

Power motivations and risk sensitivity and tolerance.

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# Abstract

One or two sentences providing a **basic introduction** to the field, comprehensible to a scientist in any discipline.

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## 1 Introduction

Throughout political history, tyrants, and despots have influenced great power over large swaths of land and communities. One common thread amongst these individuals is how they wield their great power, often through dominant tactics such as threats and political subversion. Recent history has shown with individuals like Donald Trump, Kim Jong-Un, and Rodrigo Duterte who display authoritarian traits often wield their power through fear and threats of violence (Bernstein, 2020; “Glamorizing Dictators,” 2018; Kirby, 2021). How this power is wielded is often different for each individual. Some individuals such as Duterte and Bolsonaro wielded their power more dramatically than the likes of Trump. Individuals wielding power need not be tyrants such as the former. Individuals like Angela Merkel used her position and leadership skills to be a world leader in most negotiations. While individuals more well known for their status demonstrated their power through prestige motives. To better understand how individuals such as world leaders or opinion makers gain and wield their power over others. Research in this field is often difficult to research yet strides have

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24 been made to understand power, namely through research in moral judgment and  
 25 decision-making such as power orientation.

## 26 **1.1 Dominance, Prestige, and Leadership orientation**

27 Research in power desire motives has focused on three subdomains: dom-  
 28 inance, leadership, and prestige (Suessenbach et al., 2019). Each of these three  
 29 different power motives is explained as to different ways or methods that individ-  
 30 uals in power sought power or were bestowed upon them. Often these dominant  
 31 individuals will wield their power with force and potentially cause risk to them-  
 32 selves to hold onto that power.

### 33 **1.1.1 Dominance**

34 The dominance motive is one of the more researched methods and well-  
 35 depicted power motives. Individuals with a dominant orientation display the more  
 36 primal of human behavior. These individuals will seek power through direct meth-  
 37 ods such as asserting dominance, control over resources, or physically assaulting  
 38 someone (M. W. Johnson & Bruner, 2012; Winter, 1993). Early research in dom-  
 39 inance motives has shown that acts of dominance ranging from asserting physical  
 40 dominance over another to physical displays of violence has been shown in many  
 41 mammalian species, including humans (Petersen et al., 2018; Rosenthal et al.,  
 42 2012).

43 Individuals high in dominance are often high in Machiavellianism, narcis-  
 44 sism, and often are prone to risky behavior (discussion further in the next section).  
 45 Continued research has hinted at a possible tendency for males to display these  
 46 dominant seeking traits more than females (Bareket & Shnabel, 2020; Sidanius et  
 47 al., 2000). When high dominance individuals assert themselves they are doing so  
 48 to increase their sense of power (Anderson et al., 2012; Bierstedt, 1950). Assert-  
 49 ing one's sense of dominance over another can be a dangerous task. In the animal  
 50 kingdom, it can often lead to injury. While, in humans asserting dominance can  
 51 take a multitude of actions such as leering behaviors, physical distance, or other  
 52 non-verbal methods to display dominance (Petersen et al., 2018; Witkower et al.,  
 53 2020). Power from a dominant perspective is not always bestowed upon someone.  
 54 Often, high dominance individuals will take control and hold onto it.

### 55 **1.1.2 Prestige**

56 Contrary to the dominant motivation of using intimidation and aggression  
 57 to gain more power, a prestige motivation or prestige, in general, is bestowed  
 58 upon an individual from others in the community (Maner & Case, 2016;

59 Suessenbach et al., 2019). Different from the dominance motivation, a prestige  
 60 motivation is generally unique to the human species (Maner & Case, 2016).  
 61 Due in part to ancestral human groups being smaller hunter-gatherer societies,  
 62 individuals that displayed and used important behaviors beneficial to the larger  
 63 group were often valued and admired by the group. Therein, the social group  
 64 bestows the authority onto the individual. Generally, this type of behavior  
 65 can be passively achieved by the prestigious individual. However, this does  
 66 not remove the intent of the actor in that they too can see prestige from the  
 67 group, but the method of achieving that social status greatly differs from that of  
 68 dominance-seeking individuals.

