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Word count: 4273

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

1.1 Dominance, Prestige, and Leadership orientation

Research in power desire motives has focused on three subdomains: dominance, leadership, and prestige (Suessenbach et al., 2019). Each of these three different power motives is explained as to different ways or methods that individuals in power sought power or were bestowed upon them. Often these dominant individuals will wield their power with force and potentially cause risk to themselves to hold onto that power.

1.1.1 Dominance

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

Individuals high in dominance are often high in Machiavellianism, and narcissism, and often are prone to risky behavior (discussion further in the next section). Continued research has hinted at a possible tendency for males to display these dominant-seeking traits more than females (Bareket & Shnabel, 2020; Sidanius et al., 2000). When highly dominant individuals assert themselves they are doing so to increase their sense of power (Anderson et al., 2012; Bierstedt, 1950). Asserting one's sense of dominance over another can be a dangerous task. In the animal kingdom, it can often lead to injury. While, humans asserting dominance can take a multitude of actions such as leering behaviors, physical distance, or other non-verbal methods to display dominance (Petersen et al., 2018; Witkower et al., 2020). Power from a dominant perspective is not always bestowed upon someone. The results of these expressions of dominance are not often given by the other or conceded from the less powerful or dominant person but are taken by those with more dominance. Dominant actions or dominantly

57 taking power can often lead to physical, emotional, and psychological violence
58 (Malamuth et al., 1996; Williams et al., 2017).

59 **1.1.2 Prestige**

60 Contrary to the dominant motivation of using intimidation and aggression
61 to gain more power, a prestige motivation or prestige, in general, is bestowed
62 upon an individual from others in the community (Maner & Case, 2016; Suessen-
63 bach et al., 2019). Different from dominance motivation, prestige motivation
64 is generally unique to the human species (Maner & Case, 2016). Due in part
65 to ancestral human groups being smaller hunter-gatherer societies, individuals
66 that displayed and used important behaviors beneficial to the larger group were
67 often valued and admired by the group. Therein, the social group bestows the
68 authority onto the individual. Generally, this type of behavior can be passively
69 achieved by the prestigious individual. However, this does not remove the intent
70 of the actor in that they too can see prestige from the group, but the method
71 of achieving that social status greatly differs from that of dominance-seeking
72 individuals.

73
74 Apart from dominance-motivated individuals that continually have to fight
75 for their right to have power over others, individuals that seek or were given
76 power through a prestige motivation are not generally challenged in the same
77 sense as dominant individuals. Displaying behaviors that the community would
78 see as beneficial would endear them to the community making the survival of the
79 community as a whole better (Maner & Case, 2016). Evolutionarily this would
80 increase the viability of the prestigious individual and their genes. Similar to
81 the dominance perspective, the prestige perspective overall increases the power
82 and future survivability of the individual. However, due to the natural difference
83 between prestige and dominance, dominance-seeking individuals are challenged
84 more often resulting in more danger to their position (M. W. Johnson & Bruner,
85 2012).

86 **1.1.3 Leadership**

87 With a shared goal a leader is someone that takes initiative and attracts
88 followers for that shared goal (Van Vugt, 2006). Leadership is an interesting as-
89 pect of behavior in that it is almost exclusive to human interaction. Discussions by
90 evolutionary psychologists point to the formation of early human hunter-gatherer
91 groups where the close interconnectedness created a breeding ground for leader-
92 ship roles. As early humans began to evolve it would become advantageous for

93 individuals to work together for a common goal (King et al., 2009). Often, indi-
94 viduals with more knowledge of a given problem would demonstrate leadership
95 and take charge or be given power. Multiple explanations of the evolution of
96 leadership exist such as coordination strategies, and safety, along with evidence
97 for growth in social intelligence in humans (King et al., 2009; Van Vugt, 2006).

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

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

117 Whether to engage in a risky situation is very complex depending on a
118 cost-benefit analysis (P. S. Johnson et al., 2015). Do the positives outweigh
119 the negatives? In practice, not all individuals will do a cost-benefit analysis of
120 a risky situation. Often, the timing of an event makes such an analysis dis-
121 advantageous. The benefits are often relative to the individual decision-maker.
122 Differences emerge in the general likelihood to engage in risky behavior such that
123 males tend to be more likely to engage in risky behaviors than their female coun-
124 terparts (Chen & John, 2021; Desiderato & Crawford, 1995). Women tended to
125 avoid risky situations except for social risks. Age is also a factor in the likelihood
126 of engaging in a risky situation. Often as people age, we become less likely to
127 engage in certain behaviors such as financial risks but more likely to engage in
128 social and some recreational risks (Rolison et al., 2014). With certain behav-
129 ioral domains, risk decisions do not appear to have any differences based on age.
130 As of yet, there is currently no longitudinal analysis of risk over the years (see
131 meta-analysis of risk-taking Mamerow et al., 2016).

132 1.2 The present study

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

141 1.3 Experiment 1

142 1.4 Methods

143 Participants were a convenience sample of 111 individuals from Prolific
144 Academic’s crowdsourcing platform (www.prolific.io). Prolific Academic is an
145 online crowdsourcing service that provides participants access to studies hosted
146 on third-party websites. Participants were required to be 18 years of age or
147 older and be able to read and understand English. Participants received £4.00,
148 which is above the current minimum wage pro-rata in the United Kingdom, as
149 compensation for completing the survey. The Psychology Research Ethics Com-
150 mittee at the University of Edinburgh approved all study procedures [ref: 212-
151 2021/1]. The present study was pre-registered along with a copy of anonymized
152 data along with a copy of the R code and supplemental materials are available
153 at (<https://osf.io/s4j7y>).

154 1.5 Materials

Table 1*Experiment 1: Participant Demographics*

Characteristic	N=109
Age	
Mean (SD)	27 (9.25)
Median [Range]	24 [18.00, 61]
Gender	
Female	54 (50%)
Male	55 (50%)
Ethnicity	
African	8 (7.3%)
Asian	6 (5.5%)
English	10 (9.2%)
European	76 (70%)
Latin American	2 (1.8%)
Other	5 (4.6%)
Scottish	2 (1.8%)
Education	
A-levels or equivalent	32 (29%)
Doctoral Degree	1 (0.9%)
GCSEs or equivalent	8 (7.3%)
Prefer not to respond	1 (0.9%)
Primary School	4 (3.7%)
University Postgraduate Program	21 (19%)
University Undergraduate Program	42 (39%)

155 **1.5.1 Demographic Questionnaire**

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

160 **1.5.2 Dominance, Prestige, and Leadership Orientation**

161 The 18-item Dominance, Prestige, and Leadership scale, DoPL (Suessen-
 162 bach et al., 2019), is used to measure dominance, prestige, and leadership ori-
 163 entation. Each question corresponds to one of the three domains. Each domain
 164 is scored across six unique items related to those domains (e.g., “I relish oppor-
 165 tunities in which I can lead others” for leadership) and rated on a scale from 0
 166 (Strongly disagree) to 5 (Strongly agree). Included in this scale are 15 masking
 167 questions obtained from the unified motives scale (Schönbrodt & Gerstenberg,

2012) consistency reliability for the current sample is $\alpha = 0.86$.

