attractiveness influenced the participants' ratings of the targets; "unattractive" targets received lower ratings and were perceived more negatively than the "attractive" targets.<sup>19</sup>

In Wohlrab's et al. (2009b) study however, researchers investigated the potential signaling function of tattoos.<sup>20</sup> The Wohlrab et al. study (2009b) was one of the first studies to move beyond facial appearance and focus on body modifications, specifically tattoos. In the study, researchers assessed the participants' perceptions via their ratings of virtual full bodied tattooed and non-tattooed human characters on six traits: aggression, attractiveness, dominance, health, masculinity and femininity. Like the present study, participants were presented with a male and female figure of the stimuli that was displayed with or

without a tattoo. Contrary to present study, the stimuli were generated by computer software and were not faces of real humans. Wohlrab et al. (2009b) found that both male and female participants perceived tattooed male figures as more dominant than non-tattooed male figures. The non-tattooed female figures were perceived as healthier than the tattooed female figures by female participants.<sup>21</sup>

Swami and Furnham (2007) also examined the influence of tattoos on people's perceptions, specifically on women's perceived physical attractiveness, sexual fidelity and consumption of alcohol. Similar to the current study, participants' perceptions of the targets were assessed with a Likert scale but with different options i.e. not, mostly, very. Some participants were also exposed to the tattooed condition and asked to rate each target but were presented with hand drawn full body figure female characters with tattoos on either the arm, calf or abdomen instead of face photos. As stated earlier, Swami and Furnham (2008) found that women with tattoos were perceived as more sexually promiscuous and less attractive than women without tattoos.<sup>22</sup>

In sum, previous studies that have examined the effect of body modifications and facial appearance on perceptions have found that peoples' perceptions of an individual are indeed influenced by external cues and changes in facial appearance. Previous studies such as Porter et al. (2008) and Wohlrab et al. (2009a, 2009b) suggest that such keenness of facial cues is intuitively built into humans for evolutionary purposes i.e. survival, mate selection. The formation of groups whether social or familial is essential to human survival as people accepted into social groups are happier, healthier and live longer than ostracized individuals.<sup>23</sup> Since body modifications are becoming increasingly prevalent, people need to be aware of the ways they may unknowingly perceive others and how they themselves might be perceived; understanding the role a person's age plays in social perceptions is therefore important as it may further understanding which in turn, would increase awareness.

The purpose of the present experiment was to determine if a person's age influences their perceptions of individuals with facial modifications (piercings and tattoos) as well as their willingness to associate with them. We hypothesized that younger (18 – 34 years old) people will assign higher, more positive ratings of modified faces on all 5 traits than older (35 – 60 years old) persons. Older aged persons will perceive non-modified faces more positively. Since lack of exposure to body modifications (tattoos) fa-

cilitates the formation of negative stereotypes of individuals who have them, individuals born after the 1970's were more exposed to tattooed individuals and therefore should perceive such individuals in a more positive light.

In our 2 x 7 between subjects factorial design, the first independent variable, facial modifications, consisted of two levels: modified and non-modified and the second independent variable, age, consisted of seven levels: Group 1 (18-23 yrs), Group 2 (24-29 yrs), Group 3 (30-35 yrs), Group 4 (36-41 yrs), Group 5 (42-47 yrs), Group 6 (48-53 yrs), Group 7 (54-60 yrs). The dependent variable will be the rating of the five traits (the participants' perceptions), as indicated by a five-point Likert scale. Modified is defined as the addition of tattoos and piercings ranging from one to five to the targets' faces. Our methodological approach was to present target faces two ways: modified or non-modified. For each target, participants in the modified condition were asked to provide ratings on Trustworthiness, Attractiveness, Friendliness, Confidence and Intelligence. The same were asked of participants in the non-modified condition.

We expect the data to support our hypothesis which states that the younger a person is, the less negatively they will perceive an individual with facial modifications. We also expect to find a statistical difference between the overall ratings of younger participants (18-34 yrs old) and older participants (35-60 yrs old). A significant statistical difference would lessen the likelihood that any change in the dependent variable (perception/trait ratings) was due to chance or confounding variables. Upon further data analysis, our team expects the data to show that older (35-60 yrs old) aged participants perceived and ranked the modified faces more negatively than the non-modified faces. Higher negative ratings by the older participants would lend support to our hypothesis. We also expect to find a main effect of age for all five traits.

Even so, taking human variability and other possible confounding factors into consideration, other possible outcomes of our study are likely to occur. One possible outcome is that age and negative perceptions of modified faces will be negatively correlated instead of positively correlated. In this instance, traits other than those we provide to the participants could have possibly come into play and affected the participants' perception of the modified faces.