69  
 70       Apart from dominance-motivated individuals that continually have to fight  
 71 for their right to have power over others, individuals that seek or were given power  
 72 through a prestige motivation are not generally challenged in the same sense as  
 73 dominant individuals. Displaying behaviors that the community would see as  
 74 beneficial would endear them into the community making the survival of the  
 75 community as a whole better (Maner & Case, 2016). Evolutionarily this would  
 76 increase the viability of the prestigious individual and their genes. Similar to  
 77 the dominance perspective, the prestige perspective overall increases the power  
 78 and future survivability of the individual. However, due to the natural difference  
 79 between prestige and dominance, dominance-seeking individuals are challenged  
 80 more often resulting in more danger to their position (M. W. Johnson & Bruner,  
 81 2012).

### 82 **1.1.3 Leadership**

83       With a shared goal a leader is someone that takes initiative and attracts  
 84 followers for that shared goal (Van Vugt, 2006). Leadership is an interesting  
 85 aspect of behavior in that it is almost exclusive to human interaction. Dis-  
 86 cussions by evolutionary psychologists point to the formation of early human  
 87 hunter-gatherer groups where the close interconnectedness created a breeding  
 88 ground for leadership roles. As early humans began to evolve it would become  
 89 advantageous for individuals to work together for a common goal (King et  
 90 al., 2009). Often, individuals with more knowledge of a given problem would  
 91 demonstrate leadership and take charge or be given power. Multiple explanations  
 92 of the evolution of leadership exist such as coordination strategies, safety, along  
 93 with evidence for growth in social intelligence in humans (King et al., 2009; Van  
 94 Vugt, 2006).

95  
 96       An interesting aspect of leadership motivation is the verification of the

97 qualities of the leader by the communities. Individuals that are often put into  
 98 leadership roles or take a leadership role often display the necessary goals, qual-  
 99 ities, and knowledge to accomplish the shared/stated goal. However, this is not  
 100 always the case especially for those charismatic leaders where they could stay  
 101 on as a leader longer than the stated goal requires (Vugt & Ronay, 2014). Tra-  
 102 ditionally, leadership was thought to be fluid in that those with the necessary  
 103 knowledge at the time would be judged and appointed as the leader. However,  
 104 these charismatic leaders use their charisma, uniqueness, nerve, and talent to hold  
 105 onto their status. ## Risk

106 Every time people leave the relative safety of their home, every decision  
 107 they make they are taking some form of risk. Financial risk is often discussed  
 108 in the media usually concerning the stock market. However, the risk is not  
 109 just present in finances but also in social interactions such as social risk, sexual  
 110 risk, health and safety risk, recreational, and ethical risks (Breakwell, 2007;  
 111 Kühberger & Tanner, 2009; Shearer et al., 2005; Weber et al., 2002). Each  
 112 individual is different in their likelihood and perception of participating in those  
 113 risks. Some will be more inclined to be more financially risky while others would  
 114 risk their health and safety.

115

116 Whether to engage in a risky situation is very complex depending on a  
 117 cost-benefit analysis (P. S. Johnson et al., 2015). Do the positives outweigh  
 118 the negatives? In practice, not all individuals will do a cost-benefit analysis of  
 119 a risky situation. Often, the timing of an event makes such an analysis dis-  
 120 advantageous. The benefits are often relative to the individual decision-maker.  
 121 Differences emerge in the general likelihood to engage in risky behavior such that  
 122 males tend to be more likely to engage in risky behaviors than their female coun-  
 123 terparts (Chen & John, 2021; Desiderato & Crawford, 1995). Women tended to  
 124 avoid risky situations except for social risks.

## 125 1.2 The present study

126 The present study sought to further our understanding of dominance, pres-  
 127 tige, and leadership motivations in human decision-making. Furthering this, we  
 128 seek to bridge the connection between risk-taking behaviors, from diverse do-  
 129 mains, and the dominance, prestige, and leadership orientations. Following the  
 130 literature, we predicted that participants that were high in dominance orientation  
 131 would be more likely to not only engage in risky behaviors but praise the ben-  
 132 efits of participating in those behaviors. Individuals with prestige or leadership  
 133 orientation.

