# The Influence of Facial Dominance on Perceptions of Risk-Taking Preferences

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Abstract

Higher perceived dominance leads to greater perceived risk-taking willingness. This, both for people differing in facial dominance (Study 1) and people whose dominance was digitally manipulated (Study 2). Yet, the effect of facial dominance varied to some degree across domains. Gender differences also emerged and these fitted stereotypes. Women were judged as less likely to take financial or recreational risks but more likely (Study 1) or as likely as men (Study 2) to take social risks. The assumption that perceived optimism and/or perceived competence mediate the effect of facial dominance on perceived risk-preferences was not supported. Overall, this research exemplifies the importance of considering the way cues such as dominance may have a differential effect in specific contexts. Our findings also challange the idea that assessment of risk-taking tendencies based on facial dominance serves the goal of determining male quality.

*Keywords:* facial dominance, social perception, risk-preferences, risk domains

# The Influence of Facial Dominance on Perceptions of Risk-Taking Preferences

Occasionally people may have to estimate the risk preferences of others (Hsee & Weber, 1997). This may be the case, for example, with a doctor trying to estimate the risk preferences of a patient seeking treatment, a stock broker who has to figure out whether an investor prefers to invest in risky stocks or in safer options or a travel agent assessing if a client seeks an adventurous vacation involving some risk or prefers a safer vacation instead. People may also try to estimate the risk-preferences of others as part of their attempts to predict their behavior (Liu et al., 2019). While the doctor, financial advisor or travel agent might simply ask their client about their risk preference, they might also base their assessments about others' risk-preferences, at least partially, on their independent impression of their clients (Roth & Voskort, 2014). A question that arises in this context is what informs people's impression of another's risk preferences, especially, when the target of the assessment is not someone they know or have seen before?

Previous studies showed that when people are asked to assess the risk-preferences of others, they may use one or both of the following factors. First, people may use their own risk-taking preferences as an anchor for the assessment of another's risk-preferences (see e.g., Chakravarty et al., 2011; Clark et al., 1971; Hsee & Weber, 1997). Alternatively, they may base their assessment on social stereotypes associated with the persons' social group such as their gender or age group (see e.g., Rosen & Jerdee, 1976; Siegrist et al., 2002). At times, both sources of information can inform such assessments (Roth & Voskort, 2014). In this paper, we suggest a third factor: a person's perceived facial dominance. Previous research mostly explored the link between persons’ perceived dominance and a host of judgments and behaviors including self-reported risk-taking preferences (e.g., Hareli et al., 2018; Mueller & Mazur, 1997; Perrett et al., 1998; Ryckmans et al., 2015; Stenstrom et al., 2011; Zebrowitz, 2004). Relatively little attention has been devoted to social perception of such tendencies (but see., Kruger, 2006). In what follows, we describe the foundations for this idea and discuss its potential importance.

**Facial dominance and judgment of others**

Facial appearance is a central factor affecting observers' impressions of others (Mazur & Mueller, 1996; Todorov et al., 2008; Zebrowitz, 1997) and dominance is one important trait that people infer from the appearance of others' faces. Facial dominance reflects the degree to which individuals are judged from their facial appearance to be dominant, assertive, and leaders, as opposed to those who are subordinate, submissive, and followers (Mazur & Mueller, 1996). Faces identified as dominant are typified by a square jaw, a high forehead, and heavy brow ridges with deep-set eyes (Keating, Mazur, & Segall, 1981; Keating, Mazur, Segall, et al., 1981; Senior et al., 1999). By contrast, submissive faces are often round and narrow with large eyes, thin eyebrows, and low facial features. Indeed, this type of face is associated with a baby face which connotes approachability and low dominance (e.g., Berry & McArthur, 1985).

Perceived dominance further informs a range of assessments about the person's personality, emotional state, and preferences (Oosterhof & Todorov, 2008). For example, people believe that a dominant looking person is less likely than someone who looks submissive to help a person in need when asked to do so, as the submissive person is perceived to be a more caring and helpful person (Hareli et al., 2018). Dominance is also associated with greater threat potential, at least when it comes to men (Doll et al., 2014). We suggest that perceived facial dominance might also impact individuals’ judgment about others' risk-taking preferences.

**Social power and risk-taking tendencies**

An important factor that determines people's risk preferences, is social power (Anderson & Galinsky, 2006). Social power, which is positively associated with dominance, can be best conceived of as the capacity of a person to influence and control others (Keltner et al., 2003). In as much as people's naïve theories match reality, perceived dominance is likely to affect perceived risk-preferences. Specifically, it has been shown that high powered people are more likely to take risks. In a set of studies, Anderson and Galinsky (2006) found that people who had a higher sense of power in general and/or who were primed to perceive themselves as more powerful, choose riskier alternatives than participants with lower sense of power and/or who were primed to perceive themselves as low powered. Based on these findings, Anderson and Galinsky (2006) maintain that the possession of power leads individuals to pay more attention to the potential payoffs rather than to the potential dangers and costs involved in risky actions and behaviors. As a result, high powered individuals are more optimistic when perceiving risks, and hence are more likely to engage in risky behaviors. Those having low power, by contrast, are more attentive to potential loss and hence are less prone to take risks. Since dominant people are also more likely to devote their attention to rewards than to costs and threats (Anderson & Berdahl, 2002), what holds true for high powered individuals, should be true also for dominant individuals as well.

Yet, as Anderson and Galinsky (2006) themselves note, there are reasons to expect that low-powered individuals will be inclined to take more risks than high-powered individuals. First, low-powered people may see themselves as having much less to lose than high-powered people, as they may possess far less resources than high-powered people do. Relatedly, taking risks may be the path through which low-powered people may gain more power. Anderson and Galinsky (2006) review some evidence that low-powered people are more likely to engage is risky behavior such as engaging in unprotected sex or eating unhealthily. Thus, there are two contradicting directions by which social power and risk-taking behavior can be linked. Which of these works may depend, among other things, on contextual factors such as the domain of the risk (e.g., financial vs. health). What is of most relevance in the present context is the question if and to what extent people naively hold either of these views about the link between social power, as reflected by facial dominance, and risk preferences. That is, do they naively believe that dominant people are more likely to take risks than are submissive people, or that dominant people will take less risks? Further, to what degree perceived risk-taking tendency is uniform across contexts?

**Facial dominance, gender, and risk-taking**

More direct indication as to how perceived facial dominance is likely to impact observers' inferences of risk-taking preferences of others can be found in studies documenting the link between perceived facial dominance and other traits perceived to be associated with it. One such trait is masculinity. Studies show that faces that are perceived as more dominant are also perceived as more masculine (Boothroyd et al., 2007; Buckingham et al., 2006; Neave et al., 2003; Oosterhof & Todorov, 2008). Stereotypically, people perceive men as more likely than women to take risks (Daruvala, 2007). In line with this idea, Kruger (2006) has shown that men with higher perceived facial masculinity are perceived as more inclined to take risks. This is assumed to serve as a cue reflecting the mating strategy typical of men who are highly masculine. Accordingly, in as much as someone appears dominant and hence also as more masculine in nature, this person is expected to be also perceived as more inclined to take risks. Nevertheless, it is also possible that some other traits inferred from facial appearance and that are associated with dominance, pull the perception of risk-taking preferences in the opposite direction. Such is the case with baby-faced individuals. Someone with a baby face, who also seems submissive, is perceived to be younger and naïve (Berry & McArthur, 1985). Age related stereotypes associate younger age with a higher likelihood of taking risks (Rosen & Jerdee, 1976). In concert with this, being perceived as a naïve person suggests that this person may be also viewed as one who can be easily tempted to take a risky act due to a tendency to disregard the risks involved in doing so. Accordingly, seeing someone as dominant and hence as being older, may make that person seem as more cautious and as less likely to engage in risky actions without realizing what are the risks involved in doing so.

Finally, another factor that is partly associated with perceived dominance and that can affect inferences of risk-preferences is perceived competence. Indeed, studies on face perception find that there is a modest positive correlation between perceived dominance and perceived competence (Sutherland et al., 2016). In this context, perceived competence reflects the capability of the persons to carry out their intentions towards others (Oosterhof & Todorov, 2008). When it comes to assessing a person's likelihood to take risks, a dominant person, more than a submissive one, is expected to be perceived as one who is better able to handle undesirable outcomes associated with a risky choice.

**Dominance and domain specific risk-taking**

The discussion up to this point considered different factors that can inform observers' inferences of individuals' risk-preferences based on the perceived facial dominance of the latter. Whereas some of these factors lead to a prediction that higher perceived dominance will be associated with greater perceived risk-preferences, other factors lead to the opposite prediction. That is, that a greater degree of perceived dominance will lead to expectations that the person is less likely to prefer risky options. Yet, people's risk-preferences are not uniform across risk domains (Blais & Weber, 2006; Hanoch et al., 2006; Soane & Chmiel, 2005). For example, a person may be quite willing to take risks in a recreational context such as skydiving but be less inclined to take financial risks (e.g., investing in a speculative stock or gambling). In line with this idea, there is suggestive evidence that dominance has a differential effect on risk-taking tendencies as a function of risk-domain, at least for men. It has been shown that lower second to forth digit ratio and the length of the second finger relative to the sum of the lengths of all four fingers, which are markers of prenatal testosterone and are positively associated with dominance (Loehlin et al., 2009; Ryckmans et al., 2015), is linked with greater tendency of men to take risks in some domains. Specifically, such men, reported a higher tendency to take social, recreational and financial risks. In contrast, ethical, and health and safety risks were not predicted by these markers and the same was true for women across all risk-taking domains. These differential risk-taking preferences were assumed to be serving as honest signals of desirable traits in men such as ambition, confidence, and financial capacity, informing potential mates and rivals (Stenstrom et al., 2011). Accordingly, observers’ perceptions of risk-taking inclinations are expected to be aligned with these preferences in as much as they serve as such signals. Therefore, observers may evaluate a person's willingness to take risks as varying across decision domains and gender as a function of that person's perceived dominance.