## Method

### Participants

One hundred and seventy-two people ranging in age from 18-60 years participated in the study. Participants were

recruited via the internet through email, Facebook and Myspace messages and were directed to one of two online surveys on the REDCap webpage via links. All 172 participants differed in socioeconomic statuses, occupation, ethnicity and gender. The total age distribution for the participants who partook in the study was divided into seven age groups: Group One: 18-23 yrs (104 people); Group Two: 24-29 yrs (13); Group Three: 30-35 yrs (7); Group Four: 36-41 yrs (9); Group Five: 42-27 yrs (12); Group Six: 48-53 yrs (17); Group Seven: 54-60 yrs (10). All participants took part on a voluntary basis and were not compensated nor received credit for their time.

### Face Stimuli

Loosely modeled on previous experiments that have used still images of human faces for face stimuli,<sup>24</sup> in this experiment, the face stimuli (targets) for each survey were ten photographs of adult males and females. Of the ten faces, five faces were females and five faces were males. In addition, of the ten faces, two faces were one of five races: African American, Caucasian, Hispanic, Asian/Pacific Islander and Other. Each race was represented by a male and female face that was presented two different ways a) non-modified and b) modified.

Though unmatched in ethnicity, age and hair, all targets were matched on neutral facial expressions. Non-modified faces were presented to the Survey One participants in their natural, unedited form. All non-modified photographs were found on public domain websites such as Google and Yahoo. Using Photoshop, piercings and tattoos were added to the same ten non-modified faces to make them modified. The added tattoos ranged in neutrality from “tribal” black designs to black abstract designs and were placed on the neck area of the targets. The piercings on the modified faces ranged in color, location on face and amount (1 – 5 piercings). To ensure that the participants’ judgments were made based on facial appearance rather than the body type of the targets, all photographs were cropped to each target’s mid-shoulder. The order of the faces was determined by a random number generator. Once all ten faces were selected and modified, the online surveys were created using REDCap “create-a-survey” tool.

### Apparatus

Two surveys were created. The first survey (titled Facial Perceptions) consisted of 54 required questions in total; 50 of which were the trait ratings for each face. All 54 questions required an answer or response and participants

who failed to respond could not proceed to the next page of the survey. On each individual page of the survey, there was one face and five traits presented in the form of a statement beneath the face. Each of the five statements partially modeled the five-point Likert scale used in Wohlrab et al. (2009a, 2009b) and Swami and Furnham (2007) for each of the following traits: Trustworthiness, Attractiveness, Intelligence, Confidence and, Friendly (See Figure 1).

Picture of Face

This person looks trust worthy  
 Strongly agree  Somewhat agree  Neutral  
 Somewhat disagree  Strongly disagree

This person looks attractive  
 Strongly agree  Somewhat agree  Neutral  
 Somewhat disagree  Strongly disagree

This person looks intelligent  
 Strongly agree  Somewhat agree  Neutral  
 Somewhat disagree  Strongly disagree

This person looks confident  
 Strongly agree  Somewhat agree  Neutral  
 Somewhat disagree  Strongly disagree

This person looks friendly  
 Strongly agree  Somewhat agree  Neutral  
 Somewhat disagree  Strongly disagree

Figure 1. A sample page of the non-modified survey.

Upon completion of the first survey, to ensure conditions were kept the same, the first survey was copied using REDCap’s “copy survey” function to create the second survey (titled Facial Perceptions 2). Both surveys contained the same faces and the same questions in the same order. The only difference between the first survey and the second, copied survey was that the non-modified faces in the first survey were replaced with the modified faces in the

second survey. In other words, the first survey contained 10 non-modified faces and the second survey contained 10 modified faces (facial piercings and neck tattoos). A random number generator was used to determine the order of the faces for the survey. On the second to last page of both surveys, the participants' gender, age, occupation and ethnicity were listed as questions.

### Procedure

Each participant was tested individually outside of a lab on his/her own accord in terms of time, location and the materials (computer) used. The survey link participants received or were given access to by the researchers were random and depended upon the researchers' distribution of the modified and non-modified links. Participants were either emailed the modified or non-modified survey links directly or were able to access them through Facebook and Myspace postings. Participants were not solely limited to the researchers' friends and acquaintances as the survey postings were publicly listed on Myspace and Facebook. Upon clicking on either of the survey links, participants were immediately directed to the survey. First, participants were given instructions via the computer and presented with a consent form. Participants were instructed to look at each face and rate the face using a five point Likert scale on five traits: Trustworthiness, Attractiveness, Confidence, Intelligence and Friendliness.<sup>25</sup>

