

Physiognomic Belief and Confidence in First Impression Judgements

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Abstract

Research has shown that people attribute personality traits from unknown faces in surprisingly little time and that there is consensus in these judgements. A previous study (Hassin & Trope, 2000) suggests that there is a widespread belief in the ability to read personality from the facial structure. Research regarding the validity of this so-called physiognomy however, is mixed. This study focused on the relationship between physiognomic belief and confidence in first impression judgements. Using an online form, participants rated photos of unknown faces on either friendliness or trustworthiness, and indicated their confidence in those ratings. They also indicated to what extent they believed in the validity of physiognomy on different trait dimensions. We hypothesized that participants would have a high belief in physiognomy and reasoned that this belief would be positively correlated with confidence in the personality ratings. Results from our study with 299 subjects partly supported this hypothesis. On all of the traits on which subjects indicated their belief in physiognomy, we indeed found a significant positive correlation with judgement confidence. However, we did not find any evidence of a high degree of belief in physiognomy among our subjects.

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People make rapid attributions from faces (Bar, Neta, & Linz, 2006). From one's gender, age, health and attractiveness to emotions. Facial cues can present us many things about another. The face plays such an important role in the information we receive from others that the brain has regions in the visual part of the brain that specializes in processing facial stimuli (Burton, Young, Bruce, & Ellis, 1991; Haxby, Hoffman, & Gobbini, 2000). For a long time, it has been thought that faces also represent personality traits. Historical records show that even back in some ancient cultures people believed that faces represent a window into the person's personality. Aristotle is credited with the writing of the ancient Greek treatise *Physiognomica*, that describes the relation between facial features and character. Throughout history this belief in physiognomy stayed present. In the 18th century, the Swiss theologian and pastor Johann Kaspar Lavater (1783) published a series of influential essays on the field of physiognomy. However, belief in physiognomy is not something from the past. In a representative sample of 535 Israelis, 75% believed that to some extent, it is possible to know an individual's true personality from looking at his or her face (Hassin & Trope, 2000). Disregarding the question of validity of physiognomy, there seems to be a degree of consensus in the impressions we derive from facial appearances. Facial attractiveness can influence our perception of an individual's personality. Attractive individuals are attributed with more socially desirable personality traits than unattractive individuals (Dion, Berscheid, & Walster, 1972). Berry and Zebrowitz-McArthur (1985) found that adult males who are perceived as having a babyface were also perceived by participants as being more honest, naïve, kind and warm. In both studies, trait judgements were made by participants with no prior acquaintance with the people displayed on the photos. In their study, Albright, Kenny, and Malloy (1988) found a consensus on the constructs of extraversion and conscientiousness. Rule et al. (2010) found that a broad consensus in personality judgements is also found on a

cross-cultural level. Judgments of personality reach high consensus even among three-year-old children (Cogsdill, Todorov, Spelke, & Banaji, 2014), thus suggesting that this process has some instinctive and universal characteristics. With judgements by unacquainted people being consistent across perceivers to some extent, it can also bring forward social behavior. In some cases, it can lead to attributions that materialize significant real-life consequences. For instance, these attributions can have ramifications in the legal domain. Adults who have a baby-faced appearance seem to receive less severe punishments compared to mature-faced adults. In their experiment, Berry and Zebrowitz-McArthur (1988) showed that subjects were more likely to believe information that implicated negligence if the defendant was baby-faced. In the political domain, attributions we make from faces has an influence on our voting behavior. Rapid inferences of competence from photographs by subjects predicted the outcomes of U.S. congress elections above chance (Todorov, Mandisodza, Goren, & Hall, 2005). In conclusion, it seems that people make judgements from faces, there is consensus in these judgements and these judgements can influence real-life decisions. So, it seems worthwhile to explain why people would rely on these judgements.