**The present research**

Considering this analysis, the present research was designed to test if and how observers’ predictions concerning others’ inclinations to take risk are informed by the target’s perceived dominance. In this regard, the following three questions guided the research.

 (1) To what degree facial dominance informs perceptions of women’s risk-taking preferences. As mentioned above, men endowed with a more masculine facial appearance, an appearance associated with perceived dominance (Perrett et al., 1998), were perceived as generally more likely to take risks (Kruger, 2006). This finding is congruent with the idea that cues that reflect dominance such as masculinity are signals that serve the adaptive function of assessing male quality (Mueller & Mazur, 1997). However, the link between dominance and risk-taking tendencies in people’s minds may go beyond its function as an indication of male quality. Women who appear more masculine are also perceived as more dominant (Quist et al., 2011). Findings in the context of social perception suggest that appearance cues are overgeneralized such that cues that look alike are perceived to indicate similar underlying properties (Zebrowitz, 2004). Accordingly, facial dominance of women may also inform observers’ perceived risk-taking tendencies.

(2) As indicated above, men’s dominance as reflected by indicators of prenatal testosterone, does not appear to predict risk-taking behavior in all risk domains. Generally, people’s risk-preferences are not uniform across life domains (Hanoch, et al, 2006). To what degree naïve perceivers also make such distinctions when it comes to predictions of others’ risk-taking tendencies remains a question.

(3) In as much as perceivers make predictions of women’s risk-taking tendency based on their facial dominance and predictions concerning risk-taking tendencies vary as a function of risk domain, it is not clear if and to what degree facial dominance has similar effects on perceived risk-taking of both genders in each risk domain?

Answering these questions may not only assess if and how facial dominance informs social perception of risk-taking willingness but also the degree to which this perception serves the goal of assessing male quality and characteristics, as implied by previous studies (e.g., Kruger, 2006; Stenstrom et al., 2011).

Reported are the results of two studies testing the idea that observers use other's perceived facial dominance to predict their general inclination to take risks as well as their risk-preferences in specific risk domains. In Study 1 these predictions were tested by asking participants to evaluate risk-preferences of men and women varying in facial dominance based on photos of these people. In Study 2, participants saw different photographs of the same person whose facial dominance was digitally manipulated. This enabled a better control of the unique effect of perceived facial dominance on top of other idiosyncratic differences in people's appearance along with dominance. Study 2 also tested the possible role of perceived optimism and competence as mediating the effect of perceived facial dominance on perceived risk-preferences. As we suggested earlier, both factors are expected to be positively associated with perceived dominance and may increase the perceived likelihood that a person would take risks.

**Study 1**

To test the idea that observers use others’ perceived facial dominance as a cue to their risk-preferences, participants were presented with a photo of the face of a man or a woman who appeared dominant or submissive taken from a validated photo database. Participants were asked to assess that person's inclination to take risks in five risk domains: ethics, finance, health and safety, recreation, and social life (Blais & Weber, 2006). In light of the review above, we expected that the degree to which the persons appeared dominant will determine observers' assessment of their risk-preferences. Nevertheless, we remained agonistic about the direction of this effect as well as concerning possible differences in perceived risk-preferences for different life domains. Finally, we expected that men would seem more likely to take risks than women due to gender stereotypes related to risk taking (Siegrist et al., 2002).

**Method**

**Participants**

In total, 237 (131 women) participants with a mean age of 41 years (*SD* = 12.31) who were recruited through Amazon MTurk completed the study and passed control questions probing for attention. Ethical approval for this study as well as Study 2, was obtained from the ethics committee of the faculty of social science of the University of Haifa (271/20).

**Stimulus materials**

Photos of eight Caucasian posers, four men and four women, with a neutral emotional expression were taken from The Chicago face database (Ma et al., 2015). The Chicago face database includes judges' ratings of each photo on several judgments including dominance, attractiveness and perceived age. Photos for the study were selected according to these judgments based on the following criteria. First, we decided to control for the potential effect of attractiveness and perceived age since both may influence perceived risk-preferences in combination with dominance and/or independent of it. Specifically, attraction is associated with perceived competence (Dion et al., 1972), and perceived age is associated with perceived dominance (Berry & McArthur, 1985), two factors that may contribute to perceived risk-preferences on top of perceived dominance and/or in combination with it. Attraction level of the selected photos was in the mid-range of the scale, which like ratings of dominance in the database, ranged from 1-not at all, to 7 – extremely (*M*=3.35, *SD*=.39; *M*=3.10; *SD*=.33; *M*=3.17, *SD*=.52, and, *M*=3.06, *SD*=.52, for dominant women, submissive women, dominant men and submissive men, respectively). Perceived age of the stimuli ranged between *M*=22.76 to *M*=31.44 (*M*=25.37, *SD*=2.30; *M*=25.29; *SD*=2.47; *M*=30.22, *SD*=1.17, and, *M*=29.51, *SD*=2.29, for dominant women, submissive women, dominant men and submissive men, respectively). As can be seen, men were perceived to be somewhat older than women. This difference was forced by the choice of stimuli that will differ sufficiently in terms of perceived dominance as required by the main goal of the study. Mean perceived dominance of the selected stimuli was as follows, *M*=3.42, *SD*=.49; *M*=1.85; *SD*=.12; *M*=3.98, *SD*=.12, and, *M*=2.21, *SD*=.13, for dominant women, submissive women, dominant men and submissive men, respectively*.* We also ensured that posers will not have facial hair, bold moles, scars or any other noticeable skin issues. Overall, each participant saw a photo of a dominant or submissive man or woman. This resulted in a 2 (perceived facial dominance: dominant vs. submissive) X 2 (gender of target) between-subjects design. Figure 1 provides an example of the stimuli used in the study.

**Procedure and dependent measures**

After consent was obtained, participants were told that taking risks is very common and that people engage in different types of risk-taking activities on a daily basis. Thus, whereas some people take many risks, others prefer to take very few. They were further told that people are frequently asked to make risky decisions for other people, not just for themselves such as when parents make risky decisions on behalf of their children and children are asked to make risky decisions on behalf of their parents. There are many other occasions and situations (such as work or social), where people make risky decisions. The goal of this part was to let participants get the sense that taking risks is quite common but also that the willingness to take risks varies between people. Also, that sometimes people may have to assess others' willingness to take risks. Next, participants were told that in this study we are interested to test how people infer another person's risk-taking inclination, that is, the degree to which they think that another person is likely to engage in different risky activities.

Participants were then informed that they will see a photograph of a person that they do not know. They were asked to assume that the photo represents this person's character. This was done to provide participants with a reason why photos of persons may serve a source for judging them. Participants were then asked to look at the photo and rate what is the likelihood that this person would engage in different risky activities.

For descriptions of risky activities or behaviors, we used the Domain-Specific Risk-Taking (DOSPERT) scale (Blais & Weber, 2006). This is the 30-item version of the DOSPERT scale, which is designed to evaluate behavioral intentions, or the likelihood with which respondents might engage in risky activities or behaviors originating from five domains (i.e., ethical, financial, health/safety, social, and recreational risks). Since the original scale measures people's own likelihood of engaging in each behavior, the scale was modified so that it referred to another person. Responses were made using a 7-point rating scale ranging from 1 - Extremely Unlikely to 7 - Extremely Likely. Item scores for each subscale were summed by adding up all items of a given subscale to obtain subscale scores. Thus, higher scores indicate a greater perceived willingness to take risks in a specific domain described by the items of the subscale. The full DOSPERT, in its original form can be interpreted as a generalized risk propensity measure (Mishra & Lalumière, 2011). Accordingly, in the present context, it can be seen as reflecting the other person's perceived generalized risk preference. This measure was computed by averaging ratings across life domains.

Finally, as manipulation checks, we asked participants to rate the degree to which the person in the photo seemed dominant and submissive. These ratings were also made on a 7-point rating scale ranging from 0 – Not at all to 6 – To a large extent.

**Results and Discussion**

The data that support the findings of this study, as well as the second study, are openly available in the Open Science Framework at https://osf.io/4f8ps/?view\_only=c6de0cdc769140d6a991982d53c6c602.

In accordance with the journal’s policy, we do not report statistical significance due to concerns with null hypothesis significance testing (Trafimow & Rice, 2009). Instead, we present detailed descriptive statistics for all dependent variables and their combinations and report effect sizes in terms of ηp2 or Choen’s d, depending on the reported analysis. Following Cohen (1988) we refer to association strength of 0 < r ≤ |.3| as weak, |.3| < r <|.5| as moderate, and r > |.5| as strong. In line with Acock (2014) we interpret β the same way as we interpret association strength. We refer to effect sizes of ηp2 = .01 as small, ηp2 = .06 as medium and ηp2 = .14 as large (Cohen, 1988). Finally, we refer to effect sizes of d =.01 as very small, d=.20 as small, d=.50 as medium, d=.80 as large, d=1.20 as very large and d=2.0 as huge (Sawilowsky, 2009).

 **Manipulation checks**

Since ratings of dominance and submissiveness were strongly correlated (*r*= -.84) they were combined to form a composite measure of dominance.

A 2 (target perceived dominance) X 2 (target gender) between-subjects analysis of variance was conducted on ratings of the composite measure of dominance. As expected, there was a large effect of target's dominance, ηp2 = .27, such that the dominant targets were rated as more dominant (*M* = 4.13, *SD* = 1.27, skewness = -.64, kurtosis = -.47) than the submissive targets (*M* =2.41, *SD* =1.54, skewness = .44, kurtosis = -.95). Both target's gender and the interaction between gender and dominance had a negligible effect on the perceived dominance of the targets (ηp2 <= .003). Overall, this analysis indicates that the stimuli were perceived as intended.