134 # Experiment 1 ## Methods

135       Participants were a convenience sample of 111 individuals from Prolific  
 136 Academic’s crowdsourcing platform ([www.prolific.io](http://www.prolific.io)). Prolific Academic is an  
 137 online crowdsourcing service that provides participants access to studies hosted  
 138 on third-party websites. Participants were required to be 18 years of age or  
 139 older and be able to read and understand English. Participants received £4.00,  
 140 which is above the current minimum wage pro-rata in the United Kingdom, as  
 141 compensation for completing the survey. The Psychology Research Ethics Com-  
 142 mittee at the University of Edinburgh approved all study procedures [ref: 212-  
 143 2021/1]. The present study was pre-registered along with a copy of anonymized  
 144 data along with a copy of the R code and supplemental materials are available  
 145 at (<https://osf.io/s4j7y>).

## 146 1.3 Materials

### 147 1.3.1 Demographic Questionnaire

148       In a demographic questionnaire administered prior to the main survey,  
 149 participants were invited to respond to a series of questions about their self-  
 150 identified demographic characteristics such as age, gender, ethnicity, and ethnic  
 151 origin.

### 152 1.3.2 Dominance, Prestige, and Leadership Orientation

153       The 18-item Dominance, Prestige, and Leadership scale, DoPL (Suessen-  
 154 bach et al., 2019), is used to measure dominance, prestige, and leadership orien-  
 155 tation. Each question corresponds to one of the three domains. Each domain is  
 156 scored across six unique items related to those domains (e.g., “I relish opportuni-  
 157 ties in which I can lead others” for leadership) rated on a scale from 0 (Strongly  
 158 disagree) to 5 (Strongly agree). Included in this scale are 15 masking questions  
 159 obtained from the unified motives scale [④] consistency reliability for the current  
 160 sample is  $\alpha = 0.86$ .

### 161 1.3.3 Domain Specific Risk-taking Scale

162       The 40-item Domain-Specific Risk-taking Scale, DOSPERT (Weber et al.,  
 163 2002) is a scale assessing individuals’ likelihood of engaging in risky behaviors  
 164 within 5 domain-specific risky situations: financial (“Gambling a week’s income  
 165 at a casino.”), social (“Admitting that your tastes are different from those of your  
 166 friends”), recreational (“Trying out bungee jumping at least once”), health and  
 167 safety (“Engaging in unprotected sex”), and ethical (“Cheating on an exam”)  
 168 situations. Each risky situation is then rated on a five-point Likert scale (1 being

very unlikely and 5 being very likely). Two additional five-point Likert scales assess risk perception and expected benefits (1 being not at all risky and 5 being extremely risky; 1 being no benefits at all and 5 being great benefits) respectively. Example risky situations are “Admitting that your tastes are different from those of a friend” and “Drinking heavily at a social function.” Internal consistency reliability for the current samples for the 3 sub-domains are  $\alpha = 0.85$ ,  $\alpha = 0.90$ ,  $\alpha = 0.92$  respectively.

#### 1.4 Procedure

Participants were recruited via a study landing page on Prolific’s website or via a direct e-mail to eligible participants (Prolific Academic, 2018). The study landing page included a brief description of the study including any risks and benefits along with expected compensation for successful completion. Participants accepted participation in the experiment and were directed to the main survey (Qualtrics, Inc; Provo, UT) where they were shown a brief message on study consent.

Once participants consented to participate in the experiment they answered a series of demographic questions. Once completed, participants completed the Dominance, Prestige, and Leadership Scale and the Domain Specific Risk-taking scale. The two scales were counterbalanced to account for order effects. After completion of the main survey, participants were shown a debriefing statement that briefly mentions the purpose of the experiment along with the contact information of the main researcher (AI). Participants were compensated £4.00 via Prolific Academic.