1.5.3 Domain Specific Risk-taking Scale

The 40-item Domain-Specific Risk-taking Scale, DOSPERT (Weber et al., 2002) is a scale assessing individuals' likelihood of engaging in risky behaviors within 5 domain-specific risky situations: financial ("Gambling a week's income at a casino."), social ("Admitting that your tastes are different from those of your friends"), recreational ("Trying out bungee jumping at least once"), health and safety ("Engaging in unprotected sex"), and ethical ("Cheating on an exam") 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.

1.6 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.

1.7 Data analysis

Demographic characteristics were analyzed using multiple regression for continuous variables (age) and Chi-square tests for categorical variables (gender,

203 race, ethnicity, ethnic origin, and education). Means and standard deviations
 204 were calculated for the relevant scales (i.e., DoPL and DOSPERT). All analyses
 205 were done using (R Core Team, 2021) along with the (Bürkner, 2017) package.

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

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

217 1.8 Results

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

224 1.8.1 Preregistered Analyses

225 We first investigated DoPL orientation on general risk preference (Figure
 226 1). General risk preference was anecdotally explained by dominance orientation,
 227 participant gender, and participant age (see table 1). General distributions of
 228 dominance, prestige, and leadership then warranted further analysis. To investi-
 229 gate the interaction of power orientation and DOSPERT we followed the methods
 230 described in the DOSPERT scoring manual found on the official DOSPERT Scale
 231 website (DOSPERT Scoring Instructions). This involves calculating the alpha
 232 and beta coefficients and then from there calculating the overall preferences for
 233 each of the subdomains and the overall domains for general risk preference along
 234 with the perception and benefit preferences for risk.

235 **1.8.1.1 Demographic and DoPL.** All participants completed the
 236 dominance, leadership, and prestige scale (Suessenbach et al., 2019). Empirically,
 237 men have generally been more dominance-oriented in their behavior (Rosenthal
 238 et al., 2012). Following the literature as well, dominant men tended to prefer risk

more so than women (95% CI $b = -3.02, [-4.97 - -1.06]$). The marginal posterior distribution of each parameter is summarized in Table 1. Interestingly, older individuals tended to be more dominance-oriented than younger individuals.

1.8.1.2 General Risk and DoPL. Further investigations, as previously mentioned investigated DoPL's interactions with general risk preference. As stated, dominance appears to be the strongest predictor of general risk preference (95% CI $b = 3.00, [1.07 - 4.9]$). Overall, younger individuals tended to have a stronger preference for risk (95% CI $b = -2.85, [-4.76 - -0.95]$). Those that tended to be lower in leadership orientation had a tendency to be generally more risk averse than their counterparts (95% CI $b = -1.91, [-3.82 - -0.02]$).

1.8.2 Domain-Specific Risk-Taking

As predicted individuals that identified as male were more likely to endorse risk-taking behaviors, namely ethical, social, financial, and recreational domains (see 1).

1.8.3 Interactions

When investigating dominance, prestige, and leadership motivations with domain-specific risk-taking findings supported the common expectations in the literature. Table 5 shows the interactions with like CI values. Dominance overall explained the relationship between DoPL orientation and preference, specifically (95% CI $b = 0.51, [0.21 - 0.81]$, financial, $b = 0.27, [-0.04 - 0.58]$, social, $b = 0.36, [0.06 - 0.66]$, health and safety, $b = 0.38, [0.08 - 0.69]$, and recreational, $b = 0.50, [0.22 - 0.78]$) respectively. Full interactions can be found in table 4. Participant age and gender also appeared to affect recreational preference (95% CI $b = -0.71, [-1.03 - -0.38]$, $b = 0.23, [0.06 - 0.4]$) respectively.

Following these findings, we investigated the effect of DoPL on general risk preference and found that dominance overall predicted risk preference along with gender and age of the participant (Table 4).

1.8.4 DOSPERT Sub-categorizations

Risk preferences is generally made up of benefits and perceptions of risk. Outside of perceptions and benefits, dominance and males who are dominance oriented were the strongest predictors of likelihood in engaging in a risky situation (95% CI $b = 0.65, [0.36 - 0.96]$ and $b = -0.48, [-0.86 - -0.1]$). Dominance also appeared to be a strong predictor of perceiving more benefits of engaging in a risky situation (95% CI $b = 0.38, [0.06 - 0.7]$) along with gender where males are more likely to perceive benefits (95% CI $b = -0.60, [-0.98 - -0.23]$).

274 Alternatiively, prestige appeared to be a stronger predictor of perceiving
275 risks than others along with female participants and female participants that are
276 higher in leadership orientation (95% CI $b = 0.30$, $[0.01 - 0.61]$, $b = 0.43$, $[0.06 -$
277 $0.81]$, and $b = 0.43$, $[0.03 - 0.82]$). Full predictors can be seen in table 6.

278 **1.8.5 *Discussion and limitations***

2 Experiment 2

2.1 The present experiment

Experiment 1 was ran to understand how risk and decision-making interplay using the aforementioned materials. Following this we found, as predicted, individuals that are higher in dominance orientation are more likely to engage in risky behaviors. Namely financial, social, and health and safety risks (see the above for more precise findings). From here we wanted to further investigate risk behaviors and power motives to see if dominance orientation is a stronger predictor of risk-taking behaviors than say for example pathological narcissism, which is often part of the discussion of risk behaviors (Buelow & Brunell, 2014; Foster et al., 2009; Leder et al., 2021). In doing so we intend to see, along with a mediation analysis approach, if dominance again will not just be the strongest predictor of risk-taking behaviors, but also the strongest mediator as well compared to pathological narcissism. Through this we hope to better understand how individuals make decisions in risky situations along with creating theories surrounding risky situations before the decisions have been made.

2.2 Methods

Materials remain the same in terms of the (1) Demographic Questionnaire, (2) Dominance, Prestige, and Leadership Questionnaire, and (3) DOSPERT Questionnaire. However, we added the Brief-Pathological Narcissism Inventory to assess possible interactions of dominance and narcissism in risky decision-making.