 **Perceived risk preferences**

First, we assessed the internal consistency of each of the subscales of the modified DSOPERT used in our study. Since Alpha Cronbach, is sensitive to the number of items in the scale, we also report mean interitem correlations. Recall that we had six items per life domain sub-scale, and 30 items in the entire scale. Reliability scores ranged from .64 to .89 and mean interitem correlations ranged from .21 to .48 (α=.64; r=.23, α=.84; r=.47, α=.78; r=.37, α=.79; r=.39, α=.85; r=.48, and, .89; r=.21, for the social, recreational, financial, health/ safety, ethical domains and the generalized risk-taking propensity, respectively). As can be seen, all sub-scales except for the social sub-scale show and adequate level of reliability as assessed Alpha Cronbach. Yet, since all mean interitem correlations including for the social domain fall in the range of .15 - .50, as recommended by Clark and Watson (1995), the scale as a whole, as well as the sub-scales, can be considered as showing adequate reliability.

To test the effect of perceived facial dominance on perceived risk-preferences, we first conducted a two-way multivariate analysis of variance (MANOVA) with target’s perceived dominance (dominant vs. submissive) and target’s gender (man, woman) as between-subjects factors. A large effect of dominance (ηp2 = .13) and target’s gender (ηp2 = .16) as well as a rather medium effect of the interaction between the two variables (ηp2 = .04) were found. A series of two-way ANOVAs with target perceived dominance (dominant vs. submissive) and target gender (man, woman) as between-subjects factors and ratings for each risk domain separately were conducted to follow-up on these effects. In addition, a similar analysis with the combined measure reflecting generalized perceived risk preference, as dependent variable was also conducted.

As shown in Table 1, for all risk domains, the dominant target was judged as more likely to take risks compared to the submissive target. This was also true for the generalized risk preference. The effect of dominance was at least of a medium size or somewhat stronger for all domains except for the recreational domain for which the effect was small.

Targets’ gender also had an impact on perceived risk-preferences. However, this effect was mostly small except for the finance domain for which the effect was of a medium size. Specifically, men were perceived as more likely to take a financial risk than women were. Likewise, men also appeared more likely to take a risk in the recreational domain. By contrast, women seemed somewhat more likely than men to take a risk in the ethical and social domains. Target’s gender seemed to have a little effect in the domain of health and safety. Finally, when considering the generalized tendency to take risks, men seem somewhat more inclined to do so than women, yet this effect was small (see, Table 2).

However, the main effects of target's dominance and gender in the recreational domain and the social domain as well as in the context of the generalized risk-taking tendency were qualified by a target's gender by target's dominance interaction. For all interactions the effect size was small (ηp2 =.02 or ηp2 =.03). Figure 2 presents the mean ratings of perceived risk-taking willingness as a function of target’s dominance and gender for each life domain as well as for the generalized risk-taking tendency. Table 3 presents descriptive statistics for each condition and the effect size of the difference between conditions for each life domain. Table 4 provides effect sizes of mean differences emerging from pairwise comparisons between conditions within each life domain.

As is apparent both in Figure 3 and Table 4, in the recreational domain, dominant men seemed to be more likely to take a risk than anyone else. Women, regardless of their dominance and submissive men, seemed less likely to do so to an equal degree. Specifically, all differences between dominant men and other targets are of a medium size as opposed to all other effects that are rather small. In the context of the social domain, a dominant person seemed more likely to take a risk than a submissive person and the difference between the dominant men and dominant women was rather small. Further, the difference between the dominant and submissive men was the largest followed by the difference between the dominant women and submissive men. A weaker difference emerged between the dominant and submissive women. Submissive women seemed more likely to take a risk than submissive men and this difference was of a medium size. Finally, as regards the generalized risk preference, dominant targets seemed more likely to take a risk than submissive targets. Yet, the effect for dominant men was stronger than the effect for dominant women (large and medium size effects, respectively). Furthermore, within each level of dominance, men seemed more likely to take risks than women, yet gender had a stronger effect for the dominant than the submissive targets (medium and small size effects, respectively).

Overall, our results indicate that perceived facial dominance influenced perceived risk-preferences of targets such that dominant appearing targets seemed more likely to take risks than submissive targets. This was true for men across all risk domains as well as the perceived general tendency to take risks, and for women, in all domains except for the recreational and social domains. Our findings are nicely aligned with those of Anderson and Galinsky (2006) who showed that increased social power leads to a greater willingness to take risks. It appears that perceivers' naïve theory about people's risk-preferences agrees with actual risk-preferences in terms of the direction of the effect at least when social power is reflected by perceived facial dominance. The effects of targets’ gender on risk preferences fitted gender stereotypes. Specifically, for all domains for which gender had at least a medium-sized effect, the effect can be explained by gender stereotypes. That men seemed as more inclined to take financial risks than women fits the stereotype that women are not as skilled as men are in mathematics and finance (Carr & Steele, 2010). Gender stereotypes suggesting that women are more sociable then men (Feingold, 1998) and have better interpersonal skills (Eagly, 1987), can explain why regardless of differences in perceived dominance, women seemed as likely as dominant men to take higher social risks. As it appears, gender stereotypes that apparently influenced perceived risk-preferences are linked with higher competence attributed to the gender that is judged to be more willing to take risks. Finally, our data revealed that dominant men are overall perceived as more willing to take risks than dominant women, but submissive men seem less inclined to do so than dominant women in most domains except the recreational and financial domains. These findings suggest that judgments about risk-taking tendencies incorporate both the perceived dominance of targets and their gender. All else being equal, women stereotypically seem more risk-averse than men (Carr & Steele, 2010), accordingly, men appear more willing to take risks than women. Men are overall perceived as more dominant than women (Hess et al., 2004). When both factors are combined, which is the case for dominant men, it leads them to appear as more risk-takers. That dominant women seem more likely to take risks than submissive men in more than one domain, implies that dominance has a greater effect on perceived risk-preferences than gender. More generally, as our data indicated, variation in perceived risk-preferences as a function of risk domain and target's gender suggests that people consider the fit between the risk domain and gender stereotypes about the characteristics typical of each gender when inferring risk-preferences of others. These findings, however, cast some doubt on the idea that judgments of risk-taking tendencies based on perceived dominance reflect male quality. Further discussion of this claim is reserved to the general discussion.

The results of the present study lend support to the idea that observers use the perceived facial dominance of others to infer their risk-preferences and that they do so in a quite consistent way. Yet, the present study also has some limitations. First, our stimuli were comprised of photos of actual people who were perceived as differing in facial dominance. Although we attempted to control for some other possible differences between the stimuli (i.e. attractiveness and age) we could not control for other possible factors that may have contributed to how these people were perceived. In other words, perceived dominance may have not been the only nor the main factor that distinguished between our posers. Further, although our findings indicate quite characteristically that dominant looking targets are perceived as more likely to take risks than submissive looking targets, the exact nature of this effect is unknown. That is, it is not clear if this difference is because perceived dominance increases perceived willingness to take risks, perceived submissiveness decreases it or both. Finally, we suggested that perceived facial dominance contributes to perceived risk-preferences via its effect on perceived optimism and competence. Specifically, since dominant people are expected to be perceived as more optimistic about the outcomes of their actions and/or seem more competent overall, they may also seem as more willing to take risks. Nevertheless, in Study 1, this assumption was not tested. Study 2 was specifically designed to address these shortcomings.

**Study 2**

The main goal of Study 2 was to replicate our findings from Study 1 while manipulating the facial dominance of the stimuli and controlling, as much as possible, for idiosyncratic differences between the stimuli that are not associated with dominance. For this we used a morphing technique that enabled us to use a photo of a specific poser for which facial dominance was manipulated such that we created a "dominant version" and a "submissive version" of each poser along with the original version which was selected for being rated around the middle of the dominance scale. This enabled not only for a better control of facial dominance but also to assess the degree to which higher dominance, higher submissiveness or both determine perceived risk-preferences. Finally, we also measured perceived optimism and competence of posers. This enabled us to determine if and to what degree any effect of facial dominance on perceived risk-preferences is mediated by each of these factors.

**Method**

**Participants**

In total, 832 (459 women and 2 who identified their gender as other) participants with a mean age of 41 years (*SD* = 12.39) who were recruited through Amazon MTurk completed the study and passed control questions probing for attention.

**Stimulus materials**

Twenty-four photos served as stimuli in this study. Eight original photos of four Caucasian men and four Caucasian women, with a neutral emotional expression, were taken from The Chicago face database (Ma et al., 2015). Each photo was digitally manipulated such that we created a dominant and submissive version of it. Thus, for each poser, we had three photos. For this, the original photos selected were of medium level of dominance as determined by the judgments included in the database. As in Study 1, we also controlled for attractiveness and perceived age. We purposely selected posers whose perceived dominance was around the middle range of the scale so that there is sufficient leverage to increase and decrease dominance digitally such that differences in perceived dominance of the poser will be noticeable. Mean perceived dominance of the selected stimuli as rated by judges in the database, was, *M*=2.60, *SD*=.22, for women and *M*=2.71; *SD*=.09, for men*.* As in Study 1, we ensured posers were of similar attractiveness and perceived age. Attraction level of the selected photos was *M*=3.47, *SD*=.27, and, *M*=3.07, *SD*=.25, for women and men, respectively. Perceived age of the stimuli ranged between 25.66 and 28.97, for women (*M*=26.88, *SD*=1.44), and, 22.17 and 34.38 (*M*=26.54, *SD*=5.37) for men. Finally, we also ensured that posers will not have facial hair, bold moles, scars or any other noticeable skin issues. The stimuli appearing in the middle of each raw in Figure 3, are an example of the original photos selected from the database. Their more submissive and more dominant versions appear on the left and right side of the figure, respectively. Overall, each participant saw a photo of a man or woman who appeared to be highly dominant, of moderate dominance or highly submissive. This resulted in a 2 (perceived facial dominance: dominant, moderately dominant vs. submissive) X 2 (gender of target) within-subjects design.