#### 1.5 Data analysis

Demographic characteristics were analyzed using multiple regression for continuous variables (age) and Chi-square tests for categorical variables (gender, race, ethnicity, ethnic origin, and education). Means and standard deviations were calculated for the relevant scales (i.e., DoPL and DOSPERT). All analyses were done using (R Core Team, 2021) along with (Bürkner, 2017) package.

The use of bayesian statistics has a multitude of benefits to statistical analysis and research design. One important benefit is through the use of prior data in future analyses. Termed as priors, is the use of prior distributions for future analysis. This allows for the separation of how the data might have been collected or what the intention was. In essence, the data is the data without the interpretation of the scientist.

All relevant analyses were conducted in a Bayesian framework using the

**Table 1***Participant demographic information (Experiment 1)*

Variables	*n* = 111
Age	
Mean (SD)	26.84 (9.21)
Median [Min, Max]	24 [18,61]
Gender	
Female	54 (48.6%)
Gender Non-Binary	2 (1.8%)
Male	55 (49.5%)
Education	
Primary School	4 (3.6%)
GCSEs or Equivalent	8 (7.2%)
A-Levels or Equivalent	32 (28.8%)
University Post-Graduate Program	21 (18.9%)
University Undergraduate Program	44 (39.6%)
Doctoral Degree	1 (0.9%)
Prefer not to answer	1 (0.9%)
Ethnicity	
African	8 (7.2%)
Asian	6 (5.4%)
English	10 (9.0%)
European	77 (69.4%)
Latin American	2 (1.8%)
Scottish	2 (1.8%)
Other	6 (5.4%)

brms package (Bürkner, 2018) along with the cmdstanr packages notes (Gabry & Cesnovar, 2021). In addition to the aforementioned packages, we used bayestestR, rstan, and papaja (Aust & Barth, 2020; Makowski et al., 2019; Stan Development Team, 2020).

## 1.6 Results

One hundred and eleven individuals completed the main survey. Of these individuals, 111 completed all sections without incomplete data and were therefore retained in most data analyses. In later analyses to account for outliers two participants had to be excluded from the dataset. Table 1 shows the demographic information for the participants. The average completion time for participants was 20M 58s ( $SD = 10M\ 43s$ ).

**Table 2**

Parameter	CI	CI_low	CI_high
b_Intercept	0.95	1.37	5.81
b_dominanceSum	0.95	1.07	4.91
b_leadershipSum	0.95	-3.88	-0.02
b_Gender1	0.95	-4.95	-1.09
b_Age	0.95	-4.80	-0.96

### 216 **1.6.1 Preregistered Analyses**

217 We first investigated DoPL orientation on general risk preference (Figure  
 218 1). General risk preference was anecdotally explained by dominance orientation,  
 219 participant gender, and participant age (see table 2).

### 220 **1.6.2 Demographic and DoPL**

221 All participants completed the dominance, leadership, and prestige  
 222 scale (Suessenbach et al., 2019). Empirically, men have generally been more  
 223 dominance-oriented in their behavior (Rosenthal et al., 2012). Following the lit-  
 224 erature, men tended to be more dominance orientated than women. The marginal  
 225 posterior distribution of each parameter is summarized in Table #. Interestingly,  
 226 older individuals tended to be more dominance-oriented than younger individuals.

## 227 **1.7 Domain-Specific Risk-Taking**

228 As predicted individuals that identified as male were more likely

## 229 **1.8 Interactions**

230 When investigating dominance, prestige, and leadership motivations with  
 231 domain-specific risk-taking findings supported the common expectations in the  
 232 literature. Table 5 shows the interactions with like CI values. Dominance overall  
 233 explained the relationship of DoPL orientation and preference, specifically for eth-  
 234 ical, financial, social, health and safety, and recreational preference. Participant  
 235 age and gender also appeared to affect recreational preference.

236 Following these findings, we investigated the effect of DoPL on general  
 237 risk preference and found that dominance overall affected risk preference along  
 238 with gender and age of the participant (Table 5).