2.3 Participants

Following experiment 1, participants were a convenience sample of 289 individuals from Prolific Academic’s crowdsourcing platform (www.prolific.io). Prolific Academic is an online crowdsourcing service that provides participants access to studies hosted on third-party websites. Participants were required to be 18 years of age or older and be able to read and understand English. In addition, similar to participant demographics in experiment 1, participants were majority white along with having a university undergraduate degree. Participants received £3.00, which is above the current minimum wage pro-rata in the United Kingdom, as compensation for completing the survey. The Psychology Research Ethics Committee at the University of Edinburgh approved all study procedures [ref: 212-2021/2]. The present study was pre-registered along with a copy of anonymized data and a copy of the R code is available at (<https://osf.io/s4j7y>).

Table 2*Experiment 2: Participant Demographics*

Characteristic	N=279
Age	
Mean (SD)	29 (9.84)
Median [Range]	26 [18.00, 78]
Gender	
Female	124 (43%)
Gender Non-Binary	8 (2.8%)
Male	155 (54%)
Prefer not to respond	2 (0.7%)
Ethnicity	
African	51 (18%)
Asian or Asian Scottish or Asian British	5 (1.7%)
Mixed or Multi-ethnic	7 (2.4%)
Other ethnicity	3 (1.0%)
Prefer not to respond	1 (0.3%)
White	222 (77%)
Education	
A-Levels or Equivalent	65 (22%)
Doctoral Degree	4 (1.4%)
GCSEs or Equivalent	18 (6.2%)
Prefer not to respond	5 (1.7%)
Primary School	5 (1.7%)
University Post-Graduate Program	62 (21%)
University Undergraduate Program	130 (45%)
Ethnic Origin	
African	50 (17%)
Asian	7 (2.4%)
English	16 (5.5%)
European	200 (69%)
Latin American	6 (2.1%)
Other	10 (3.5%)

313 2.4 Materials

314 2.4.1 Brief-Pathological Narcissism Inventory

315 The 28-item Brief Pathological Narcissism Inventory (B-PNI; Schoenleber
 316 et al. (2015)) is a modified scale of the original 52-item Pathological Narcissism
 317 Inventory (PNI; Pincus et al. (2009)). Like the PNI, the B-PNI is a scale mea-
 318 suring individuals' pathological narcissism. Items in the B-PNI retained all 7
 319 pathological narcissism facets from the original PNI (e.g., exploitativeness, self-
 320 sacrificing self-enhancement, grandiose fantasy, contingent self-esteem, hiding the
 321 self, devaluing, and entitlement rage). Each item is rated on a 5-point Likert scale
 322 ranging from 1 (not at all like me) to 5 (very much like me). Example items in-
 323 clude "I find it easy to manipulate people" and "I can read people like a book."
 324 B-PNI was well correlated within itself 0.90 along with strong internal consistency
 325 within the sub-domains of pathological narcissism, i.e., α 's for Grandiosity
 326 (0.79) and Vulnerability (0.89).

327 2.5 Procedure

328 Participants were recruited via a study landing page on Prolific's website
 329 or via a direct e-mail to eligible participants (Prolific Academic, 2018). The study
 330 landing page included a brief description of the study including any risks and ben-
 331 efits along with expected compensation for successful completion. Participants
 332 accepted participation in the experiment and were directed to the main survey
 333 on pavlovia.org (an online JavaScript hosting website similar to Qualtrics) where
 334 they were shown a brief message on study consent.

335 Once participants consented to participate in the experiment they an-
 336 swered a series of demographic questions. Once completed, participants com-
 337 pleted the Dominance, Prestige, and Leadership Scale and the Domain Specific
 338 Risk-taking scale. An additional survey was added (the novel aspect of experi-
 339 ment 2) where participants, in addition to the two previous surveys, were asked to
 340 complete the brief-pathological narcissism inventory. The three scales were coun-
 341 terbalanced to account for order effects. After completion of the main survey,
 342 participants were shown a debriefing statement that briefly mentions the purpose
 343 of the experiment along with the contact information of the main researcher (AI).
 344 Participants were compensated £3.00 via Prolific Academic.

345 2.6 Data analysis

346 Demographic characteristics were analyzed using multiple regression for
 347 continuous variables (age) and Chi-square tests for categorical variables (gender,

348 race, ethnicity, ethnic origin, and education). Means and standard deviations
 349 were calculated for the relevant scales (i.e., DoPL and DOSPERT). All analyses
 350 were done using (R Core Team, 2021) along with the (Bürkner, 2017) package.

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

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

362 2.7 Results and Discussion

363 Two hundred and eighty-nine individuals participated in the present ex-
 364 periment. Of those 54% identified as male ($n = 155$). Table 3 shows the demo-
 365 graphic information for Experiment 2. Furthering, table 4 illustrates a Bayesian
 366 correlational matrix of all the measures wherein content-based similar measures
 367 illustrated positive and negative correlations consistent with expectations. The
 368 average completion time for participants was 21M 10.61S ($SD = 9M 51.56S$)

369 In general, male participants were more likely to endorse dominance-
 370 oriented statements, (95% CI $b = 0.10$, $[-0.15 - 0.36]$).

371 2.7.1 Preregistered Analyses

372 **2.7.1.1 Dominance.** Following the previous basic results, we be-
 373 gan our pre-regisetered analysis found in the pre-registration found on OSF.io.
 374 Dominance-oriented individual was a strong predictor of multiple domains of risk-
 375 taking. Namely, participants that have a preference for both financial and social
 376 risk-taking, (95% CI $b = 0.28$, $[0.07 - 0.49]$) and (95% CI $b = 0.06$, $[-0.13 -$
 377 $0.27]$) respectively. Investigating gender differences and found that males with a
 378 preference for financial risk-taking were more likely to endorse dominant-oriented
 379 statements, (95% CI $b = -0.18$, $[-0.45 - 0.08]$).

380 **2.7.1.2 Prestige.** Differentiating between DoPL domains, males
 381 with a preference for social risk-taking were more likely to endorse prestige-
 382 oriented statements along with individuals with a general preference for social
 383 risk-taking, (95% CI $b = -0.05$, $[-0.31 - 0.2]$) and (95% CI $b = 0.03$, $[-0.16 - 0.22]$)
 384 respectively.

385 **2.7.1.3 Leadership.** Finally, leadership orientation follows a similar
 386 trend seen with dominance and prestige orientations. Males with a preference for
 387 social risk-taking were more likely to endorse leadership-oriented statements along
 388 with individuals with a less of a preference for recreational risk-taking endorsing
 389 leadership-oriented statements , (95% CI $b = 0.04$, $[-0.2 - 0.28]$) and (95% CI b
 390 $= 0.17$, $[-0.01 - 0.35]$) respectively.