The first question that arises is whether these judgements are accurate. Earlier research, conducted by Cohen (as cited in Shevlin, Walker, Davies, Banyard, & Lewis, 2003) and later by Alley (as cited in Shevlin et al., 2003) found no scientific evidence to support the idea of physiognomy. However, more recent research suggests that there may be some validity between the information facial characteristics present and the person's personality. Berry (1990) asked students to rate each other on the dimensions of honesty, warmth and power during the 1st, 5th and 9th week of the semester. Later, another group with zero-acquaintance judged photographs showing the faces of the students on the same dimensions. These impressions predicted the ratings given by the classmates. In another study, using unacquainted judges who rated photos of target participants who also completed personality

questionnaires, Shevlin et al. (2003) found a significant self-stranger agreement on the dimension of psychoticism. These results, supporting the validity of physiognomy, could be explained by the ‘kernel of truth hypothesis’, as described Bond, Berry, and Omar (1994). In their hypothesis they theorize that by the extent an individual gives an impression of appearing for instance, as honest, people will be likely to interact to him with a high level of trust. In turn, the individual may be more likely to behave in an honest way. Bond et al. found that people who were thought to look dishonest, were more likely to engage in deceptive behavior, supporting their ‘kernel of truth’ hypothesis. However, many researchers have failed to properly control for all unambiguous facial cues displayed in the photographs, such as the age, ethnicity and gender of the targets. Controlled for these relevant confounds, attributions that are made from faces seem to carry little validity (Todorov, Olivola, Dotsch, & Mende-Siedlecki, 2015). In conclusion, the research regarding the validity of physiognomy is mixed. Thus, there may be another explanation on why people would rely on these judgements.

Essentially, the reason why people would rely on physiognomic judgements is not necessarily determined by the validity of physiognomy. Olivola, Eubanks, and Lovelace (2014) found that although people were able to identify business, military and sports leaders from their faces with an above-average accuracy, they found no relationship between how well participants thought they performed and how well they actually performed. Participants who were more confident in their performance in this task were no more accurate than participants who were less confident. Hassin and Trope (2000) found that participants generally revealed a high level of overconfidence in their judgements. However, the degree of confidence in physiognomy-based judgements far exceeded the participants’ actual accuracy. It could be the case that people rely on their first impression judgements because they are confident in their belief that they are accurate. There are several factors that influence

confidence. In the previous mentioned study, Hassin and Trope found that the more ambiguous the presented information about a photograph, the more perceivers make use of physiognomic information on the face. Additional time exposure to a face increases confidence in the trait judgements (Willis & Todorov, 2006). Ames, Kammrath, Suppes, and Bolger (2010) also found that judgement accuracy and confidence tend to be unrelated to one another. They did however, found that perceivers were more confident in their impressions that were rated extremely. Although the direction of this relationship is unclear. In their study, they also found that perceivers were more confident in their judgements if the target reminded them of someone or if the target seemed to fit a type. Perceivers also expressed more confidence when they believed they had a high global self-efficacy in their ability to read others. Thus, due to physiognomic information causing overconfidence, and little to no relationship between confidence and validity, it is interesting to further investigate confidence in face judgements. Overconfidence may cause people to rely on judgements that are not valid. There are several factors that are related to confidence, such as ambiguity, time exposure, judgement extremality and target type-ness. People also express more confidence when they believe they are highly capable to read others.

In conclusion, people make rapid attributions from faces, there is consensus in these judgements and these influence behaviors. Research regarding the validity is mixed, but nevertheless are people generally overconfident in their judgements. There are several factors that are related to the confidence people have in their first impression judgements, but this still does not answer the question why people would rely on their judgements. Disregarding the study conducted by Hassin and Trope (2000), there still remains little research about the belief in physiognomy itself. As mentioned earlier, Hassin and Trope measured the belief in physiognomy in their Israeli sample, and found that 75% of Israelis believed in physiognomy. In their study, belief in physiognomy was only assessed through one question. There may also