In order to create photos differing in facial dominance, facial stimuli were manipulated to create stimulus copies of high and low facial dominance. For this, each target face was morphed with a dominant and submissive prototype using WebMorph (DeBruine, 2017) which is a web-based version of the Psychomorph software (Tiddeman et al., 2001). Prototypes consisted of computer-generated faces that were averaged from a sample of 25 highly dominant (+3 SD) and submissive (−3 SD) faces developed by Oosterhof and Todorov (2008). By marking up feature points on the target faces that correspond to identical points on the prototype faces, each original image was transformed for shape by 90% towards a more dominant and a more submissive face. The degree of transformation was determined based on judgments of the authors and proved effective as reported in the manipulation checks analysis below. This resulted in three images for each face identity: a dominant morph, the original image, and a submissive morph (for a similar procedure, see, e.g., Epley & Whitchurch, 2008; Penton-Voak et al., 1999; Wang et al., 2018).

**Procedure and dependent measures.**

The same procedure and measures used in Study 1 were also used in this study. However, we added two additional ratings, one of perceived optimism of the target and the other of the target's competence. These ratings were made on the same scales as those used for perceived dominance and submissiveness. These measures were included in order to assess the degree to which the effect of perceived facial dominance on perceived risk-preferences is mediated via target's perceived dominance, perceived optimism or both.

**Manipulation checks.**

As in Study 1, ratings of dominance and submissiveness correlated strongly (*r*= -.72,) and were combined. A 3 (target perceived dominance) X 2 (target gender) between-subjects analysis of variance was conducted on the composite measure of perceived dominance. As expected, a main effect of target's dominance was large, (ηp2 = .18). Pairwise comparisons indicated as expected, that the dominant targets were perceived as more dominant (*M* = 4.20, *SD* = 1.18, Skewness=-.76, Kurtosis=.18) than the moderately dominant targets (*M* = 3.24, *SD* = 1.58, Skewness=-.34, Kurtosis=-.94) who were further rated as more dominant than the submissive targets (*M* = 2.59, *SD* = 1.54, Skewness=.21, Kurtosis=-.98). The difference between the dominant and the moderately dominant target was rather large (d=.71) and between the dominant and submissive target was very large (d=1.17). A rather medium difference was found between the moderately dominant and submissive target (d=.39). In addition, the gender of the target also had an effect on perceived dominance yet this effect was rather small (ηp2 = .05). Specifically, women seemed more dominant (*M* = 3.65, *SD* = 1.45, Skewness=-.52, Kurtosis=-.62) than the men (*M* = 2.99, *SD* = 1.59, Skewness=-.10, Kurtosis=-1.13). Overall, this analysis indicates that the stimuli were perceived as intended. Nevertheless, that women appeared overall as somewhat more dominant than men, was unexpected and we are unsure as to why.

**Perceived risk preferences**

As in Study 1, we assessed the internal consistency of each of the subscales of the modified DSOPERT as well as of the scale as a whole. Alpha Cronbach scores ranged from .69 to .91 and mean interitem correlations ranged from .24 to .49 (α=.69; r=.27, α=.85; r=.49, α=.80; r=.39, α=.83; r=.45, α=.84; r=.48, and, .91; r=.24, for the social, recreational, financial, health/ safety, ethical domains, and the generalized risk-taking propensity, respectively). Overall the scale as a whole, and the sub-scales, showed adequate reliability.

To test the effect of perceived facial dominance on perceived risk-preferences perceived optimism, and competence, as in Study 1, we first conducted a two-way multivariate analysis of variance (MANOVA) with target perceived dominance (dominant, moderately dominant, and, submissive) and target gender (man, woman) as between-subjects factors and perceived risk preferences in each life domain, optimism and competence as dependent variables. Dominance had a medium size effect (ηp2 = .05), target’s gender had a large effect (ηp2 = .17) and a rather small effect was found for the interaction between the two variables (ηp2 = .03). We then conducted a series of two-way ANOVAs with target dominance (dominant, moderately dominant, and, submissive) and target gender (man, woman) as between-subjects factors and ratings for each risk domain separately, as well as for the combined measure reflecting generalized perceived risk preference, perceived optimism and competence, as dependent variables.

As shown in Table 5 and Table 6, for all risk domains as well as the generalized risk preference, the dominant target was judged as preferring to take risks to a greater degree than both the moderately dominant and submissive targets. In all cases, the difference in perceived risk-taking willingness between the dominant and submissive target was of a medium size or close to that. The difference between the dominant and moderately dominant targets was always smaller varying between a small size effect to close to a medium size effect in the case of the health and safety domain and the generalized risk-taking tendency. Finally, the weakest effect was found between the moderately dominant and submissive targets. In all cases, the size of this effect was rather small. Target's gender also had an impact on perceived risk preference. As shown in Table 7, this effect was very small in the context of the recreational and ethics domains. By contrast, gender had a small effect in the social, financial, the health and safety domains,as well as the generalized risk perception. In all of these cases, except in the social domain, men seemed somewhat more likely to take a risk than women. By contrast, in the social domain, women seemed somewhat more inclined to take a risk than men.

The interaction between target's dominance and target's gender had the strongest effect in the context of the social and recreational domains (ηp2 =.01). As can be seen in Table 8 and 9 and in Figure 4, in the social domain, dominant women seemed more likely to take a risk than anyone else. Whereas in comparison with the dominant men or moderately dominant women, this effect was small, in all other cases it was of a medium size or stronger. Dominant men seemed also more likely to take a social risk then all targets of lower dominance but these effects were stronger for men than for women. Further, moderately dominant men seemed more likely to take a risk than a submissive man (very small effect) but less than both a submissive and a moderately dominant woman (medium and small effects, respectively). The moderately dominant woman seemed more likely to take a risk than a submissive man (medium effect) and woman (small effect) and the latter was still seen as more likely to take such a risk than the submissive man (small effect). Overall, this suggests that dominant people seem more likely to take a social risk than submissive ones but this effect is somewhat stronger for women than for men.

In the recreational domain, the dominant men seemed more likely to take a risk than anyone else. All effects in this context were close to medium or above. Dominant women were also judged as somewhat more likely to take a recreational risk than all the others except for dominant men. These effects were small in all cases except in comparison with the moderately dominant women for whom the effect was smaller. The moderately dominant men seemed less likely to take such a risk than the moderately dominant woman (small effect) but more likely to do so than the submissive men and women. Yet, these latter effects were smaller. Finally, the moderately dominant woman seemed as more likely to take a risk than the submissive women and this effect was also small. Thus, recreational risks seem to be the realm of dominant men and to a lesser degree, of dominant women. Here too, findings are very similar to what was reported in Study 1 in the context of the social and recreational risks.

Overall, looking at the effect of dominance, results suggest that the difference in perceived risk-preferences of dominant vs. submissive targets is to larger degree because higher dominance increases perceived risk-taking willingness. This also fits the findings by Anderson and Galinsky (2006) who found that higher power more than lower power explains the difference in risk-taking between high and low-powered people. Indeed, our data indicates that in most risk domains, the target looking highly dominant was not only perceived as willing to take more risks than the submissive looking target but also than the target who was perceived as moderately dominant. As is apparent in Table 9, in all domains but one for men (the financial domain) and one for women (the recreational domain) and also the generalized risk-taking tendency, the size of the effect of the difference between the dominant and the moderately dominant person was higher than that between the moderately dominant and submissive person. Thus, whereas both increased dominance and increased submissiveness contribute to perceived risk-taking preferences, increased dominance seems to have a stronger impact on these perceptions. Given the way we manipulated facial dominance in the present study, this suggests that shifts in facial characteristics in both directions, that is, greater dominance or greater submissiveness, are translated into similar changes in perceived risk-preferences. Yet, increasing dominance seems to have a stronger impact than increasing submissiveness, as manifested by the stronger effect in perceived risk-taking across domains.

Recall that we assumed that the effect of facial dominance on perceived risk is mediated by perceived optimism and/or perceived competence. Whereas dominance had a very small effect on both variables (ηp2 =<.001), gender had a somewhat larger effect (ηp2 =.02). Yet, these effects were qualified by an interaction between a target's dominance and target's gender, (ηp2 =.02) for both perceived optimism and perceived competence. As can be seen in Figure 4, and Tables 8 and 9, the submissive and moderately dominant women seemed most optimistic than all the rest. These effects were of a size that was at least somewhat higher than a small size effect and most of them were of a medium size. With regard to perceived competence, here too, the moderately dominant and submissive women seemed more competent than all the rest but these effects were of a somewhat smaller size than in the context of perceived optimism. As can be seen, both perceived optimism and competence do not match our prediction, since for most conditions, greater perceived dominance does not lead to a higher degree of perceived optimism nor of perceived competence. Rather, in some cases the pattern is even reversed such that lower perceived dominance leads to a higher degree of optimism and competence. At first sight, this excludes the possibility that either of these factors plays a mediating role in explaining why for most risk domains, higher levels of perceived dominance of targets leads to increased assessment that they will be willing to take more risks. Nevertheless, the present analysis is not sensitive enough to make this conclusion definitive. First, is can be argued that the effect of facial dominance depends on perceived dominance rather than on the facial dominance condition. Although our manipulation proved effective, the conditions, as such, are not a perfect representation of perceived dominance. In addition, the present analysis examines perceived optimism and competence over and above the different risk domains. Yet, it is possible that in a specific risk domain, perceived optimism and/or perceived competence do operate as assumed, at least to some degree. Given these considerations, a more appropriate analysis of the assumed moderating role of perceived optimism and perceived competence is a mediation analysis in which the mediating role of these factors will be examined for each risk domain separately as well as for the generalized risk. The results of such an analysis are reported in what follows. Figure 5 shows the examined mediation model.

