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Are political views and religiosity related to facial morphology? Evidence from a Turkish sample

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ABSTRACT

Whether there are objective differences in facial morphology among individuals of differing political conviction is largely unknown. Due to its relation to dominance, which is a component of conservative ideology, the facial width-to-height ratio (fWHR) could be related to political views of face-bearers. We test several hypotheses regarding the relation between fWHR and political views in a sample of 400 Turkish undergraduate students. Participants' facial photographs were taken and several self-report measures were administered in a separate online session. There was no reliable evidence of a relation between fWHR and political views or religiosity. Examining facial morphology more broadly using geometric morphometric (GM) analyses yielded the same conclusion. Both facial morphology and political/religious views are complex and more sensitive empirical tools may be required to capture their relation, if any.

1. Introduction

Recent face perception research suggests that perceivers glean ideas, whether accurate or not, about target persons' ideological beliefs from static images of their faces alone (Hu, Chang, Chen, & Chien, 2016; Olivola & Todorov, 2010; Rule, Garrett, & Ambady, 2010; Samochowiec, Wanke, & Fiedler, 2010; Wilson & Rule, 2014). Beyond subjective perceptions, is there a non-subjective association, that is, *do faces of individuals objectively differ in line with their political views and group memberships?* Because genetic factors influence both political views (Fowler & Schreiber, 2008) and facial morphology (Kohn, 1991), there is reason to believe that political views and facial morphology are related. Facial morphology (and political views) is also associated with various developmental factors such as subsistence, exposure to environmental and social stresses, access to health care, and physical activity (Coetzee, Perrett, & Stephen, 2009; Hume & Montgomerie, 2001; Shoup & Gallup, 2008). If, for these reasons, facial morphology and political views are related, then perceivers may implicitly learn the correspondence between certain facial features and the political inclinations of face-bearers in their natural environments, allowing them to make inferences from faces of novel targets.

There is a scarcity of research that examines whether individuals' political views or affiliations are objectively related to their facial features. One study suggested that female (but not male) politicians' faces are aligned with their party ideology: Republicans (vs. Democrats) tended to have more gender-typical morphology (Carpinella & Johnson, 2013). This difference appeared to facilitate perceivers' accuracy in categorizing faces as Republican or Democrat. Thus, certain facial features may distinguish individuals of differing ideological persuasion. However, politicians may be selected for their ability to reflect an appearance consistent with their party's values in the first place. It remains to be seen whether faces of non-politicians would show similar effects as in Carpinella and Johnson's (2013) study.

1.1. The potential relationship between facial width-to-height ratio and political views

Facial width-to-height ratio (fWHR)—bizygomatic distance scaled by upper facial height—could differ across individuals with different political views. First, fWHR has been linked to dominance[1] (see

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[1] fWHR has been linked to other psychological characteristics such as aggressiveness (e.g., Carré & McCormick, 2008) and deceitfulness (e.g., Stirrat & Perrett, 2010). It may be possible to link these concepts to conservatism. For aggressiveness, this link could proceed via constructs such as authoritarian aggression or social dominance. However, these have mostly been investigated regarding intergroup, not interpersonal, aggression (e.g., support for military action) and even then, the findings are not straightforward (Henry, Sidanius, Levin, & Pratto, 2005). At the interpersonal level, the relation between conservatism and aggressiveness probably applies mostly to specific targets such as nonconformers (Altemeyer, 1981). Furthermore, fWHR-aggressiveness link appears to be moderated by social status (Goetz et al., 2013). In sum, we refrain from advancing arguments via fWHR's relation to these other psychological characteristics and focus on the more straightforward case of dominance as a construct that links fWHR to conservatism.

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Geniole, Denson, Dixson, Carré, & McCormick, 2015, for a meta-analysis) which seems more aligned with rightist than leftist political orientation in various cultures (Pratto et al., 2000). A domineering orientation toward interpersonal relations is consistent with Social Dominance Orientation (SDO), that is, the endorsement of group-based inequality in society, and with righward/conservative political orientation (Grina, Bergh, Akrami, & Sidanius, 2016; Sarıbay, Olcaysoy-Ökten, & Yılmaz, 2017). Second, fWHR is positively related to explicit racial prejudice (Hehman, Leitner, Deegan, & Gaertner, 2013) which in turn is related to conservatism (Sibley & Duckitt, 2008; but see Brandt, Reyna, Chambers, Crawford, & Wetherell, 2014). Thus, fWHR should be positively related to conservatism and especially to aspects of conservatism that support inequality in society. While not focused on fWHR, Samochowiec et al. (2010) made a similar argument, linking political conservatism to SDO, dominance to testosterone, and the latter to facial shape. Here, we take their argument further by noting that testosterone has been implicated specifically in fWHR (Lefevre, Lewis, Perrett, & Penke, 2013; Weston, Friday, & Liò, 2007), although controversially (Bird et al., 2016).