## 239 1.9 Discussion

## 240 1.10 Experiment 2

## 241 1.11 Methods

242 Materials remain the same in terms of the (1) Demographic Questionnaire,  
243 (2) Dominance, Prestige, and Leadership Questionnaire, and (3) DOSPERT  
244 Questionnaire. However, we added the Brief-Pathological Narcissism Inventory to  
245 assess possible interactions of dominance and narcissism in risky decision-making.  
246 Materials and methods were approved by the University of ## Participants

247 Following experiment 1, participants were a convenience sample of 111  
248 individuals from Prolific Academic’s crowdsourcing platform (www.prolific.io).  
249 Prolific Academic is an online crowdsourcing service that provides participants  
250 access to studies hosted on third-party websites. Participants were required to be  
251 18 years of age or older and be able to read and understand English. Participants  
252 received £4.00, which is above the current minimum wage pro-rata in the United  
253 Kingdom, as compensation for completing the survey. The Psychology Research  
254 Ethics Committee at the University of Edinburgh approved all study procedures  
255 [ref: 212-2021/2]. The present study was pre-registered along with a copy of  
256 anonymized data and a copy of the R code is available at ([https://osf.io/](https://osf.io/s4j7y)  
257 s4j7y).

## 258 1.12 Materials

### 259 1.12.1 Brief-Pathological Narcissism Inventory

260 The 28 item Brief Pathological Narcissism Inventory (B-PNI; Schoenleber  
261 et al., 2015) is a modified scale of the original 52-item Pathological Narcissism  
262 Inventory (PNI; Pincus et al., 2009). Like the PNI the B-PNI is a scale measuring  
263 individuals’ pathological narcissism. Items in the B-PNI retained all 7 patholog-  
264 ical narcissism facets from the original PNI (e.g., exploitativeness, self-sacrificing  
265 self-enhancement, grandiose fantasy, contingent self-esteem, hiding the self, de-  
266 valuing, and entitlement rage). Each item is rated on a 5 point Likert scale  
267 ranging from 1 (not at all like me) to 5 (very much like me). Example items  
268 include “I find it easy to manipulate people” and “I can read people like a book.”

## 269 1.13 Procedure

270 Participants were recruited via a study landing page on Prolific’s website  
271 or via a direct e-mail to eligible participants (Prolific Academic, 2018). The study  
272 landing page included a brief description of the study including any risks and ben-  
273 efits along with expected compensation for successful completion. Participants

accepted participation in the experiment and were directed to the main survey on pavlovia.org (an online JavaScript hosting website similar to Qualtrics) where they were shown a brief message on study consent.

Once participants consented to participate in the experiment they answered a series of demographic questions. Once completed, participants completed the Dominance, Prestige, and Leadership Scale and the Domain Specific Risk-taking scale. An additional survey was added (the novel aspect of experiment 2) where participants, in addition to the two previous surveys, were asked to complete the brief-pathological narcissism inventory. The three scales were counterbalanced to account for order effects. After completion of the main survey, participants were shown a debriefing statement that briefly mentions the purpose of the experiment along with the contact information of the main researcher (AI). Participants were compensated £4.00 via Prolific Academic.

#### 1.14 Data analysis

Demographic characteristics were analyzed using multiple regression for continuous variables (age) and Chi-square tests for categorical variables (gender, race, ethnicity, ethnic origin, and education). Means and standard deviations were calculated for the relevant scales (i.e., DoPL and DOSPERT). All analyses were done using (R Core Team, 2021) along with (Bürkner, 2017) package.