Table 10 presents the results of this analysis. Our results show no support for the assumption that the effect of perceived dominance based on a target's facial dominance affects perceived risk preferences by determining the target's optimism as all these effects were very weak (effect AxC, in Table 10). This, despite the fact that perceived optimism, as such, was positively associated with perceived risk preferences at least to weak degree in the social and recreational domains (path C in the Table 10). Nevertheless, perceived optimism of the targets was very weakly affected by perceived dominance (path A in Table 10). It is possible that other features of targets' appearance determined this perception. Perceived competence, which was also assumed to mediate the effect of perceived dominance on perceived risk preferences, also did not seem to play an important mediating role as this effect for all risk domains was also weak (effect BxD, in Table 10). Furthermore, this weak effect was in the opposite direction from what was expected for all domains except for the social one. Specifically, increased dominance, increased perceived competence (path B in Table 10), which further increased perceived risk for the social domain but decreased it for the financial, health and safety and ethics domains as well as for the generalized risk-taking tendency (path D in Table 10). These effects of perceived competence on perceived risk in the health and safety, ethics and generalized risk were still weak but somewhat more intense than most other effects in the model. In other words, in as much as persons seem more competent for being dominant, this leads to seeing them as less likely to take risks in these lastly mentioned risk domains. This is not true for the social domain in which greater competence translates into the perception of the person as more willing to take risks. These results suggest that competence is seen as the ability to take the right actions which may mean to be more careful in most domains and being able to handle risks in the social domain. Overall, as is evident form our results, perceived dominance is positively associated with perceived risk preferences (path E in Table 10) and for most domains except for finance the effect is weak but still more intense than other effects in the model. Nevertheless, this effect is not mediated by perceived optimism and only partially and to a very limited degree by perceived competence. Perceived competence, in most cases, reduces perceived likelihood that the person will take risks and does not increase it. Accordingly, the positive and consistent effect of perceived facial dominance on perceived risk-preferences is likely to be explained by different factors than perceived optimism and/or perceived competence. A suggestion to this effect is discussed in the general discussion.

**General Discussion**

The main goal of this paper was to explore the possibility that the perceived facial dominance of a person serves observers to infer this person's risk-preferences. It was previously reported that this was true for men who appeared more masculine, a characteristic that is associated with higher levels of perceived dominance (Kruger, 2006). However, considering what is known about the link between dominance and social power and actual risk-taking behavior, as discussed in more detail in the introduction above (e.g., Anderson & Galinsky, 2006; Stenstrom et al., 2011) we assumed that a more complex picture may emerge in observers’ minds between perceived dominance and judgment of risk-taking preferences. First, we assumed that it is possible that such perceived preferences would vary to some extent as a function of the life domain for which the risk is considered. Further, given that social perceivers tend to overgeneralize the meaning of cues to any person who shares them even if they do not actually belong to the group characterized by these cues (Zebrowitz, 2004), we assumed that facial dominance of women may also determine perception of their risk-taking tendencies. Finally, given gender stereotypes concerning risk-taking behavior we expected that we will find some differences in how dominance affects risk-taking tendencies of men relative to women. In two separate studies, we demonstrated that perceived facial dominance of a both men and women determined perceived risk-taking tendencies. Specifically, higher level of perceived dominance was associated with greater perceived intention to take risks. This was true for all risk domains as well as for the perceived generalized tendency to take risks for men, and for women this was the case for most but not all risk domains. First, in the recreational domain, in both studies, dominant men were deemed as more willing to take risks than anyone else. But dominant women were not seen as more likely to take risks than submissive women in Study 1. In Study 2, dominant women seemed as more likely to take risks than both the submissive women and the moderately dominant women but the latter effect was weaker. Likewise, in the social domain, in Study 1, dominance played a much weaker role for women than for men. In addition, in some risk domains there was a strong gender effect. Importantly, the effect of gender on perceptions of risk-preferences was in line with gender stereotypes.

Thus, mostly, men were judged as more likely to take risks then women and this is more so for dominant men than for submissive or moderately dominant men. Indeed, gender stereotypes suggest that men are more willing to take risks than women (Carr & Steele, 2010; Siegrist et al., 2002). Yet, this may be more so when dominant men are involved. Since dominant appearance is positively associated with masculinity (Perrett et al., 1998), men who are less dominant are judged to a lesser degree in a way that fits what gender stereotypes suggest. Yet, there is one risk domain for which even dominant women do seem as less likely to take a risk than dominant men. This is the social domain. Here, dominant women seemed as more willing to take risks than dominant men (Study 2) or at least not much less likely to take risks than dominant men (Study 1). This was also true of submissive women relative to submissive men in both studies and of the moderately dominant women relative to the moderately dominant men in Study 2. These findings are also in line with gender stereotypes, suggesting that women are more sociable and having better interpersonal skills (Eagly, 1987; Feingold, 1998). That perceived risk-preferences vary to some degree across risk domains shows that people evaluate others’ risk-preferences while considering the specific context of the risk as they do when they indicate their personal risk-preferences (see e.g., Blais & Weber, 2006; Hanoch et al., 2006; Soane & Chmiel, 2005).

Our data, thus, nicely demonstrate that perceived facial dominance quite characteristically contributes positively to perceived risk-preferences. That is, observers believe that the more dominant a person appears to be, the more likely is this person to take risks. We assumed that this effect will be mediated by perceived optimism and/or perceived competence as both were assumed to be linked to perceived dominance and could potentially affect the judgment in question. Indeed, perceived dominance was positively associated with perceived competence. Further, both were associated with perceived risk-perceptions. Yet, for perceived optimism this link was not predicted by perceived dominance and for perceived competence, in as much as it mediated the effect of dominance on perceived risk-preferences, it was mostly in the opposite direction of what was assumed. Clearly, the positive link between perceived facial dominance and risk-preferences should be explained by a different factor than these two.

One possible candidate is perceived impulsivity. Impulsivity can be best conceived of as the tendency to make decisions hastily rather than reflectively (Eysenck & Eysenck, 1977). Impulsivity is considered as a factor that increases the tendency of people to take risks because of the tendency of impulsive people to ignore the potential negative consequences of their behavior (see, e.g., Byrnes, 2005). As mentioned above, Anderson and Galinsky (2006) suggested that the possession of power leads individuals to pay more attention to the potential payoffs inherent in risky actions and devote less attention to the potential dangers and costs these involve. As a result, powerful individuals are more optimistic when perceiving risks, and hence are more likely to engage in risky behaviors. As is apparent form this presentation, what links between high power and greater risk taking is a relative inattention to costs and greater attention to payoffs. This is not so different than the way impulsivity is defined, as presented above. We suggest that we failed to show that optimism mediates the link between perceived dominance and risk-preferences since when it comes to one's own focus on payoffs as opposed to costs it is seen more positively and hence as optimism. By contrast, when people judge the same tendency on the part of others, they may not see it as optimism but rather as impulsivity. Accordingly, if we would have measured perceived impulsivity of the other or the degree to which this person sees dangers vs. pay-offs, we may have gotten a different result.

Another possible candidate for a mediating factor is sensation seeking which is known to be an important factor affecting people's inclination to take risks (Zuckerman, 2007). Indeed, there is a positive correlation between dominance and sensation seeking (Gorman, 1970). It is possible that perceivers' naïve theory about dominant people match reality in this context. That is, they believe that dominant people are sensation seekers and hence are likely to take more risks. Obviously, testing these possibilities requires additional research.

Our data showed quite robustly that people who appear more dominant are also judged as more prone to take risks. Given the ease with which people judge others based on their facial appearance (Todorov et al., 2008; Zebrowitz et al., 1996) and the fact that facial dominance is an important factor that serves this goal (Oosterhof & Todorov, 2008), our results strongly suggest the possibility that facial dominance can serve observers to assess others' risk-preferences.

The idea that facial dominance can serve observers as cue of the person’s risk-taking tendencies is often linked in the literature with the idea that dominance reflects desirable male qualities (Kruger , 2006; Stenstrom et al., 2011). If this is indeed what informs perceived risk-taking tendencies then these should be aligned with actual risk-preferences of people. Nevertheless, Stenstrom et al. (2011) found that dominance predicts risk taking prefernces for men but not for women and even for men this is true of the social, recreational and financial domains, but not the ethical or health and safety domains. This makes sense if taking risks reflects desirable qualities such as ambition, confidence and financial capacity, which are required in order to take risks in such domains. This, since taking risks in the ethical or health and safety domains may be seen as mostly involving unnecessary and undesirable risks. Nevertheless, our findings suggest that perceived risk-taking is not necessarily associated with male quality or desirable traits more generally. First, dominant men across all domains seemed as more inclined to take risks. It is difficult to explain why taking risks in the domains of health and safety which may involve risking one’s life would be considered a desirable trait in men. Further, it is not clear why would a cue supposedly reflecting male quality, would also apply to women. Indeed, appearance cues are often overgeneralized such that cues that look alike are perceived to indicate similar underlying properties (Zebrowitz, 2004). Yet, if this is the case, why would that be relevant only for some but not all life domains as is the case foe men? Further, why would dominant women seem as likely as dominant men to take social risks or even more likely than dominant men if dominant men but not dominant women report being more inclined to take such risks, as the above-mentioned study suggests. Finally, if taking risks in certain domains is considered as a cue of desirable qualities, this should have been associated with perceived competence, as we expected. Yet, this is not what we found. Accordingly, all in all, facial dominance does not appear to be perceived as predictive of risk-taking behavior because it is taken by observers as a signal of male quality or desirable qualities more generally. At least not in all cases and in all domains. Rather, our findings indicate that it may reflect social stereotypes, whose function is not necessarily to reflect desirable qualities of men or people more generally.

Doctors, lawyers, and employers are often called upon to make (crucial) decisions for their patients, clients, and prospective employees. What information do individuals integrate into their decision-making is of key importance. Researchers have, thus far, focused on stereotypical information (e.g., Siegrist et al., 2002) and the self (e.g., Hsee & Weber, 1997) as sources for such judgments as well as on the accuracy of such judgments (e.g., Roth & Voskort, 2014), and have largely failed to examine the role that perceived facial dominance might play in the process. Our findings clearly indicate that a person’s facial dominance is used when judging their risk-preferences, and, furthermore, that the judgment also depends on risk domain. Also, our findings fit findings showing that high-powered people are more likely to take risks (Anderson & Galinsky, 2006). Taken together, testing the degree to which observers' predictions based on a person's facial dominance match that persons' own risk preferences, would be an interesting next step in a future research. Overall, we believe that our findings contribute not only to the literature on social perception of risk-preferences, but also to the literature on social perception more generally. This, especially since for the first time we show that perceivers attribute characteristics to others based on appearance cues while also considering the context in which these characteristics may play out as well as other factors related to the target’s identity. That is, while dominant appearance tends to be associated with greater risk-taking tendency, in general, the size of its effect on these perceptions varies as a function of the specific domain involved and the gender of the target. This may very well apply to other impressions informed by a person’s appearance such as a babyface or attractiveness. That is, whatever impression is informed by these characteristics may not equally apply to all domains. More specifically, though, these results suggest an important additional role that facial dominance may play in social perception. This, independent of the role that dominant appearance may play in signaling male quality.