391 **2.7.2 Brief-Pathological Narcissism Inventory**

392 We furthered our analyses, as seen in the pre-registration found on OSF.io
 393 by investigating pathological narcissism and its components through the Brief-
 394 Pathological Narcissism Inventory (B-PNI). Preliminary investigations of patho-
 395 logical narcissism in our sample show that younger individuals on average tended
 396 to present more narcissistic opinions (95% CI $b = -0.02$, $[-0.03, -0.01]$). The
 397 B-PNI further differentiates between grandiose and vulnerability. Interestingly,
 398 women tended to present more vulnerable narcissism traits than men (95% CI
 399 $b = -0.24$, $[-0.45, -0.03]$). Younger individuals tended to present more grandiose
 400 narcissism traits (95% CI $b = -0.01$, $[-0.02, 0]$). This same tendency for younger
 401 individuals was seen with vulnerable narcissism traits (95% CI $b = -0.02$, $[-0.03,$
 402 $-0.01]$).

403 Grandiose narcissism is then separated further into grandiose fantasy, ex-
 404 ploitativeness, and self-sacrificing and self-enhancement. Selected findings are
 405 males tend to demonstrate more exploitativeness and younger individuals tended
 406 to present more exploitative and grandiose narcissism (95% CI $b = -0.01$, $[-0.03,$
 407 $0]$) and (95% CI $b = -0.02$, $[-0.03, -0.01]$) respectively. Further analysis is shown
 408 in table ??.

409 Vulnerable narcissism, like grandiose narcissism, is separated further into
 410 contingent self-esteem, devaluing, entitlement rage, and hiding the self. Finan-
 411 cial preference appears to be overall the best DOSPERT predictor of vulnerable
 412 narcissism sub-domains specifically for contingent self-esteem (95% CI $b = -0.34$,
 413 $[-0.55, -0.14]$), devaluing Men (95% CI $b = 0.05$, $[-0.21, 0.31]$), and hiding the self
 414 (95% CI $b = -0.34$, $[-0.55, -0.13]$).

415 **2.7.3 Risk and interactions**

416 Overall, anecdotally dominance appears to explain the overall individual
 417 perceptions, benefits, and likelihood of risk judgments (95% CI $b = -0.30$, $[-$
 418 $0.47 - -0.14]$), (95% CI $b = 0.32$, $[0.16 - 0.48]$), and (95% CI $b = 0.50$, $[0.35$
 419 $- 0.65]$) respectively. Similarly, when looking at further sub-categorizations of
 420 general risk preferences there does appear to be mainly a bias with regards to

age, where younger individuals overall have a higher risk preference than their older counterparts.

2.7.4 *Domain-Specific Risk-Taking*

Looking at Domain Specific Risk-taking, we analyzed DOSPERT similarly to previous analyses. Overall, domain-specific risk-taking was explained by dominance orientation along with prestige and leadership. Interesting interactions were present with individual domains for narcissism as well.

Overall, age was an effective predictor for both grandiose and vulnerable narcissism with younger individuals tending towards being more narcissistic for both grandiose and vulnerable traits (95% CI $b = -0.02, [-0.03, 0]$), and (95% CI $b = -0.03, [-0.04, -0.02]$) respectively. Preferences for financial and males with a recreational risk preference tended to express more vulnerable narcissism traits (95% CI $b = -0.27, [-0.47, -0.06]$) and (95% CI $b = -0.04, [-0.28, 0.21]$) respectively.

2.7.5 *Interactions*

Following traditional Bayesian models, we analyzed relationships through a Bayesian mediation model using the brms Bayesian structural equation modeling software along with its software to create a multilevel model (Bürkner, 2017, 2018). Centralized in the model is risk preference. In this exploratory model we were investigating to see what is the best predictor variable is the best mediator in our analysis. Figure 11 represents our hypothetical model of dominance being the strongest mediator.

Table 3

Experiment 2 / Mediation model comparison

	Model	BF
[1]		144.00
[2]		353.61
[3]		21.64

Against Denominator: [4] Bayes Factor Type: marginal likelihoods (bridgesampling)

In this model, we constructed multilevel equations where we focused on different variables being the strongest mediator. Then using the brms Bayesian r package, we then compared the models to see which mediator was indeed the strongest mediator. How hypothesis where dominance would be the strongest mediator was accepted, model 2 as shown in table ??.