While a central aim of the current effort is to extend the fWHR literature into the domain of politics, it is useful to explore facial morphology more broadly, as has been done in recent work using geometric morphometrics (Kleisner, Priplatova, Frost, & Flegr, 2013; Linke, Saribay, & Kleisner, 2016; Třebický, Havlíček, Roberts, Little, & Kleisner, 2013; Valentova, Kleisner, Havlíček, & Neustupa, 2014). Geometric morphometrics (GM) is a landmark-based method of shape analysis that utilizes Procrustes superimposition, multivariate statistics, and effective visualizations (Adams, Rohlf, & Slice, 2013; Mitteroecker & Gunz, 2009).

1.2. The present research

We collected photographs and self-reports from Turkish undergraduates to examine whether facial morphology is related to political views. We distinguished between economic and social conservatism (Feldman & Johnston, 2014) and the motives that underlie them: opposition to equality and resistance to change (Jost, Glaser, Kruglanski, & Sulloway, 2003). In addition, we measured the same motives at the personal/interpersonal level (devoid of explicit political content).

We advanced several hypotheses regarding fWHR:

1. fWHR should be related to overall political orientation such that higher fWHR is related to stronger rightward leaning.
2. Economic conservatism and opposition to equality, both indicating endorsement of resource inequality in society, should be related positively to fWHR.
3. Social conservatism and resistance to change, both indicating support for traditionalism rather than inequality, should be less strongly related to fWHR than economic conservatism and opposition to equality. However, any relation between social conservatism/resistance to change and fWHR should also be positive, since the former are also aspects of political conservatism.
4. fWHR should be related more strongly to personal opposition to equality than to personal resistance to change.

We also explored the relation between fWHR and religiosity without a guiding hypothesis. The predominant religion in our sample, Islam, is multifaceted in that it can be experienced by different individuals as providing support for either equality or inequality in society. A recent study found that religiosity in a Turkish, predominantly Muslim sample was inversely related to economic conservatism (Saribay & Yilmaz, 2017). On the other hand, religiosity tends to be correlated positively with rightward political orientation and the latter includes opposition to equality (Yilmaz & Saribay, 2016). Thus, the relation to fWHR could emerge in either direction or these opposing effects could cancel each other out.

Finally, we went beyond fWHR and carried out a more complex approach using GM to explore the relations between our ideological measures and facial shape as a whole. As far as we know, there has been no such attempt in the literature. Any reliable relation between facial morphology and political views should prove highly valuable in theorizing about individual differences in the domain of ideology as well as about mechanisms underlying perceivers' accuracy in identifying political views or group membership of target faces.

2. Method

2.1. Participants

Since there appears to be no previous study that tests the relations between political views and either fWHR or facial morphology more broadly, there was no strong basis for estimating effect size. Therefore, we simply aimed to collect as much data as possible over the course of an academic year. This strategy resulted in a sample of 157 male and 243 female undergraduates (M_{age} = 21.43, SD_{age} = 1.64, range = 19–32). All but two reported being of Turkish nationality. The majority reported being ethnically Turkish (n = 339) and Muslim (n = 218). Participants were given extra course credit in exchange for participation.

2.2. Facial photographs and measurements

Facial photographs were taken in a professional photography studio and standardized as suggested by Třebický, Fialová, Kleisner, and Havlíček (2016). Other details regarding the production of facial photographs were recently described elsewhere for a subset of participants who granted us permission to share their facial photographs for research purposes (Saribay, Biten, Meral, Aldan, Třebický, & Kleisner, 2017). The remaining photographs used here were produced under the same conditions.

2.2.1. Facial width-to-height ratio

Facial width and height measurements (see Carré & McCormick, 2008) were taken twice for each photograph by the same research assistant using NIH's ImageJ (https://imagej.nih.gov/ij/) software. The two measurements were almost perfectly correlated (r = 0.996 for width and r = 0.983 for height) and thus, they were averaged. fWHR was computed by dividing width by height.

2.2.2. Geometric morphometrics

We applied 72 landmarks on each photograph using tpsDig2 software, ver. 2.30 (Rohlf, 2017). 36 points describe anatomically (or at least geometrically) homologous locations, while the other 36 were aposteriori defined as semilandmarks that denote curves and outlines on the human face. We used the same (semi)landmark locations on human faces as in our previous studies (Danel, Dziedzic-Danel, & Kleisner, 2016; Linke et al., 2016). The shape coordinates, represented by facial landmarks, were superimposed by generalized Procrustes analysis (GPA) using the 'gpagen' function within the geomorph (ver. 3.0.3) R package (Adams & Otárola-Castillo, 2013). The male and female configurations were submitted to GPA separately and normalized in position, size, and orientation. We used shape regressions and two-block partial least square analysis (2B-PLS) to investigate the association between facial shape and self-report measures. First, we fitted a multivariate multiple regression model using 'procD.lm' function (geomorph package) where the responses were male and female superimposed shape coordinates and the predictors were self-reports. We statistically controlled for variation due to BMI and age of the face-bearers. Second, we employ the 2B-PLS method (Rohlf & Corti, 2000) using the 'pls2B' function implemented in the Morpho package (ver. 2.5.1) (Schlager, 2017), to explore covariation between facial morphology and 8 self-report variables (see Section 2.3).