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Table 1 -

Perceived risk-preferences as a function of target's facial dominance– Study 1

|  |  |  |
| --- | --- | --- |
|  | **Target's dominance** |  |
| Risk Domain | Dominant*M* (*SD*)Skewness; KurtosisN | Submissive*M* (*SD*)Skewness; Kurtosis N | ηp2 |
| Social | 29.54 (4.62)-.14; .14118 | 27.32 (5.57)-.23; -.03119 | .05 |
| Recreation | 23.55 (7.36)-.05; -.77118 | 22.11 (7.10)-.04; -.14119 | .01 |
| Finance | 23.86 (6.33).14; .02118 | 20.50 (6.87).09; -.62119 | .07 |
| Health/ safety | 29.28 (6.36)-.71; .92118 | 25.01 (6.57)-.02; -.62119 | .10 |
| Ethics | 27.05 (7.09)-.43; -.40118 | 22.94 (6.88).12; -.62119 | .08 |
| Generalized risk | 26.66 (4.04)-.01; .14118 | 23.57 (4.71).11; -.42119 | .11 |

Table 2 -

Perceived risk-preferences as a function of target's gender – Study 1

|  |  |  |
| --- | --- | --- |
|  | **Target's gender** |  |
| Risk Domain | MenM (SD)Skewness; KurtosisN | WomenM (SD)Skewness; Kurtosis N | ηp2 |
| Social | 27.86 (5.29)-.30; .14117 | 28.98 (5.14)-.26; .24120 | .01 |
| Recreation | 23.84 (7.26)-.02; -.49117 | 21.84 (7.13).12; -.30120 | .02 |
| Finance | 24.00 (6.45)-.07; .14117 | 20.38 (6.70).21; -.43120 | .07 |
| Health/ safety | 27.22 (7.01)-.37; -.27117 | 27.05 (6.62)-.28; -.34120 | .0 |
| Ethics | 24.34 (7.28)-.16; -.87117 | 25.62 (7.24)-.08; -.06119 | .01 |
| Generalized risk | 25.45 (4.90)-.39; -.17117 | 24.78 (4.37).27; -.15120 | .01 |

Table 3 -

Perceived risk-preferences as a function of target's facial dominance and gender – Study 1

|  |  |  |  |
| --- | --- | --- | --- |
|   |  | **Condition** |  |
| Risk domain |  | Dominant man | Dominant woman | Submissive man | Submissive woman | ηp2 |
| Social |  |  |  |  |  | .023 |
|  | M  | 29.73 | 29.36 | 25.95 | 28.62 |  |
|  | SD  | 4.47 | 4.80 | 5.40 | 5.46 |  |
|  | Skewness  | -.08 | -.16 | -.19 | -.32 |  |
|  | Kurtosis  | .21 | .14 | -.10 | .26 |  |
|  | N  | 59 | 59 | 58 | 61 |  |
| Recreational |  |  |  |  |  | .030 |
|  | M  | 25.78 | 21.32 | 21.86 | 22.34 |  |
|  | SD  | 6.70 | 7.37 | 7.33 | 6.92 |  |
|  | Skewness  | -.27 | .26 | -.05 | -.01 |  |
|  | Kurtosis  | -.48 | -.65 | -.44 | .29 |  |
|  | N  | 59 | 59 | 58 | 61 |  |
| Financial |  |  |  |  |  | .003 |
|  | M  | 26.00 | 21.71 | 21.97 | 19.10 |  |
|  | SD  | 5.65 | 6.29 | 6.61 | 6.88 |  |
|  | Skewness  | .35 | .24 | -.09 | .31 |  |
|  | Kurtosis  | .90 | -.49 | -.63 | -.34 |  |
|  | N  | 59 | 59 | 58 | 61 |  |
| Health/ safety |  |  |  |  |  | .009 |
|  | M  | 29.95 | 26.61 | 24.45 | 25.54 |  |
|  | SD  | 6.54 | 6.17 | 6.40 | 6.74 |  |
|  | Skewness  | -1.0 | -.46 | .02 | -.07 |  |
|  | Kurtosis  | 1.90 | .25 | -.07 | -.50 |  |
|  | N  | 59 | 59 | 58 | 61 |  |
| Ethics |  |  |  |  |  | .0 |
|  | M  | 26.51 | 27.59 | 22.14 | 23.71 |  |
|  | SD  | 6.77 | 7.42 | 7.17 | 6.56 |  |
|  | Skewness  | -.43 | -.48 | .12 | .20 |  |
|  | Kurtosis  | -.47 | -.30 | -.87 | -.33 |  |
|  | N  | 59 | 59 | 58 | 61 |  |
| Generalized Risk |  |  |  |  |  | .020 |
|  | M  | 27.59 | 25.72 | 23.27 | 23.86 |  |
|  | SD  | 3.50 | 4.34 | 5.17 | 4.25 |  |
|  | Skewness  | .05 | .19 | .01 | .38 |  |
|  | Kurtosis  | -.24 | .36 | -.56 | -.46 |  |
|  | N  | 59 | 59 | 58 | 61 |  |

Table 4 -

Pairwise comparisons of the effect of target's facial dominance and gender on perceived risk preference – Study 1

|  |  |  |  |
| --- | --- | --- | --- |
| **Risk domain** |  |  |  |
| **Social** | **Mean difference** | **SE** | **Cohen's d** |
| *Comparison* |  |  |  |
| Dominant man | Dominant woman | .37 | .93 | .08 |
|  | Submissive man | 3.78 | .93 | .76 |
|  | Submissive woman | 1.11 | .92 | .49 |
| Dominant woman | Submissive man | 3.41 | .93 | .67 |
|  | Submissive woman | .73 | .92 | .14 |
| Submissive man | Submissive woman | -2.68 | .93 | -.49 |
| **Recreational** |  |  |  |
| Dominant man | Dominant woman | 4.46 | 1.30 | .63 |
|  | Submissive man | 3.92 | 1.31 | .56 |
|  | Submissive woman | 4.46 | 1.30 | .63 |
| Dominant woman | Submissive man | -.54 | 1.31 | -.07 |
|  | Submissive woman | -1.02 | 1.29 | -.14 |
| Submissive man | Submissive woman | -.48 | 1.30 | .07 |
| **Financial** |  |  |  |
| Dominant man | Dominant woman | 4.29 | 1.17 | .72 |
|  | Submissive man | 4.03 | 1.18 | .66 |
|  | Submissive woman | 6.90 | 1.17 | 1.10 |
| Dominant woman | Submissive man | -.25 | 1.18 | -.04 |
|  | Submissive woman | 2.61 | 1.17 | .40 |
| Submissive man | Submissive woman | 2.67 | 1.17 | .43 |
| **Health/ safety** |  |  |  |
| Dominant man | Dominant woman | 1.34 | 1.19 | .21 |
|  | Submissive man | 5.50 | 1.20 | .85 |
|  | Submissive woman | 4.41 | 1.18 | .66 |
| Dominant woman | Submissive man | 4.16 | 1.20 | .66 |
|  | Submissive woman | 3.07 | 1.18 | .48 |
| Submissive man | Submissive woman | -1.09 | 1.19 | .17 |
| **Ethics** |  |  |  |
| Dominant man | Dominant woman | -1.09 | 1.29 | .15 |
|  | Submissive man | 4.37 | 1.29 | .63 |
|  | Submissive woman | 2.80 | 1.28 | .42 |
| Dominant woman | Submissive man | 5.46 | 1.29 | .75 |
|  | Submissive woman | 3.89 | 1.28 | .56 |
| Submissive man | Submissive woman | -1.57 | 1.28 | -.23 |
| **Generalized Risk** |  |  |  |
| Dominant man | Dominant woman | 1.88 | .80 | .48 |
|  | Submissive man | 4.32 | .80 | .98 |
|  | Submissive woman | 3.73 | .79 | .96 |
| Dominant woman | Submissive man | 2.45 | .80 | .51 |
|  | Submissive woman | 1.86 | .79 | .43 |
| Submissive man | Submissive woman | -.59 | .80 | .13 |

Table 5 -

Perceived risk-preferences as a function of target's facial dominance– Study 2

|  |  |  |
| --- | --- | --- |
|  | **Target's dominance** |  |
| Dependent variable | Dominant*M* (*SD*)Skewness; KurtosisN | Moderately dominant*M* (*SD*)Skewness; KurtosisN | Submissive*M* (*SD*)Skewness; KurtosisN | ηp2 |
| Social | 30.59 (4.27)-.36; .24267 | 28.93 (5.38)-.64; .72289 | 27.96 (5.70)-.29; -.25276 | .04 |
| Recreation | 26.08 (6.99)-.40; -.28267 | 23.52 (7.52)-.12; -.47289 | 22.84 (7.66)-.18; -.64276 | .04 |
| Finance  | 23.19 (6.85).01; -.19267 | 21.46 (7.02).14; -.44289 | 20.51 (7.06).34; -.23276 | .03 |
| Health/ safety | 29.77 (6.45)-.45; -.37267 | 26.94 (6.88)-.49; -.21289 | 25.25 (7.99)-.11; -.81276 | .06 |
| Ethics | 26.62 (7.02)-.28; -.61267 | 25.11 (6.82)-.26; -.38289 | 23.89 (7.50)-.01; -.56276 | .02 |
| Generalized risk | 27.25 (4.48).04;.48267 | 25.19 (4.69).07; .33289 | 24.09 (5.40).10; .05276 | .07 |
| Optimism | 3.03 (1.50)-.01; -.95267 | 3.28 (1.54)-.19; -.98289 | 3.29 (1.53)-.039-.07276 | .001 |
| Competence | 3.80 (1.34)-.67; -.08267 | 3.85 (1.29)-.72; .11289 | 3.82 (1.37)-.68; .22276 | .0 |

Note: Higher means reflect a higher level of perceived propensity to take risks, optimism, or competence.