3 General Discussion and Implications

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585

5 Figures and Tables

586 5.1 Figures

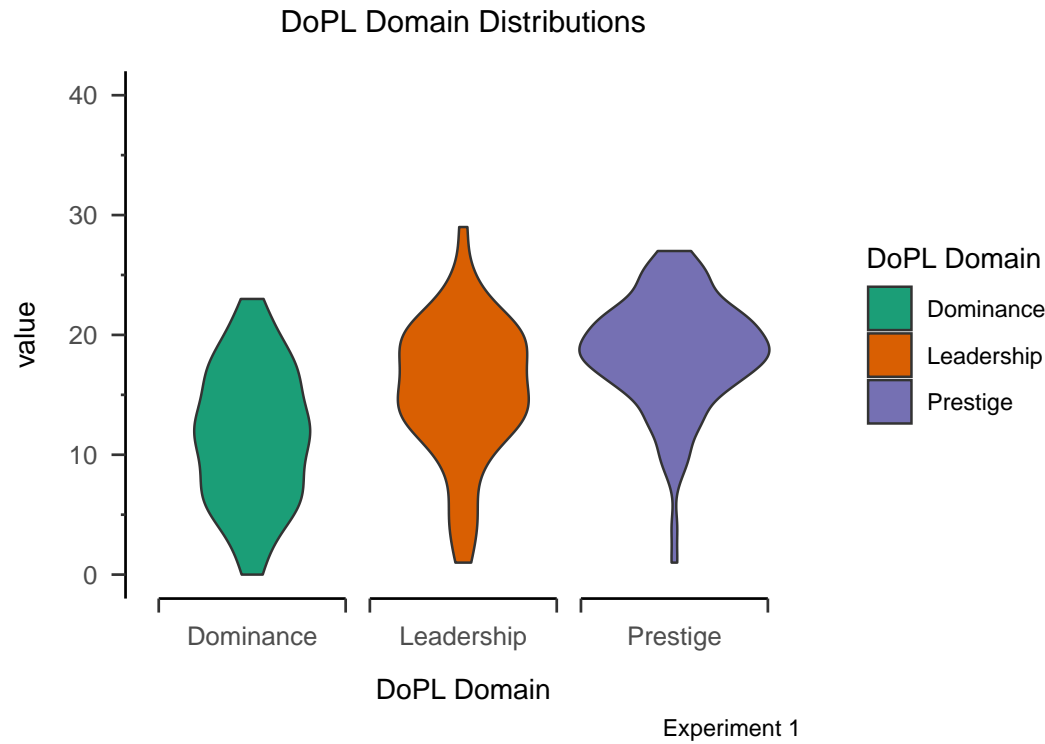


Figure 1



Figure 2 Experiment 1