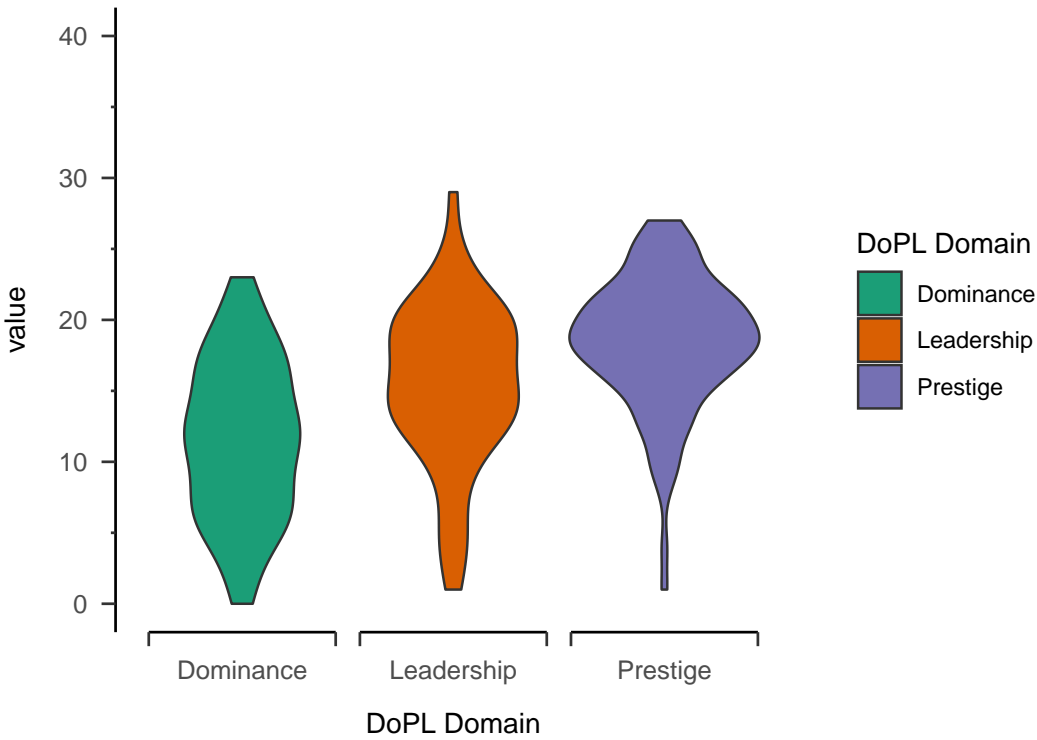
The use of bayesian statistics has a multitude of benefits to statistical analysis and research design. One important benefit is through the use of prior data in future analyses. Termed as priors, is the use of prior distributions for future analysis. This allows for the separation of how the data might have been collected or what the intention was. In essence, the data is the data without the interpretation of the scientist.

All relevant analyses were conducted in a Bayesian framework using the brms package (Bürkner, 2018) along with the cmdstanr packages notes (Gabry & Cesnovar, 2021). In addition to the aforementioned packages, we used bayestestR, rstan, and papaja for analysis along with the creation of this manuscript (Aust & Barth, 2020; Makowski et al., 2019; Stan Development Team, 2020).