Table 6 -

Pairwise comparisons of the effect of target's facial dominance on perceived risk preference – Study 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Risk domain** | **Comparison** | **Mean difference** | **SE** | **Cohen's d** |
| **Social** |  |  |  |
| Dominant  | Moderately Dominant  | 1.75 | .43 | .36 |
|  | Submissive  | 2.62 | .44 | .52 |
| Moderately Dominant | Submissive  | .87 | .43 | .16 |
| Recreational |  |  |  |
| Dominant  | Moderately Dominant  | 2.62 | .63 | .36 |
|  | Submissive  | 3.25 | .63 | .44 |
| Moderately Dominant | Submissive  | .63 | .62 | .08 |
| Financial |  |  |  |
| Dominant  | Moderately Dominant  | 1.62 | .58 | .23 |
|  | Submissive  | 2.70 | .59 | .39 |
| Moderately Dominant | Submissive  | 1.08 | .58 | .15 |
| Health/ safety |  |  |  |
| Dominant  | Moderately Dominant  | 2.75 | .60 | .41 |
|  | Submissive  | 4.53 | .61 | .62 |
| Moderately Dominant | Submissive  | 1.79 | .60 | .24 |
| Ethics |  |  |  |
| Dominant  | Moderately Dominant  | 1.52 | .61 | .22 |
|  | Submissive  | 2.73 | .61 | .38 |
| Moderately Dominant | Submissive  | 1.21 | .60 | .17 |
| Generalized Risk |  |  |  |
| Dominant  | Moderately Dominant  | 2.05 | .41 | .45 |
|  | Submissive  | 3.17 | .42 | .64 |
| Moderately Dominant | Submissive  | 1.16 | .41 | .22 |
| **Optimism** |  |  |  |  |
| Dominant  | Moderately Dominant  | -.23 | .13 | -.15 |
|  | Submissive  | -.27 | .13 | -.18 |
| Moderately Dominant | Submissive  | -.05 | .13 | -.03 |
| **Competence** |  |  |  |  |
| Dominant  | Moderately Dominant  | -.03 | .11 | -.03 |
|  | Submissive  | -.02 | .11 | -.02 |
| Moderately Dominant | Submissive  | .01 | .11 | .01 |

Table 7 -

Perceived risk-preferences as a function of target's gender – Study 2

|  |  |  |
| --- | --- | --- |
|  | **Target's gender** |  |
| Dependent variable | MenM (SD)Skewness; KurtosisN | WomenM (SD)Skewness; Kurtosis N | ηp2 |
| Social | 28.37 (5.64)-.46; .01407 | 29.89 (4.77)-.54; .72425 | .02 |
| Recreation | 24.47 (7.85)-.35; -.66407 | 23.78 (7.19)-.14; -.30425 | .002 |
| Finance | 22.97 (6.68)-.04; .66407 | 20.49 (7.20).38; -.25425 | .03 |
| Health/ safety | 28.35 (7.77)-.55; -.44407 | 26.27 (6.81)-.33; -.38425 | .02 |
| Ethics | 25.00 (7.55)-.18; -.72407 | 25.37 (6.84)-.18; -.72425 | .001 |
| Generalized risk | 25.83 (5.38)-.19; -.09407 | 25.16 (4.68).13;.72425 | .01 |
| Optimism | 2.97 (1.57)-.01; -.95407 | 3.42 (1.45)-.35; -.78425 | .02 |
| Competence | 3.65 (1.37)-.58; -.21407 | 3.99 (1.27)-.79; .47425 | .02 |

Table 8 -

Perceived risk-preferences as a function of target's facial dominance and gender – Study 2

|  |  |  |  |
| --- | --- | --- | --- |
|   |  | **Condition** |  |
| Risk domain |  | Dominant man  | Dominant woman  | Moderately dominant man | Moderately dominant woman | Submissive man  | Submissive woman | ηp2 |
| Social |  |  |  |  |  |  |  | .01 |
|  | M  | 30.24 | 30.94 | 27.59 | 30.10 | 27.34 | 28.60 |  |
|  | SD  | 4.43 | 4.08 | 5.46 | 5.05 | 6.39 | 4.82 |  |
|  | Skewness  | -.60 | -.03 | -.51 | -.79 | -.11 | -.43 |  |
|  | Kurtosis  | .35 | -.16 | .35 | 1.08 | -.68 | .44 |  |
|  | N  | 133 | 134 | 134 | 155 | 140 | 136 |  |
| Recreational |  |  |  |  |  |  |  | .01 |
|  | M  | 27.49 | 24.69 | 22.84 | 24.10 | 23.16 | 22.52 |  |
|  | SD  | 6.71 | 7.00 | 7.55 | 7.46 | 8.33 | 6.91 |  |
|  | Skewness  | -.60 | -.23 | -.14 | -.10 | -.22 | -.16 |  |
|  | Kurtosis  | .03 | -.33 | -.70 | -.27 | -.90 | -.26 |  |
|  | N  | 133 | 134 | 134 | 155 | 140 | 136 |  |
| Financial |  |  |  |  |  |  |  | .003 |
|  | M  | 23.93 | 22.45 | 23.12 | 20.03 | 21.91 | 19.07 |  |
|  | SD  | 6.24 | 7.34 | 6.45 | 7.20 | 7.18 | 6.66 |  |
|  | Skewness  | -.16 | .19 | -.07 | .41 | .18 | .51 |  |
|  | Kurtosis  | .16 | -.34 | -.02 | -.38 | -.47 | .31 |  |
|  | N  | 133 | 134 | 134 | 155 | 140 | 136 |  |
| Health/ safety |  |  |  |  |  |  |  | .001 |
|  | M  | 30.97 | 28.69 | 28.25 | 25.80 | 26.06 | 245.42 |  |
|  | SD  | 6.78 | 5.93 | 6.78 | 6.88 | 8.87 | 6.89 |  |
|  | Skewness  | -.67 | -.33 | -.64 | -.39 | -.22 | -.10 |  |
|  | Kurtosis  | .13 | -.04 | .13 | -.33 | -.98 | -.66 |  |
|  | N  | 133 | 134 | 134 | 155 | 140 | 136 |  |
| Ethics |  |  |  |  |  |  |  | .001 |
|  | M  | 26.15 | 27.09 | 24.93 | 25.27 | 23.99 | 23.80 |  |
|  | SD  | 7.47 | 6.54 | 6.90 | 6.78 | 8.11 | 6.84 |  |
|  | Skewness  | -.26 | -.03 | -.34 | -.19 | .02 | -.08 |  |
|  | Kurtosis  | -.73 | -.56 | -.63 | -.13 | -.77 | -.30 |  |
|  | N  | 133 | 134 | 134 | 155 | 140 | 136 |  |
| Generalized Risk |  |  |  |  |  |  |  | .001 |
|  | M  | 27.74 | 26.77 | 25.35 | 25.06 | 24.49 | 23.68 |  |
|  | SD  | 4.69 | 4.23 | 4.61 | 4.76 | 6.14 | 4.52 |  |
|  | Skewness  | -.26 | .36 | -.15 | .25 | .05 | -.02 |  |
|  | Kurtosis  | .30 | 1.10 | .08 | .61 | -.44 | .66 |  |
|  | N  | 133 | 134 | 134 | 155 | 140 | 136 |  |
| Optimism |  |  |  |  |  |  |  | .02 |
|  | M  | 3.11 | 2.94 | 2.87 | 3.63 | 2.94 | 3.66 |  |
|  | SD  | 1.49 | 1.52 | 1.61 | 1.39 | 1.62 | 1.33 |  |
|  | Skewness  | .09 | -.10 | .07 | -.31 | -.12 | -.57 |  |
|  | Kurtosis  | -.98 | -.10 | -1.04 | -.91 | -.91 | -.31 |  |
|  | N  | 133 | 134 | 134 | 155 | 140 | 136 |  |
| Competence |  |  |  |  |  |  |  | .02 |
|  | M  | 3.11 | 2.94 | 2.87 | 3.63 | 2.94 | 3.66 |  |
|  | SD  | 1.49 | 1.52 | 1.61 | 1.39 | 1.62 | 1.33 |  |
|  | Skewness  | .09 | -.10 | .07 | -.31 | -.12 | -.57 |  |
|  | Kurtosis  | -.10 | -.97 | -1.04 | -.91 | -.91 | -.31 |  |
|  | N  | 133 | 134 | 134 | 155 | 58140 | 136 |  |