be variance across cultures. It is important to further look at the prevalence of physiognomic belief, as a high belief could explain reliance, and therefore cause confidence in their judgements. However, the relationship between physiognomic belief and confidence in face judgements has not been researched before. Physiognomic belief could be another determinant of judgement confidence. This study aims to complement the existing research in two ways. First, to get a clearer idea on how widespread the general belief in physiognomy is. Using an online survey, this belief will be directly assessed. On the one hand, using a larger and more diverse sample-size than the previously mentioned Israeli sample, and by including more questions to assess this belief, it enables us to see how widespread this belief is. But more importantly, the aim of this study is to test whether belief in physiognomy relates to judgement confidence. Hence secondly, we are interested in whether people's confidence in their first impressions is related to how much they think a certain trait is reflected in the face. Therefore, it seems worthwhile to investigate how people believe they can accurately judge different characteristics. For this reason, physiognomic belief questions on a trait-specific level will also be included. In the present study, at the high level we will focus on the traits friendliness and trustworthiness as two conditions. This study will also measure the confidence people have in their judgements, by judging photographs of unknown faces on either friendliness or trustworthiness and rating the confidence in those first impression judgements. Based on this, we predict that peoples' trustworthiness-specific belief is related to confidence in trustworthiness measurements, in the trustworthiness condition. We predict the same for the friendliness condition, that peoples' friendliness-specific belief is related to confidence in friendliness measurements. We test the hypotheses that (1) people on average believe in physiognomy and (2) that physiognomic belief is positively related to judgement confidence.

Method

Participants

Participants were recruited with the use of Facebook. An online survey was spread across Facebook groups of 26 European cities. These open groups were intended for students following the Erasmus exchange program within that city. Prior to analyses, we discarded the responses of participants who either failed to complete the study, were non-students, indicated having poor or basic English skills and/or provided the same rating for each trial. Finally, the age from one participant who reported ‘’Twenties’’, instead of a numerical value was discarded for the calculation of the age descriptive. After screening, our final sample consisted 299 participants, 221 were female. The sample as a whole was relatively young, with an average age of 23.21 years ($SD = 4.42$). There was a variety of participants’ nationalities and countries of study, yet the vast majority of participants had a European nationality or were studying in a European country. Three participants did not indicate their nationality and three others did not indicate their country of study.

Design

The questionnaire consisted of three different parts and had two conditions. The first part consisted of a single block of 20 trials, which each trial presenting one photo. Each participant was randomly assigned to rate all 20 photos on a single dimension, based on their condition (either trustworthiness or friendliness). The photos were taken from the Radboud Faces Database (Langner et al., 2010) and consisted of digitalized colored portrait photos of 10 Caucasian men and 10 Caucasian women in their 20’s and 30’s. Each face posed a neutral expression. The number of participants assigned to the trustworthiness and friendliness condition were $N = 143$ and $N = 156$, respectively. The second part of the experiment consisted of rating three statements about physiognomy on a Likert scale. In the last part of

the experiment, participants were asked to provide ratings on 12 different trait-specific physiognomic items using a continuous sliding scale.

Procedure

The entire study was conducted online, via a web-based experiment. A link to the study was spread across the Facebook groups. An introduction screen introduced the participants to the study, explaining the intention of this study is to research and gain knowledge on how first impressions are formed. They were informed that participation in this research is completely voluntary and their rights to withdraw at any time or refuse to participate entirely. They were also informed that they would be shown photos of different people and after that were asked to evaluate that person according to a (single) dimension of evaluation. Next, in one condition, the participants were asked to rate the friendliness of each person, while participants in the other condition were instead asked to rate the trustworthiness of each target. On each trial, participants were presented with faces and provided their ratings of the photos using a Likert scale ranging from 1 (not friendly/trustworthy at all) to 9 (extremely friendly/trustworthy). After providing a rating on a photograph, participants were shown another screen where they had to rate the confidence they had in their previous rating of that person. Responses were given on a Likert scale ranging from 1 (not confident at all) to 9 (extremely confident). These confidence values were later averaged and used as the dependent variable. This was repeated throughout all 20 photographs. Next, a screen was presented where participants were asked to imagine seeing the passport photo of a stranger. After that, they had to indicate to what extent they agree with three general statements about physiognomic belief: "I can learn something about the person's personality just from looking at his or her face," "I do not believe that the person's personality is reflected in their face," (reversely scored) and "My first impressions of the person's personality, just from looking at his or her face, are accurate." Responses were measured on a 7-point Likert scale, ranging

from 1 (strongly disagree) to 7 (strongly agree). The average of these items were later used to calculate the general belief in physiognomy. After answering these statements, participants were asked to indicate to what extent it is possible to accurately judge a person on 12 traits, solely based on a photograph. These traits were: honesty, attractiveness, gender, sincerity, skillfulness, trustworthiness, age, likability, warmth, friendliness, competence and intelligence. All participants provided their ratings on these traits using a continuous sliding scale that ranged from 0 (not accurately) to 100 (extremely accurately). During the analysis, these 12 questions were divided into four trait-specific physiognomic beliefs: friendliness, trustworthiness, competence and physical. In the final part of the experiment participants were asked to fill in demographic information, such as gender, age, country of study, political and religious identity.