In order to proceed and begin the survey, participants had to "agree" or indicate that they understood the instructions and wanted to participate in the experiment. To ensure that snap judgments of the faces were being made, participants were instructed at the beginning of the survey to move as quickly as possible and were not able to resume the survey once they left the survey webpage. After they read the directions and clicked "next", participants progressed to the next page, where they were presented with a face and rated the face according to a five-point Likert scale on each of the five traits.<sup>26</sup> Subsequently, participants were presented with another face but with the same five traits and rating scale. Participants were exposed to the same condition until they rated all ten faces (either modified or non-modified). At the end of the survey, participants were debriefed and told they could optionally type in their email addresses if they wanted to receive more information about the results of experiment. In total, each survey took 5-10 minutes and was accessible to participants for five days. On the sixth day following the onset of our experiment, the survey was made "inactive" on REDCap and was thus

inaccessible to anyone but the researchers.

### Results

ANOVA was used to determine if participants' ratings of the faces were affected by the presence of modifications on the targets' faces. Overall, participants of all age groups rated the modified faces higher on all five traits ( $M=14.369$ ) than the non-modified faces ( $M=13.070$ ) (See Figure 2-1).

#### Scores on the Five Traits

For the trait Trustworthiness, age groups two, five and six had the largest differences of means of ratings on Condition (appearance of the face). The difference of means between age group two participants exposed to the modified condition and the non-modified condition was the highest ( $M=.7225$ ); age group six had the second highest difference ( $M=.65909$ ) followed by age group five ( $M=.655556$ ). There was a main effect of Condition on Trustworthiness,  $F(1,158) = 11.49$ ,  $p=.0009$  but a non-significant interaction between Age and Condition,  $F(1, 158) = 1.9723$ ,  $p=.0727$ . In terms of within age group consistency of responses across conditions (modified vs. non-modified), the mean difference for age groups one, three and four was 0.154, 0.100 and 0.310 respectively for the trait Trustworthiness.

For the trait Attractiveness, there was a significant main effect of Condition,  $F(1,158)=21.90$ ,  $p=.0001$  and a significant Age X Condition interaction,  $F(6,158)=2.41$ ,  $p=.03$  (See Figure 2-2). To determine if there was a main effect of age, post hoc tests were conducted. Based on the post hoc tests, there was a significant main effect of age,  $F(6,158)=3.80$ ,  $p=.002$ . Age group one responded the most differently when compared to other age groups,  $p=.0057$ . The HSD tests also showed that the effect of condition is significant in all age groups except three and four. Post hoc tests were also conducted to evaluate the Age X Condition interaction and determine the significance of any interactions ( $p < .05$ ). In the HSD tests for interaction, the conditions within each age group were compared. The HSD test showed that the Age X Condition interaction was only significant for age groups one, two, five and six for the trait Attractiveness,  $p < .05$ . In terms of within age group consistency of responses across conditions, the mean difference for age groups one, three and four was 0.3204, 0.20 and 0.005 respectively for the trait Attractiveness.

For the trait Intelligence, there was a significant main effect of Condition,  $F(1,158)=17.32$ ,  $p=.0001$ , but there was no Age X Condition interaction,  $F(6,158)=1.138$ ,  $p=.3428$ . Conducted post hoc tests showed that there was

a main effect of age for the trait Friendly,  $F(6,158)=2.66$ ,  $p=.02$ . In terms of within age group consistency of responses across conditions, the mean difference for age groups one, three and four was 0.393, 0.042 and 0.090 respectively for the trait Intelligence.

For the trait Confidence, there was a main effect of Condition,  $F(1, 158)= 8.81$ ,  $p=.0035$ , and an interaction between Age and Condition,  $F(6,158)= 2.84$ ,  $p=.0118$  (See Figure 2-3). HSD analyses showed that the interaction was only significant for age groups five and six for the trait Confidence,  $p < .05$ . In terms of within age group consistency of responses across conditions, the mean difference for age groups one and four was 0.1866 and 0.120 respectively for the trait Confidence.

Lastly, for the trait Friendliness, there was a main effect of age,  $F(6,158)=2.66$ ,  $p=.02$  but no main effect of Condition. Post hoc tests showed that only age group one was significantly different from age groups three, five, six and seven,  $p<0.05$ . In terms of within age group consistency of responses across conditions, the mean difference for age groups one and four was 0.08 and 0.120 respectively for the trait Friendliness.