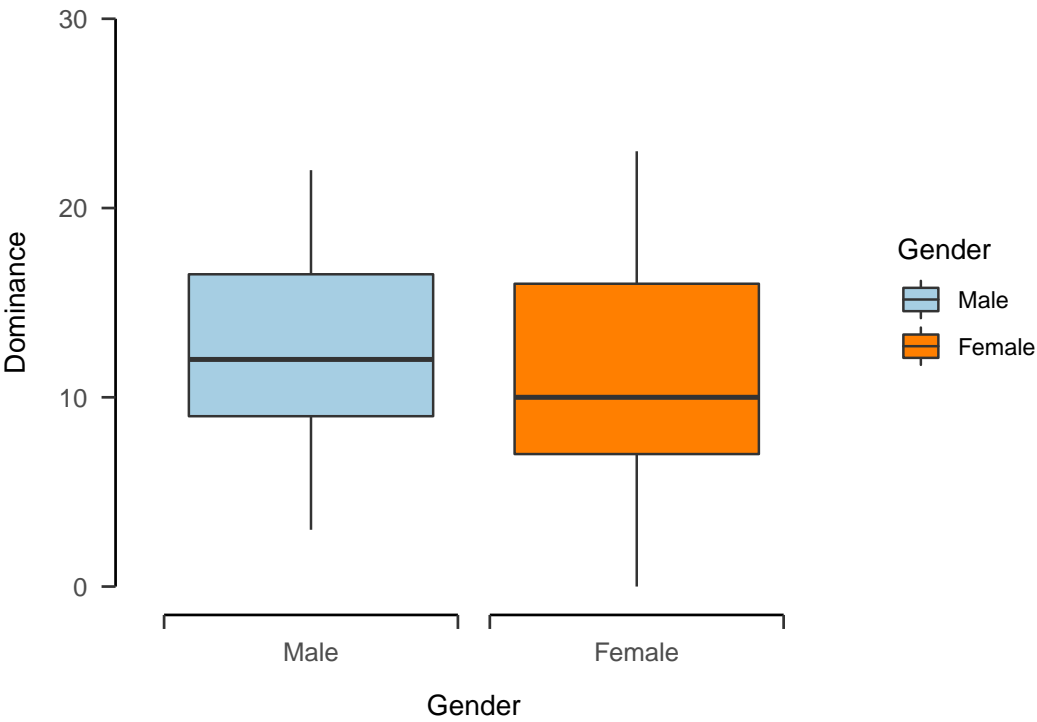
304	<b>1.15</b>	<b>Results</b>
305	<b>1.16</b>	<b>Preregistered Analyses</b>
306	<b><i>1.16.1</i></b>	<b>Demographic and DoPL</b>
307	<b>1.17</b>	<b>Domain-Specific Risk-Taking</b>
308	<b>1.18</b>	<b>Interactions</b>
309	<b>1.19</b>	<b>Discussion</b>
310	<b>1.20</b>	<b>Limitations</b>
311	<b>1.21</b>	<b>Future Implications</b>

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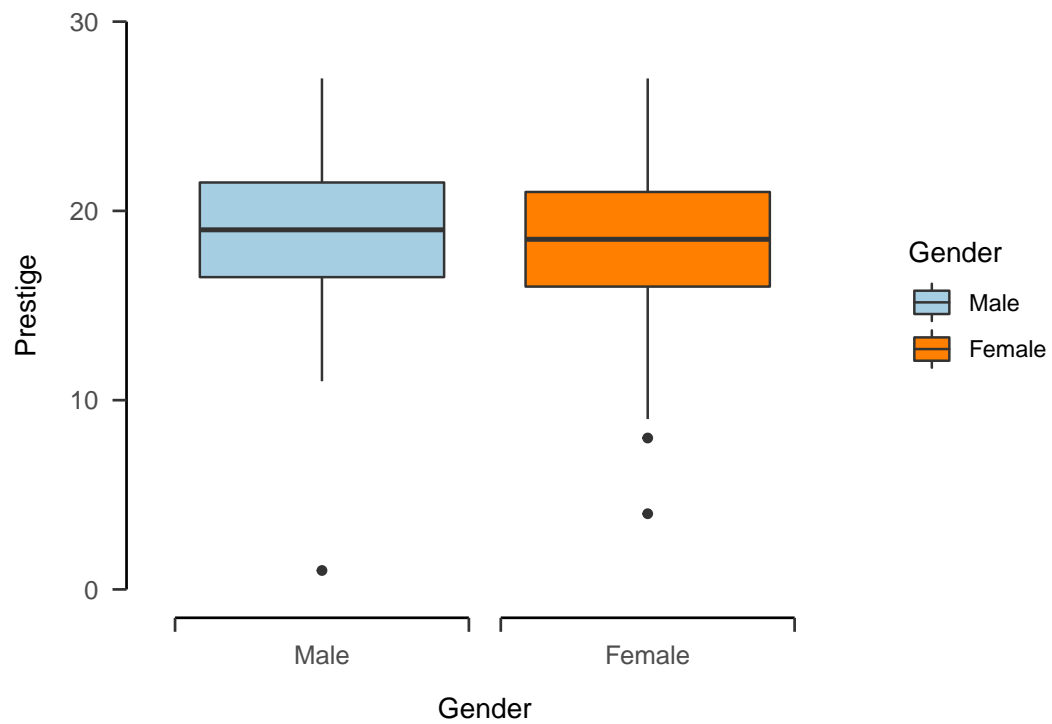
2 Figures and Tables