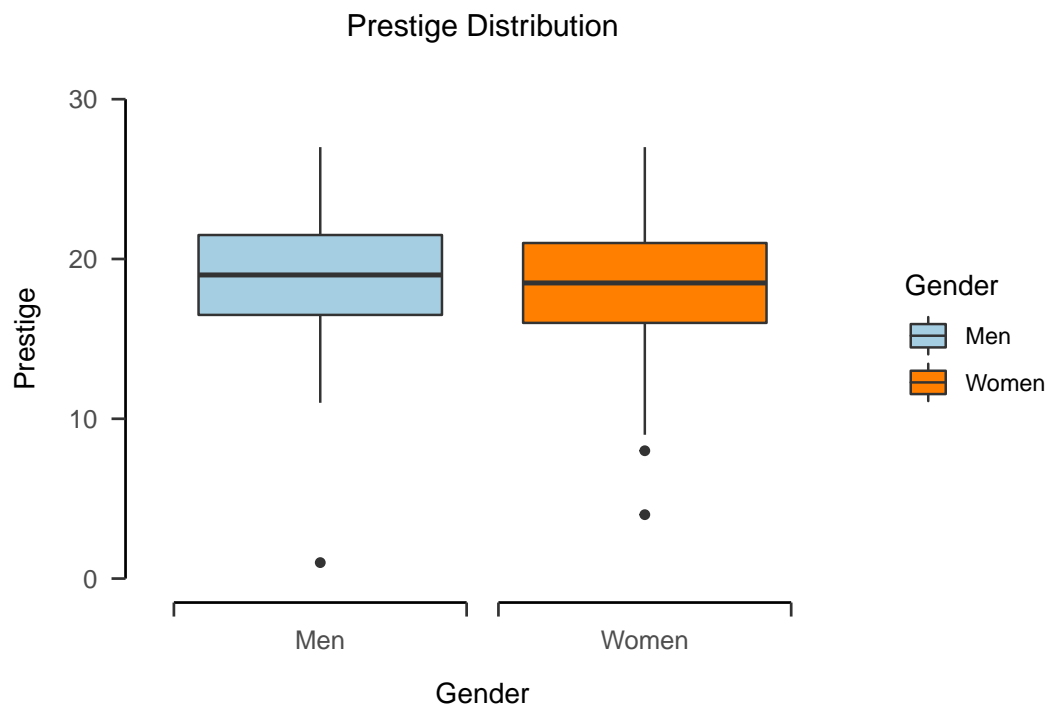


Figure 3 Experiment 1

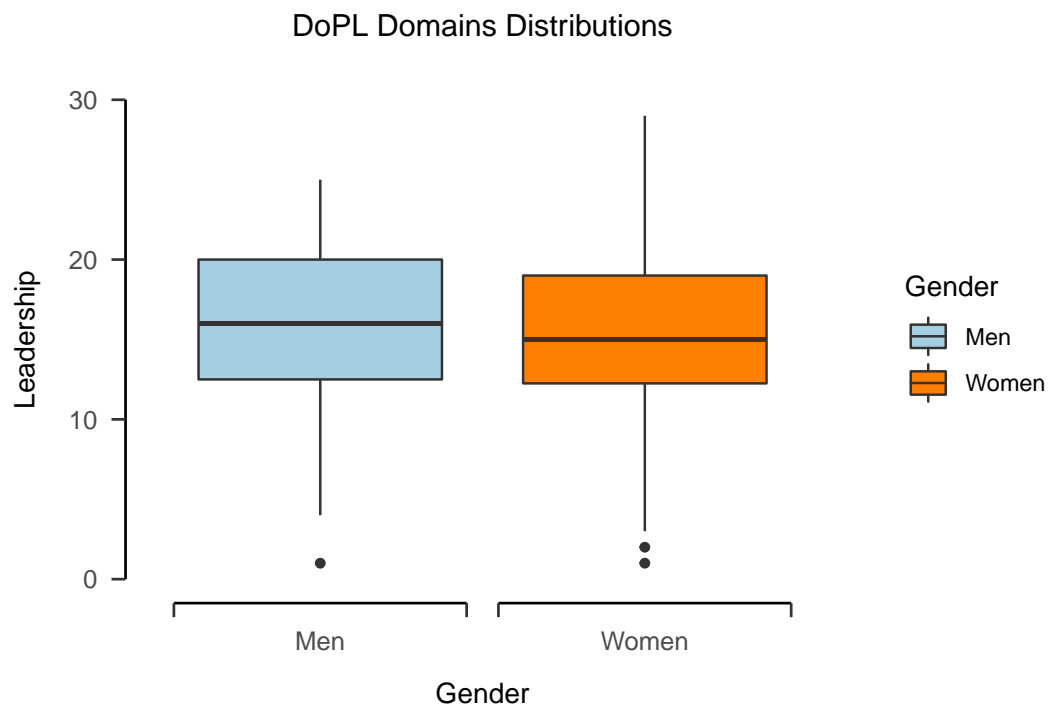


Figure 4

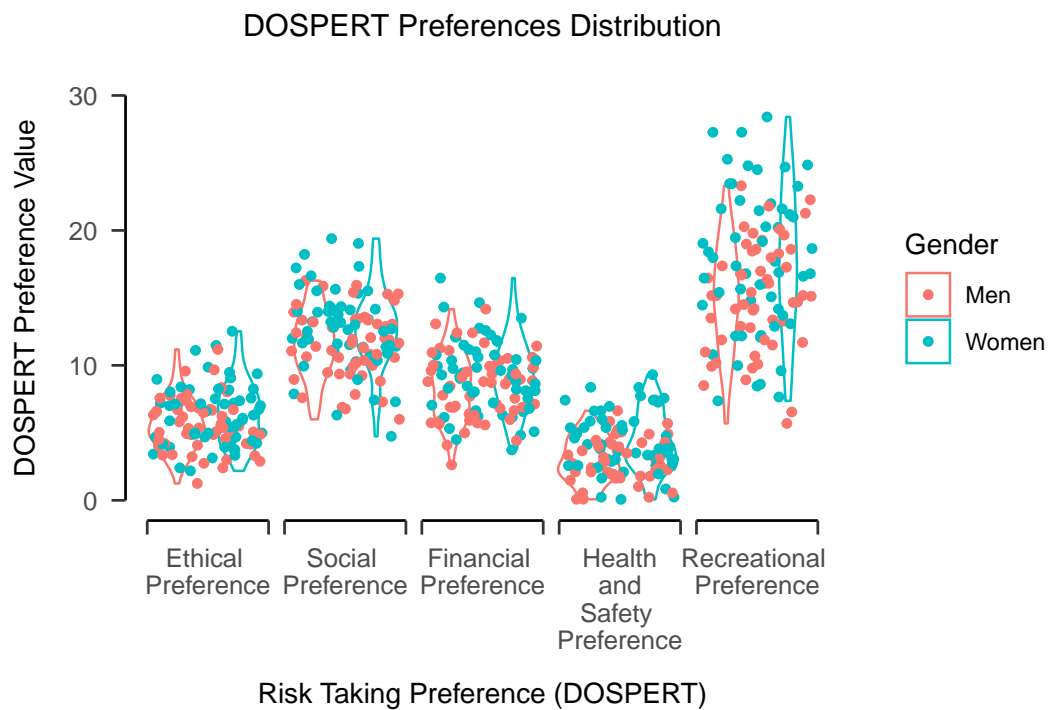
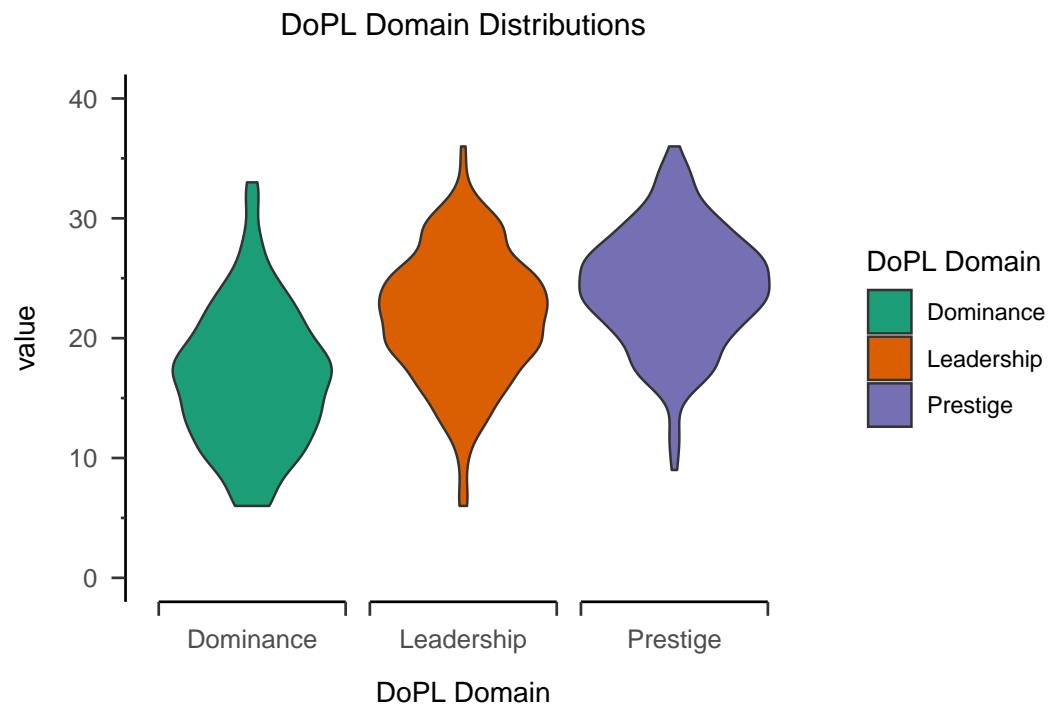