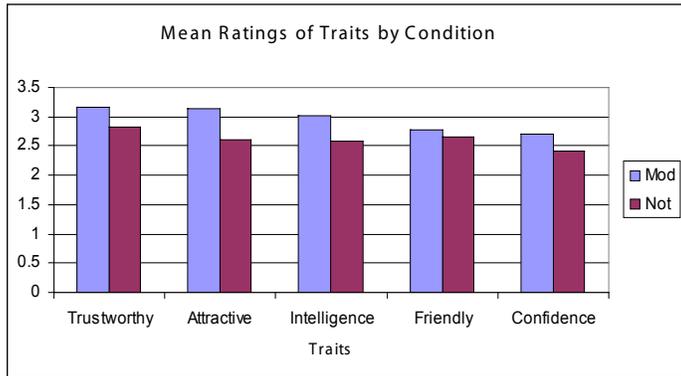


Figure 2-1. Age groups' mean ratings of modified and non-modified faces for each trait.



Figure 2-2. The means for Attractiveness for each age group. There is a significant main effect of condition and age and an Age X Condition interaction.

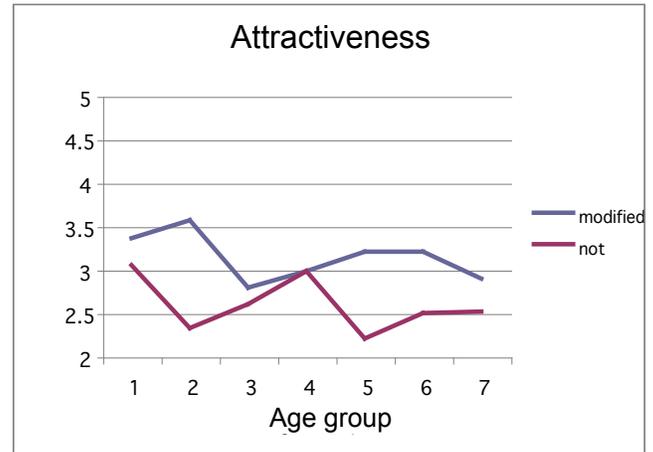


Figure 2-3. The means for Confidence for each age group. There is a main effect of condition and an Age X Condition interaction.

**Discussion**

The results of the present study strongly support the theoretical question of whether changes in facial appearance influence people's perceptions of an individual. However, the hypothesis concerning age received less support. Contrary to the hypothesis that older aged persons, namely in the 35-60 age range, would rate the modified faces lower than the non-modified, we found that all participants in all age groups rated modified faces higher and more positively than the non-modified faces. Interestingly, regardless of the condition, some participants in certain age groups responded differently to targets' faces than others based on the particular trait they were rating the faces on. However, such difference of ratings between age groups was only evident for the traits Attractiveness, Friendliness and Confidence.

Bearing the two conditions in mind, there was a significant effect of modification on age groups one (18-23 years old), two (24-29 years), five (30-35 years) and six (36-41 years) for the trait Attractiveness but the effect of modification on age was only significant on age groups five and six for Confidence. Unexpectedly, there was a consistency of results for age groups three (30-35) and four (36-41). The overall ratings of age group three and four showed little variation for each condition and trait when compared to other age groups. As such, although the results of the

ANOVA and HSD tests for this experiment moderately lends support to the theoretical question that age is an important and influential factor in assessing people's perceptions, the data does not completely support our hypothesis.

A possible explanation for all of the participants rating modified faces more positively than the non-modified faces is demand characteristics. Participants, especially those exposed to the modified condition, could have suspected they were being judged on prejudice and not wanting to be perceived as judgmental, rated the modified faces higher than they otherwise would have in any other situation. Even so, the higher ratings of modified faces lends support to the conclusion that body modifications are becoming increasingly prevalent and that such increased exposure contributes to more positive perceptions of tattooed individuals.<sup>27</sup>

Moreover, in the context of the present study and previous studies, namely Swami and Furnham (2007) and Wohlrab et al. (2009a, 2009b) that suggest hair color, gender and number of body modifications are influential in social perceptions, it is interesting to note the consistency of results for middle aged adults (35-41 years) in comparison to the younger aged adults (18-29 years). Overall, there was little mean difference in middle-age participants' (age groups three and four) responses across conditions and traits. Conversely, age group one participants' responses varied greatly across conditions and traits. Namely, the within age group mean difference ratings of the faces was higher for Attractiveness (0.3204) than the trait Confidence (0.08) for age group one. Such consistency of results for age groups three and four could reflect a possible indifference of middle age adults regarding the importance of facial appearance in assessing a stranger's personality and social groups.<sup>28</sup>