Results

This study hypothesized that (1) people on average believe in physiognomy and (2) that the belief in physiognomy is positively related to the confidence that people have in their first impression judges from faces. First, a one sample t-test was used to test whether participants showed an agreeance on the belief in physiognomy. The three general questions about physiognomy were computed into an average. The test showed that the estimated sample mean value ($M = 3.79$, $SD = 1.34$) is significantly different from the neutral value of belief in physiognomy (4), $t(298) = -2.74$, $p = .007$. Since the mean value of the belief in physiognomy is lower than 4, we can infer that people on average do not believe in physiognomy. This did not confirm the hypothesis about a high prevalence of the general physiognomic belief. Second, were interested in the relationship between the physiognomic beliefs on a trait level and the confidence in those first impression ratings. To research how different beliefs are correlated to confidence in judgements, the 12 trait questions about physiognomic belief were divided into four trait-specific physiognomic beliefs: friendliness-

specific, trustworthiness-specific, competence-specific and physical-specific. We first tested our hypothesis that physiognomic belief is related to confidence in first impression judgements in the friendliness condition. We correlated friendliness-specific physiognomic belief with confidence in friendliness judgements. In this condition, participants displayed a mean value of friendliness-specific physiognomic belief of 37.44 ($SD = 25.13$). As shown in Table 1, the mean confidence score in the friendliness condition was 5.19 ($SD = 1.81$). There was a positive correlation between the two variables $r(154) = .44, p < .01$, showing that people who score higher in their friendliness-specific physiognomic belief also show more confidence in their friendliness ratings. The same was done in the trustworthiness condition. To test our hypothesis that physiognomic belief is related to confidence in first impression judgements in the trustworthiness condition, we correlated trustworthiness-specific physiognomic belief to confidence in trustworthiness judgements. In the trustworthiness condition, participants showed an average trustworthiness-specific physiognomic belief of 26.45 ($SD = 21.24$). The mean confidence score of the trustworthiness judgements was 5.00 ($SD = 2.01$). There was a positive correlation between the two variables $r(141) = .36, p < .01$, showing that people who score higher in their trustworthiness-specific physiognomic belief also show more confidence in their trustworthiness ratings. The average confidence across the two conditions was 5.10 ($SD = 1.90$) To test the hypothesis that physiognomic belief is related to confidence in first impression judgements across the two conditions, the average general physiognomic belief was correlated with the total average confidence in the ratings. There was a positive correlation between the two variables $r(297) = .38, p < .01$, showing that all indicators point in the direction of confirming our hypothesis that there is a positive correlation between belief in physiognomy and the confidence that people have in their first impression judges from faces.

Table 1.

Summary of Means, Standard Deviations, and Correlations between Confidence in Friendliness Ratings, Confidence in Trustworthiness Ratings, Belief in Physiognomy and Trait-specific Beliefs in Physiognomy

	M	SD	1	2	3	4	5	6	7
1. Confidence friendliness	5.19	1.81	-	-					
2. Confidence trustworthiness	5.00	2.01	-	-					
3. Belief in physiognomy	3.79	1.34	.39*	.38*	-				
4. Friendliness-specific belief	38.58	25.83	.44*	.30*	.58*	-			
5. Trustworthiness-specific belief	23.34	20.45	.27*	.36*	.54*	.78*	-		
6. Competence-specific belief	20.04	19.43	.32*	.22*	.45*	.62*	.73*	-	
7. Physical-specific belief	74.78	16.52	.36*	.11	.28*	.40*	.26*	.30*	-

Note. Means, standard deviations and correlations for friendliness-, trustworthiness-, competence-, and physical-specific beliefs in physiognomy presented above are calculated across the two conditions.