Table 9 -

Pairwise comparisons of the effect of target's facial dominance and gender on perceived risk preference – Study 2

|  |  |  |  |
| --- | --- | --- | --- |
| **Risk domain** |  |  |  |
| **Social** | **Mean difference** | **SE** | **Cohen's d** |
| *Comparison* |  |  |  |
| Dominant man | Dominant woman | -.07 | .63 | -.16 |
|  | Moderately dominant man  | 2.65 | .63 | .53 |
|  | Moderately dominant woman  | .14 | .60 | .03 |
|  | Submissive man | 2.91 | .62 | .53 |
|  | Submissive woman | 1.64 | .62 | .35 |
| Dominant woman | Moderately dominant man  | 3.35 | .62 | .70 |
|  | Moderately dominant woman  | .84 | .60 | .18 |
|  | Submissive man | 3.61 | .62 | .67 |
|  | Submissive woman | 2.34 | .62 | .52 |
| Moderately dominant man | Moderately dominant woman  | -2.51 | .60 | -.48 |
|  | Submissive man | .25 | .62 | .04 |
|  | Submissive woman | -1.01 | .62 | -.20 |
| Moderately dominant woman | Submissive man | 2.76 | .60 | .48 |
|  | Submissive woman | 1.49 | .60 | .30 |
| Submissive man | Submissive woman | -1.27 | .61 | .22 |
| **Recreational** |  |  |  |
| Dominant man | Dominant woman | 2.80 | .90 | .41 |
|  | Moderately dominant man  | 4.65 | .90 | .65 |
|  | Moderately dominant woman  | 3.39 | .87 | .48 |
|  | Submissive man | 4.33 | .89 | .57 |
|  | Submissive woman | 4.97 | .90 | .73 |
| Dominant woman | Moderately dominant man  | 1.85 | .90 | .25 |
|  | Moderately dominant woman  | .58 | .87 | .08 |
|  | Submissive man | 1.53 | .89 | .20 |
|  | Submissive woman | 2.17 | .90 | .31 |
| Moderately dominant man | Moderately dominant woman  | -1.27 | .89 | -.17 |
|  | Submissive man | -.32 | .89 | .04 |
|  | Submissive woman | .31 | .90 | .04 |
| Moderately dominant woman | Submissive man | .95 | .86 | .12 |
|  | Submissive woman | 1.58 | .87 | .22 |
| Submissive man | Submissive woman | .64 | .89 | .08 |
| **Financial** |  |  |  |
| Dominant man | Dominant woman | 1.49 | .84 | .22 |
|  | Moderately dominant man  | .81 | .84 | .13 |
|  | Moderately dominant woman  | 3.91 | .81 | .58 |
|  | Submissive man | 2.03 | .83 | .30 |
|  | Submissive woman | 4.86 | .84 | .75 |
| Dominant woman | Moderately dominant man  | -.67 | .84 | -.10 |
|  | Moderately dominant woman  | 2.42 | .81 | .33 |
|  | Submissive man | .54 | .83 | .07 |
|  | Submissive woman | 3.37 | .84 | .48 |
| Moderately dominant man | Moderately dominant woman  | 3.09 | .81 | .45 |
|  | Submissive man | 1.21 | .83 | .18 |
|  | Submissive woman | 4.05 | .84 | .62 |
| Moderately dominant woman | Submissive man | -1.88 | .80 | -.26 |
|  | Submissive woman | .95 | .81 | .14 |
| Submissive man | Submissive woman | 2.83 | .83 | .41 |
| **Health/ safety** |  |  |  |
| Dominant man | Dominant woman | 2.18 | .87 | .34 |
|  | Moderately dominant man  | 2.61 | .87 | .39 |
|  | Moderately dominant woman  | 5.07 | .84 | .74 |
|  | Submissive man | 4.80 | .86 | .61 |
|  | Submissive woman | 6.45 | .86 | .94 |
| Dominant woman | Moderately dominant man  | .43 | .86 | .07 |
|  | Moderately dominant woman  | 2.89 | .83 | .45 |
|  | Submissive man | 2.62 | .85 | .35 |
|  | Submissive woman | 4.37 | .86 | .66 |
| Moderately dominant man | Moderately dominant woman  | 2.45 | .83 | .36 |
|  | Submissive man | 2.19 | .85 | .28 |
|  | Submissive woman | 3.84 | .86 | .21 |
| Moderately dominant woman | Submissive man | -.26 | .82 | -.03 |
|  | Submissive woman | 1.38 | .83 | .20 |
| Submissive man | Submissive woman | 1.65 | .85 | .21 |
| **Ethics** |  |  |  |
| Dominant man | Dominant woman | -.94 | .87 | -.13 |
|  | Moderately dominant man  | 1.23 | .87 | .17 |
|  | Moderately dominant woman  | .88 | .84 | .22 |
|  | Submissive man | 2.17 | .86 | .28 |
|  | Submissive woman | 2.25 | .87 | .33 |
| Dominant woman | Moderately dominant man  | 2.16 | .87 | .32 |
|  | Moderately dominant woman  | 1.82 | .84 | .27 |
|  | Submissive man | 3.19 | .86 | .42 |
|  | Submissive woman | 3.29 | .87 | .49 |
| Moderately dominant man | Moderately dominant woman  | -.35 | .84 | -.05 |
|  | Submissive man | .94 | .86 | .13 |
|  | Submissive woman | 1.12 | .87 | .16 |
| Moderately dominant woman | Submissive man | 1.29 | .83 | .17 |
|  | Submissive woman | 1.47 | .84 | .22 |
| Submissive man | Submissive woman | .18 | .86 | .03 |
| **Generalized Risk** |  |  |  |
| Dominant man | Dominant woman | .97 | .60 | .22 |
|  | Moderately dominant man  | 2.39 | .60 | .51 |
|  | Moderately dominant woman  | 2.68 | .58 | .57 |
|  | Submissive man | 3.25 | .59 | .59 |
|  | Submissive woman | 4.05 | .59 | .88 |
| Dominant woman | Moderately dominant man  | 1.13 | .60 | .32 |
|  | Moderately dominant woman  | 1.71 | .57 | .38 |
|  | Submissive man | 2.28 | .59 | .43 |
|  | Submissive woman | 3.07 | .59 | .71 |
| Moderately dominant man | Moderately dominant woman  | .29 | .57 | .06 |
|  | Submissive man | .86 | .59 | .16 |
|  | Submissive woman | 1.66 | .59 | .36 |
| Moderately dominant woman | Submissive man | .57 | .57 | .10 |
|  | Submissive woman | 1.38 | .57 | .30 |
| Submissive man | Submissive woman | .81 | .59 | .15 |
| **Optimism** |  |  |  |
| Dominant man | Dominant woman | .17 | .18 | .12 |
|  | Moderately dominant man  | .24 | .18 | .16 |
|  | Moderately dominant woman  | -.52 | .18 | .36 |
|  | Submissive man | .18 | .18 | .11 |
|  | Submissive woman | -.55 | .18 | .39 |
| Dominant woman | Moderately dominant man  | .07 | .18 | .04 |
|  | Moderately dominant woman  | -.07 | .18 | -.48 |
|  | Submissive man | .01 | .18 | .003 |
|  | Submissive woman | -.72 | .18 | -.51 |
| Moderately dominant man | Moderately dominant woman  | -.76 | .18 | -.51 |
|  | Submissive man | -.06 | .18 | -.04 |
|  | Submissive woman | .79 | .18 | .39 |
| Moderately dominant woman | Submissive man | .70 | .17 | .46 |
|  | Submissive woman | -.03 | .18 | -.02 |
| Submissive man | Submissive woman | .73 | .18 | .49 |
| **Competence** |  |  |  |
| Dominant man | Dominant woman | .15 | .16 | .11 |
|  | Moderately dominant man  | .37 | .16 | .28 |
|  | Moderately dominant woman  | -.29 | .16 | .23 |
|  | Submissive man | .28 | .16 | .20 |
|  | Submissive woman | -.17 | .16 | -.14 |
| Dominant woman | Moderately dominant man  | .22 | .16 | .17 |
|  | Moderately dominant woman  | -.44 | .16 | -.34 |
|  | Submissive man | .13 | .16 | .09 |
|  | Submissive woman | -.32 | .16 | -.25 |
| Moderately dominant man | Moderately dominant woman  | -.66 | .16 | .53 |
|  | Submissive man | -.09 | .16 | -.07 |
|  | Submissive woman | .54 | .16 | .43 |
| Moderately dominant woman | Submissive man | .57 | .15 | .43 |
|  | Submissive woman | .12 | .15 | .10 |
| Submissive man | Submissive woman | -.45 | .16 | .33 |

Table 10

*Mediation analyses results – Indirect and direct effects*

|  |  |
| --- | --- |
|  | **Indirect effects of perceived dominance** |
| ***Predicted variable******(Risk domain)*** | ***Perceived optimism (AxC)******β (SE)***  | ***Perceived competence (BxD)******β (SE)***  |
| Social | .004 (.006)  | .009 (.005)  |
| Recreational  | .005 (.009) | .006 (.005) |
| Finance  | .002 (.004)  | -.008 (.006)  |
| Health/ safety  | -.002 (003)  | -.027 (.012)  |
| Ethics | -.001 (.003)  | -.037 (.016)  |
| Generalized risk | .002 (.004)  | -.017 (.008)  |
|  | **Direct effect** |
|  | **Perceived dominance**  ***β (SE)***  |  |
| **Perceived optimism (A)** | .023 (.035)  |  |
| **Perceived competence (B)** | .096 (.035) |  |
|  | ***Perceived optimism (C)******β (SE)***  | ***Perceived competence (D)******β (SE)***  |
| Social | .148 (.034)  | .093 (.035)  |
| Recreational  | .213 (.036)  | .064 (.036) |
| Finance  | .080 (.039)  | -.087 (.039)  |
| Health/ safety  | -.072 (.036  | -.279 (036)  |
| Ethics | -.047 (.035)  | -.383 (.035)  |
| Generalized risk | .082 (.036)  | -.177 (.036)  |
|  | ***Perceived dominance* *(E)******β (SE)***  |  |
| Social | *.410(.031*) |  |
| Recreational  | .292 (.032) |  |
| Finance  | .131 (.035) |  |
| Health/ safety  | .274 (.032)  |  |
| Ethics | .226 (.031)  |  |
| Generalized risk | .354 (.032)  |  |

For each effect, upper case letters in parentheses refers to the respective path in Figure 3).

**Figure legends;**

Figure 1 – Examples of stimuli used in Study 1

Figure 2 – Effect of target’s dominance and gender on perceived risk-taking in different life domains and in general– Study 1

Figure 3 - Examples of stimuli used in Study 2

Figure 4 - Effect of target’s dominance and gender on perceived risk-taking in different life domains and in general– Study 2

Figure 5 – Mediation model of perceived risk-preferences