Alternatively, the consistency of results for age groups three and four could be due to the importance of appearance relative to one's age. The age of the participant could have possibly influenced which traits they valued the most. In particular, younger aged people tend to place a higher value on physical appearance and attractiveness when mate selection is most important as supported by the data that age group one had the highest difference of ratings for Attractiveness.<sup>29</sup> Because people are more apt to identify with faces the same age as them, the age of the targets' faces could have also affected the participants' higher ratings of the modified faces. Generally, people pay more attention to faces of their same age and/or people they identify with and will accordingly, give those faces higher rat-

ings placing more emphasis on the traits they most value. Since the age of the targets' faces were in the 18-25 year old age range, participants in the younger age groups i.e. 18-23 group and 24-29 group would have identified most with those faces because of perceived age commonalities.<sup>30</sup> Individuals are more likely to perceive people they identify with more positively than those they do not (DeWall et al., 2009). An effect of the age of faces could also explain the main effect of age for the traits Friendliness and Intelligence. Therefore, these findings suggest a person's perception of strangers' faces is influenced by not only his/her own age at the time of the encounter but also, the age of the strangers' face.

With respect to identification, previous studies indicate that looking for commonalities in another person based on external cues i.e. faces are done in social situations to attune to signs of social acceptance within social groups; this particularly true for stigmatized groups.<sup>31</sup> Consistent with this view are recent trends suggesting the increasing prevalence of body modifications particularly for young women, and social groups of tattooed individuals. After sampling and surveying over 500 students, Mayers et al. (2002) found that body modifications were becoming more common in the undergraduate population and that 51% of University undergraduates had body piercings and 23% had tattoos.<sup>32</sup> Several years later, Laumann and Derick (2006) followed up with a survey of their own and after surveying the general U.S population ages 18-50, they found that 24% of 18-50 yr olds had tattoos and 14% had body piercings.<sup>33</sup> Notably, both Mayers et al. (2002) and Laumann and Derick (2006) found an association between body piercing and tattoos and medical complications such as jewelry allergy and broken teeth. Such an association could be explained by the "risk-taking" trait tattooed persons are presumed to possess; possibly, since risk-takers engage in risk-taking, daring behavior such as getting tattoos, in the process of getting tattoos or piercings, they may sometimes experience an allergic reaction to the jewelry or tattoo ink.<sup>34</sup> Though there are numerous reasons for the increase of tattoos and piercings, the Mayers et al. (2002) and Laumann and Derick (2006) reports in combination with our findings raises the possibility that body modifications may be related to risk taking behavior and possibly contribute to some of the bodily harm experienced by its wearers.<sup>35</sup>

Though our experiment raises social and theoretical implications, it is important not to over-interpret our findings. There are limitations to consider. One limitation of our 2x7 between subjects factorial design experiment per-

tains to individual differences between the participants assigned to the modified condition and those assigned to the non-modified condition. Because not all participants are the same, individual differences may bias the variable being measured, namely perceptions. As such, with this design, we cannot be sure if the participants' age and targets' faces are the only variables that influenced their perceptions. For instance, the race and gender of the faces could have affected the participants' ratings of the faces. Thus, the number of random variables in this experiment is a limitation.

Additionally, the stillness of the face stimuli, especially since exposure was not timed, somewhat fails to account for the factors or behaviors that may interact with age and further influence the way people perceive and treat strangers with facial modifications within a social setting. Hence, for future studies, using videos in which tattooed women or men talk to the camera and the participants rate the individual based on the video would help mediate the partial limitation of the still photographs. Likewise, as stated earlier, since the age of the targets' faces were in the 18-29 age range, varying the age of the faces in future studies may bring different results. It would be interesting to see whether or not younger aged participants would respond the same way to 30-50 year old tattooed and pierced faces as they did to the 18-29 year old face stimuli in the experiment.

Notwithstanding, several interesting hypotheses arise from this study that could be explored in future studies: (1) the importance of certain traits in a person such as attractiveness or friendliness may decline with people's age. (2) Regardless of the appearance of body modifications, faces of a particular ethnicity may influence the extent that people perceive others as trustworthy, attractive, confident, intelligent and friendly. (3) The age of a person's face may elicit differing perceptions and reactions to that person's body modifications depending on people's age.

In conclusion, the results of this study reinforce the idea that an individual's physical appearance, specifically their face, is an important external cue that influences people's perceptions of an individual. Though the present study examined the potential negative effects (negative perceptions) of having facial modifications, we found that contrary to our hypothesis, people perceived modified faces more positively than non-modified faces. Nevertheless, we believe that the present study supports and demonstrates that a person's age and the appearance of an individual's face (modified vs. non-modified) influences people's perceptions of an individual. The possible mediating roles of

race and age in faces in relation to facial perceptions may be relevant since they could account for situational and person factors and as such, should be examined.

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