* $p < .01$

Furthermore, a one sample t-test was used to test whether participants showed an overconfidence in their ratings. The test showed that the mean confidence ($M = 5.10$, $SD = 1.90$) was not significantly different from the neutral value of confidence (5), $t(298) = .91$, $p = .366$, indicating that participants showed no signs of overconfidence. We were also interested whether people believe that friendliness can be easier seen in the face than trustworthiness and if people were more confident in their friendliness ratings. As shown in Table 1, across both conditions, mean scores in the friendliness-specific physiognomic belief ($M = 38.58$, $SD = 25.83$) were indeed higher than the scores in the trustworthiness-specific physiognomic belief ($M = 23.34$, $SD = 20.45$). A one sample t-test showed that these values were significantly different $t(298) = 10.20$, $p < .001$, providing support for our prediction. The differences in judgement confidence between the two conditions were also analyzed. An independent t-test showed no significant differences in confidence between the friendliness and trustworthiness conditions; $t(297) = .89$, $p = .374$. This did not support our prediction. This means that despite participants believed that friendliness could be read easier from the face than trustworthiness, they were no more confident in their friendliness judgements. We also tested whether physical-specific physiognomic traits could be easier read from the face compared to physiognomic traits that are personality related. In order to analyze this, the trait-specific categories: trustworthiness, friendliness and competence were computed into a personality-specific variable. The means showed a big difference between the physical-specific category ($M = 74.78$, $SD = 16.52$) and the personality-specific category ($M = 27.32$, $SD = 19.68$). A one sample t-test showed that these variables were significantly different $t(298) = 49.69$, $p < .001$. This showed that participants did indeed believe that physical related traits could be read easier from the face compared to personality related traits. Finally, in order to test whether judgement extremity would be positively correlated with judgement confidence, participants' ratings were correlated with the confidence scores. Analysis found

no significant correlation between the judgement ratings and the judgement confidence $r(297) = .02, p = .778$. This indicated that judgement extremity was not related to the confidence in the ratings.

Discussion

People often rely on inaccurate first impression face judgements. In some cases, this can lead to decisions that have significant real-life consequences. For this reason, it is of importance to understand what motivates peoples' reliance on these first impression judgements. One reason could be that people tend to believe that they are accurate in their judgements. The current research focused on testing how much people actually tend to believe in physiognomy, and the relationship between physiognomic belief and confidence in first impression judgements. On the basis of Hassin and Trope's (2000) findings, we predicted participants to score high on their belief in physiognomy. The present study has shown that people score relatively neutral to disagree with the belief in physiognomy, thus not supporting our hypothesis. However, the present study has demonstrated a relation between physiognomic belief and judgement confidence. More specifically, that people who have a high physiognomic belief are more confident in their first impression judgements. This supported our hypothesis of a positive correlation between physiognomy and judgement confidence. In addition, we predicted that people both showed a higher friendliness-specific physiognomic belief compared to trustworthiness-specific, and showed more confidence in their friendliness ratings, compared to trustworthiness. We examined the differences between friendliness-specific belief and trustworthiness-specific belief. As predicted, we found that people indeed believed that friendliness can be read more accurately from the face than trustworthiness. Furthermore, we examined the differences in confidence people have between their ratings of friendliness and trustworthiness. We found that people were no more confident in their judgements of friendliness compared to trustworthiness. This did not

provide support for our prediction. Finally, as predicted, we found that people believed that physical traits could be read more accurately from the face compared to personality traits.

Our data indicates that, for each condition and across both conditions, people are generally not overconfident in their first impression judgements. This result is not consistent with previous research conducted by Hassin and Trope (2000), that yields evidence for overconfidence in judgements. A reason for this difference could be in the design of the previous mentioned study. In their study, participants were asked to choose which one of the two individuals appearing in the photographs works in a certain profession (e.g., psychologist) and then to rate how confident they were in their accuracy. With only two choices, the probability of a mere guess in this situation is expected to be 0.5. In the present study, ratings on traits were given on a 9-point scale, offering the participants more choice. One possible explanation is that with more choice, the probability of accuracy is lower, thus causing less confidence. While predicting a profession, stereotyping can play a role in the decision-making process. In such cases, physical factors, such as age, gender and attractiveness are also taken into account. Our study showed that people believe that physical traits can be read more accurately from the face, compared to personality traits. This could explain the lower degree of confidence in our study, as the faces were only rated on personality traits. Hassin and Trope also found a high prevalence of physiognomic belief, whereas our study did not yield evidence supporting such a widespread physiognomic belief. This could be due to cultural differences. Ames et al. (2010) found a relationship between confidence and judgement extremity. The present study did not provide evidence to support this claim. In their study, each photograph was rated on 10 trait ratings. However, in the current study, participants were only asked to provide one rating on each photograph. It could be the case that providing more ratings makes people more inclined to justify these claims. For example, the theory of cognitive dissonance (Festinger, 1957) explains that people change