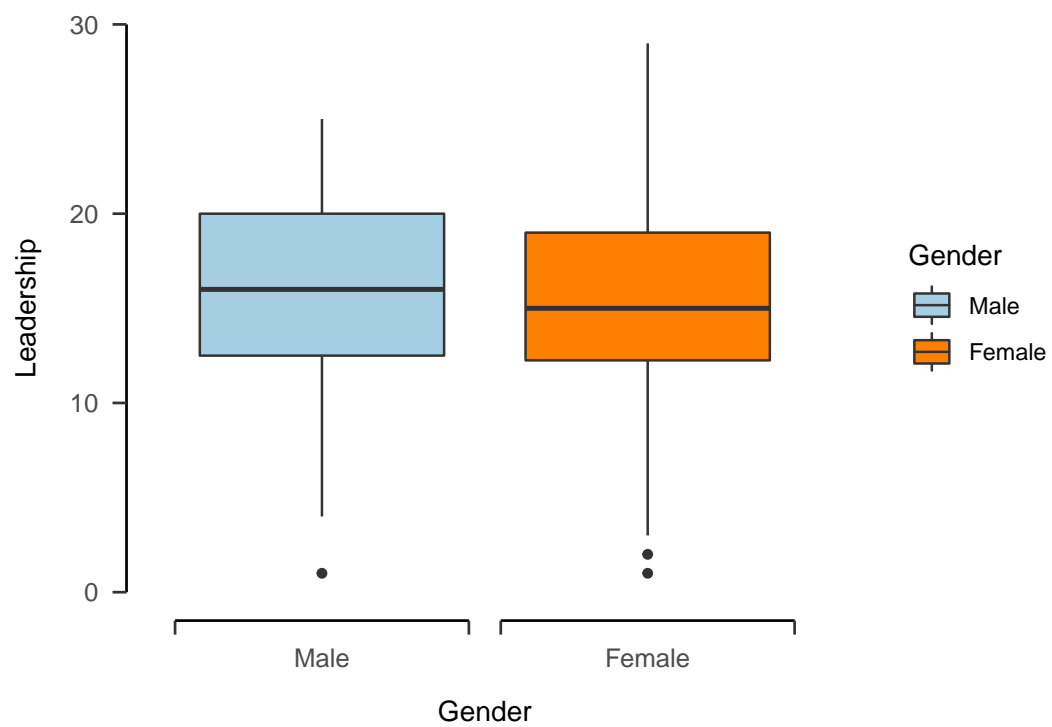
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**Table 3**

	Estimate	Est.Error	Q2.5	Q97.5
Intercept	3.62	1.13	1.41	5.86
dominanceSum	3.00	0.99	1.08	4.93
prestigeSum	0.09	0.99	-1.84	2.02
leadershipSum	-1.91	0.98	-3.85	0.02
Gender1	-3.02	0.99	-4.95	-1.08
Age	-2.86	0.99	-4.78	-0.93

**Table 4**

Parameter	CI	CI_low	CI_high
b_ethicalPreference_Intercept	0.95	2.85	4.42
b_ethicalPreference_dominanceSum	0.95	0.61	1.71
b_financialPreference_Intercept	0.95	7.50	9.67
b_financialPreference_dominanceSum	0.95	0.14	1.59
b_socialPreference_Intercept	0.95	8.34	11.67
b_socialPreference_dominanceSum	0.95	0.60	2.87
b_healthAndSafetyPreference_Intercept	0.95	4.65	6.59
b_healthAndSafetyPreference_dominanceSum	0.95	0.41	1.77
b_recreationalPreference_Intercept	0.95	0.95	2.48
b_recreationalPreference_dominanceSum	0.95	0.66	1.74
b_recreationalPreference_Gender1	0.95	-1.83	-0.47
b_recreationalPreference_Age	0.95	0.06	0.87

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