Figure 5



Experiment 2

Figure 6

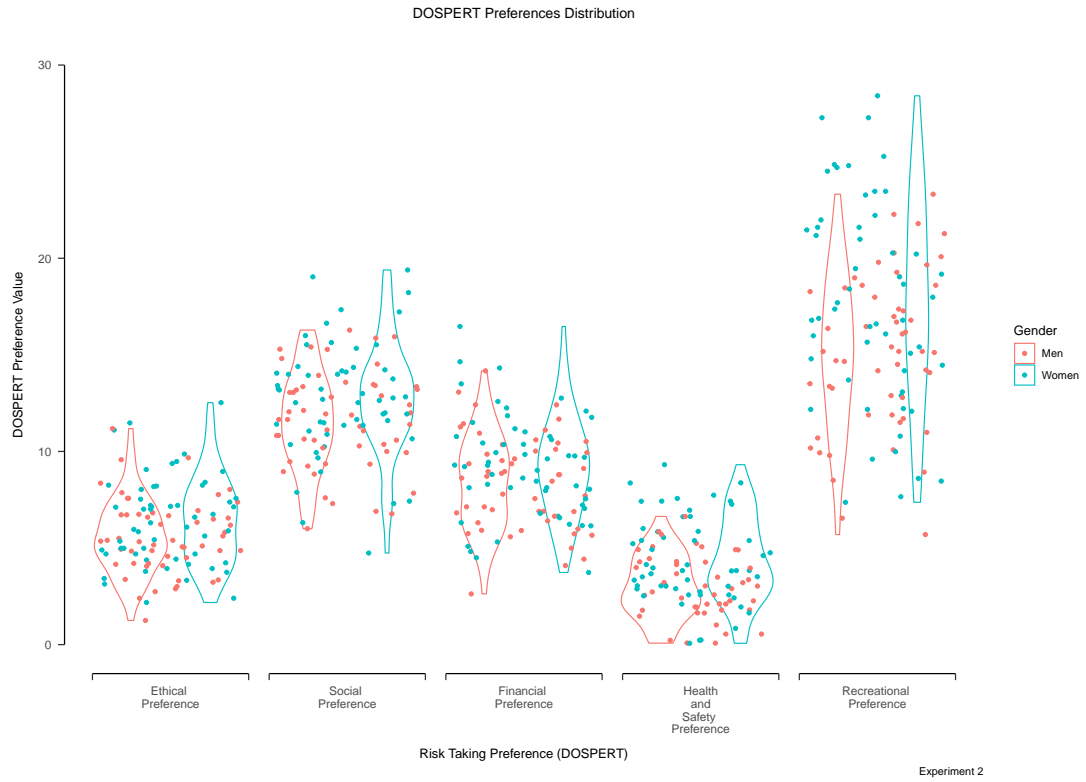


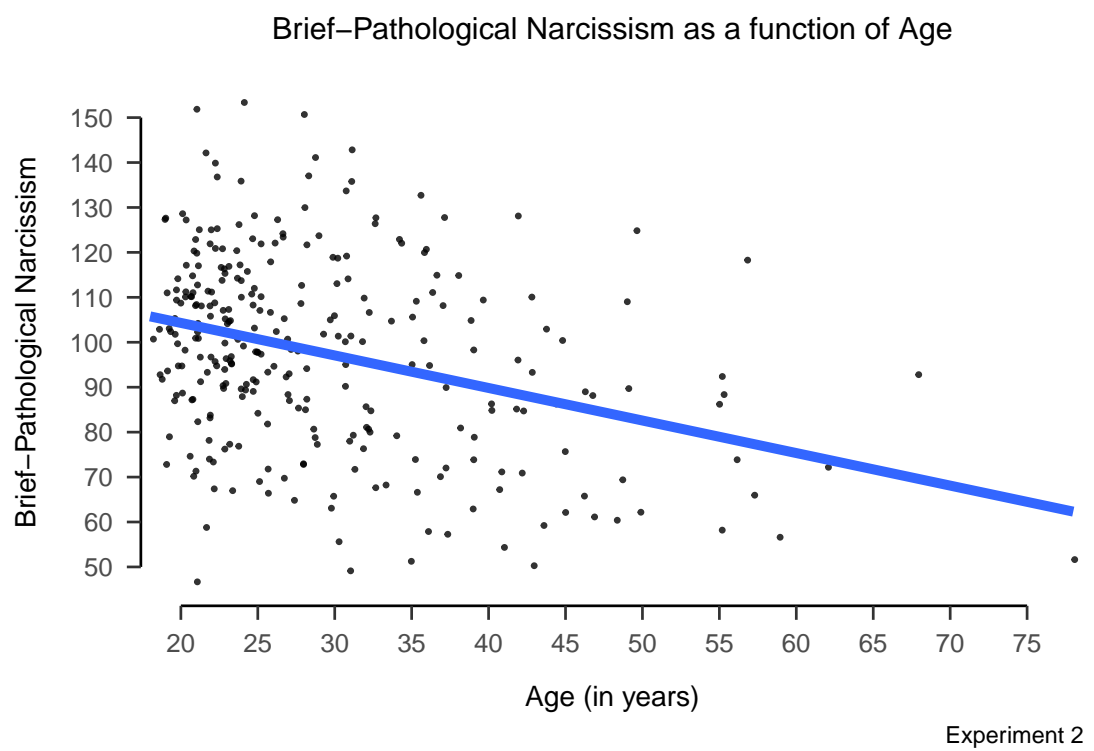
Figure 7

Table 4

*Fixed Effects: DoPL * General Risk*

Parameter	Estimate	Est.Error	Est.Error.1	CI (95%)
Intercept	3.62	1.13	1.13	1.41 - 5.86
Dominance	3.00	0.99	0.99	1.08 - 4.93
Gender	-3.02	0.99	0.99	-4.95 - -1.08
Age	-2.86	0.99	0.99	-4.78 - -0.93

Note. The above represents fixed effects, confidence intervals low and high for a basic bayesian model of Dominance, Prestige, and Leadership predicting general risk preference. Matching signs for confidence intervals is displayed in the table.