their attitudes after behaving in a way that goes against their initial attitude. Due to cognitive dissonance, it is possible that participants indicate a higher degree of confidence after a higher number of ratings to reduce the negative self-perception of providing wrong answers.

Furthermore, Ames et al. found that perceivers also expressed more confidence when they believed to have a high self-efficacy in their ability to read others. When people believe in physiognomy, they believe in the validity of reading others from their faces. The relationship between judgement confidence and self-efficacy their study presented is in line with the main findings of current study.

This study had limitations to consider in interpreting the results. First, participants were mostly female European students, limiting the generalizability of the findings. In our sample, 73.91% of the participants were female. This may have biased our findings about the confidence in the ratings. Lundeberg, Fox, and Punčohař (1994) found that women score lower in estimating their confidence in the accuracy of their answers to items in some domains, such as mathematics. It could be the case that there are also gender differences in the confidence in first impression ratings. If women indeed score lower in their confidence, this could explain the lack of overconfidence in our findings. Furthermore, the photographs of the targets presented in the study consisted of Caucasian men and women only. It would be useful to examine confidence in friendliness and trustworthiness judgements on Ethnic minorities (i.e. non-Caucasians) in future research. Moreover, it would be interesting to look at the confidence in other personality trait ratings, such as dominance. Also, a small number of only 20 different target faces were presented to each participant. With more target faces and a greater variety, participants could change their stance regarding their confidence in their ratings. In other words, with more faces to rate, there is a greater chance that some faces look highly friendly or trustworthy compared to others. This can lead to more confidence in the ratings. In addition, an explanation of why we found no differences of confidence between the

two traits could be in the design of the study. The current study consisted of two conditions where the participants had to judge the same trait repeatedly. This could cause participants to rely on different things in order to judge their confidence. For instance, on how fast they were in their ratings, or the extremity of their judgements. Future research could replicate the study, using only one condition where participants have to both judge faces on friendliness and trustworthiness. I predict differences in confidence between the two traits using this design, because the differences appear more salient. Since we found a positive correlation between belief in physiognomy and judgement confidence, it is interesting to further research the physiognomic belief. The next step in the physiognomic belief research area could be to further investigate the prevalence of this belief, using both a more diverse and bigger sample size. Since our findings were different from the Israeli sample in the study conducted by Hassin and Trope (2000), it would be interesting to investigate whether there are any cultural differences. Future research could also look at how physiognomic belief is related to how much people rely on first impressions. I would predict that people who believe more that personality is reflected on the face are also relying more in their first impressions when making important decisions, such as hiring job candidates. Therefore, a future experiment could consist of assessing physiognomic beliefs and look at differences on the reliance of this when hiring job candidates. Our study suggests that physiognomic belief might be related to how much people rely on first impressions. This could have some serious real-world implications. In order to minimize these effects, interventions to educate people that these beliefs are invalid could be established. Another way to minimize the reliance on physiognomy is to leave out physiognomic information when making important decisions. For instance, in the legal domain, judges could be prevented from observing physiognomic information on the defendant. However, in some cases, like in the Supreme Court of Canada, judges and jurors must be able to view a witness's face, since it provides more credibility and

information not available on a written transcript (Porter, England, Juodis, Ten Brinke, & Wilson, 2008). Trials could be conducted where only a number of judges are unable to see the defendant. After the trial, comparisons can be made to consider the extent of reliance on this information.

In conclusion, this study suggests that a high belief in physiognomy leads to more confidence when making first impression judgements. However, the general belief in physiognomy is not as widespread as previously expected. It would be interesting to know to what extent a greater variety of target faces influence the confidence in judgements. There is also a need for research to isolate the differences in confidence between other traits. Finally, the origin of reliance on first-impression judgements, when making important decisions offers great possibilities for future research.

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