**Figure 8**

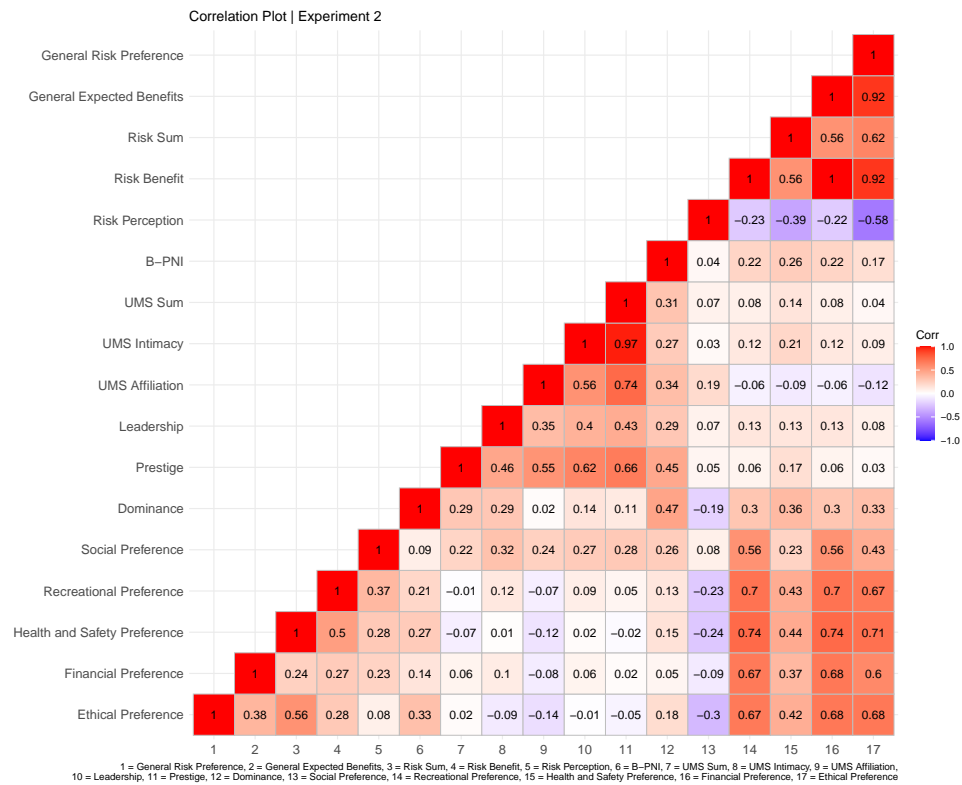


Figure 9

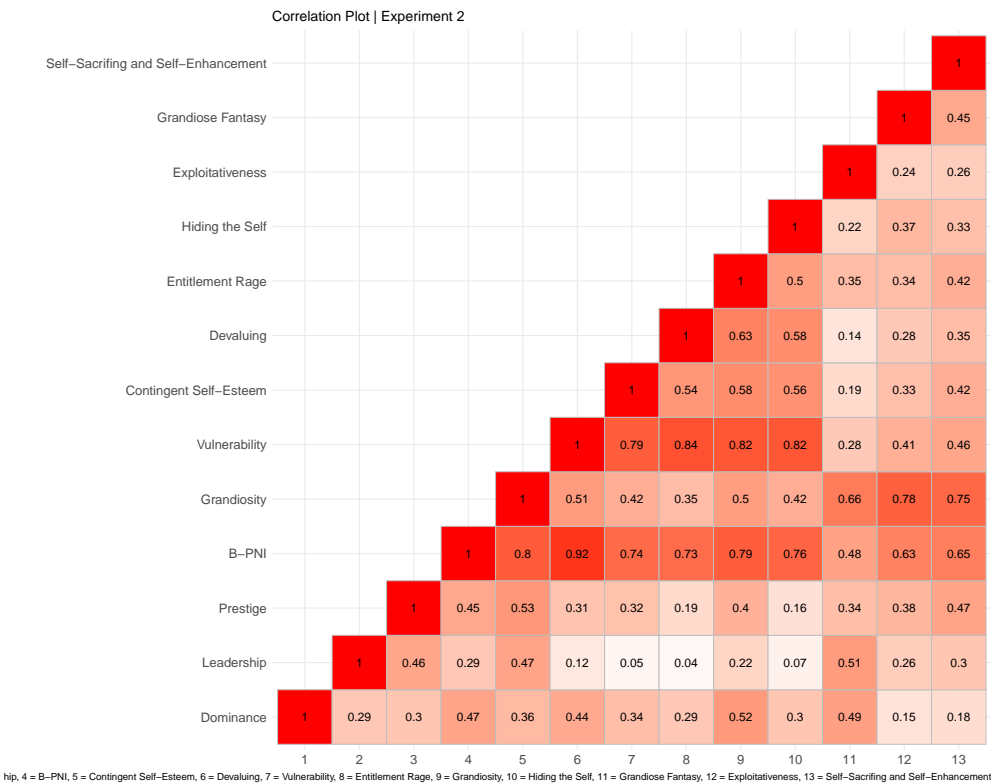


Figure 10

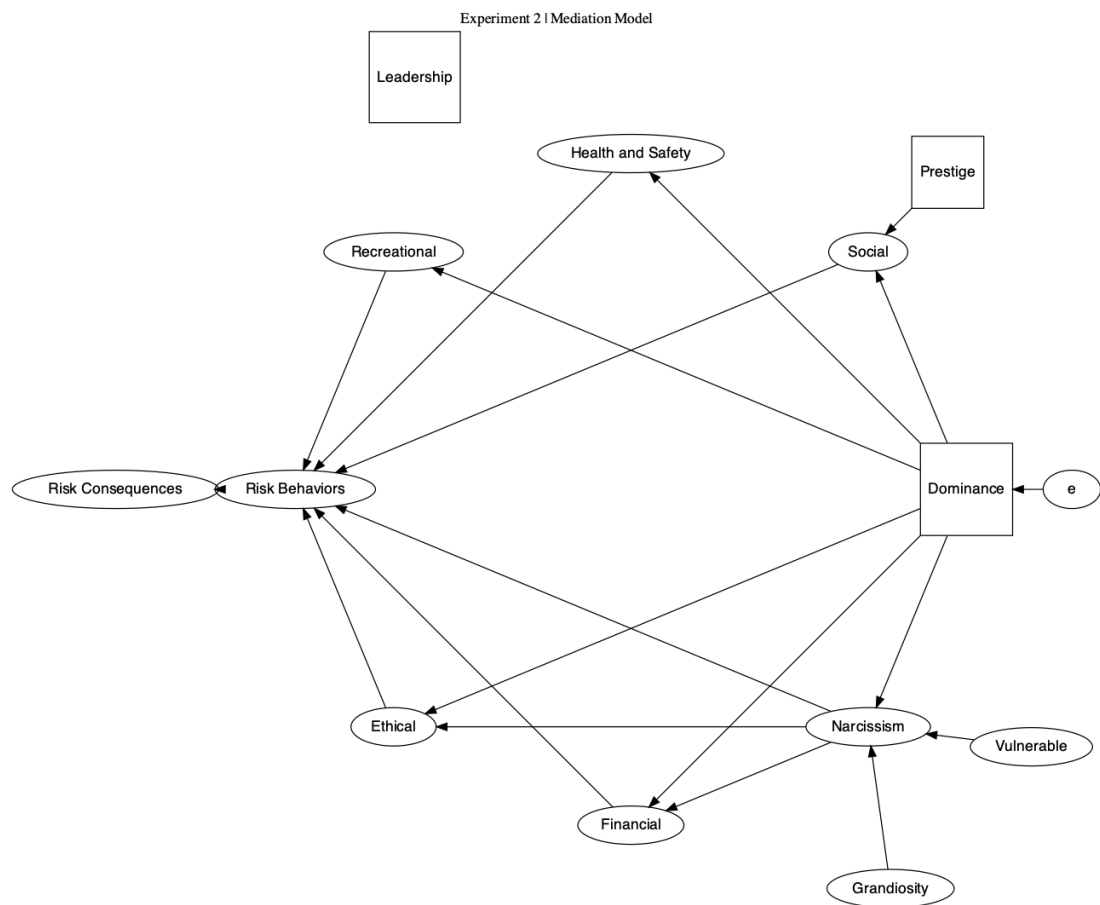


Figure 11

Table 5*DOSPERT and DoPL Interaction: Experiment 1*

Parameter	Estimate	Est.Error	Est.Error.1	CI (95%)
Recreational Preference * Intercept	0.33	0.12	0.12	0.1 - 0.56
Ethical Preference * Dominance	0.51	0.15	0.15	0.21 - 0.81
Social Preference * Dominance	0.36	0.15	0.15	0.06 - 0.66
Social Preference * Gender	-0.40	0.18	0.18	-0.75 - -0.03
Health and Safety Preference * Dominance	0.38	0.16	0.16	0.08 - 0.69
Recreational Preference * Dominance	0.50	0.14	0.14	0.22 - 0.78
Recreational Preference * Gender	-0.71	0.17	0.17	-1.03 - -0.38
Recreational Preference * Age	0.23	0.09	0.09	0.06 - 0.4

Note. Fixed effect results of Dominance, Prestige, and Leadership with gender interactions predicting each of the individual Domain Specific Risk Taking (DOSPERT) domains.

Table 6*DOSPERT Benefit and Perception: Experiment 1*

Parameter	Estimate	Est.Error	Est.Error.1	CI (95%)
Risk * Dominance	0.65	0.15	0.15	0.36 - 0.96
Risk * Gender	-0.50	0.18	0.18	-0.85 - -0.15
Risk * Dominance : Gender	-0.48	0.19	0.19	-0.86 - -0.1
Risk Perception * Gender	0.43	0.19	0.19	0.06 - 0.81
Risk Perception * Prestige	0.30	0.15	0.15	0.01 - 0.61
Risk Perception * Leadership : Gender	0.43	0.20	0.20	0.03 - 0.82
Risk Benefit * Dominance	0.38	0.16	0.16	0.06 - 0.7
Risk Benefit * Gender	-0.60	0.19	0.19	-0.98 - -0.23

Note. Fixed effect results of Dominance, Prestige, and Leadership with gender interactions predicting the perceptions and benefits of risk.

Table 7*DOSPERT Benefit and Perception: Experiment 1*

Parameter	Estimate	Est.Error	Est.Error.1	CI (95%)
Ethical Perception * Prestige	0.35	0.14	0.14	0.08 - 0.61
Ethical Perception * Leadership : Gender	0.40	0.18	0.18	0.04 - 0.75
Health and Safety Perception * Leadership : Gender	0.49	0.19	0.19	0.12 - 0.86
Recreational Perception * Gender	0.37	0.17	0.17	0.03 - 0.71
Recreational Perception * Prestige	0.28	0.14	0.14	0.02 - 0.55
Recreational Perception * Age	-0.22	0.09	0.09	-0.4 - -0.04
Recreational Perception * Dominance : Gender	-0.55	0.19	0.19	-0.92 - -0.19

Note. Fixed effect results of Dominance, Prestige, and Leadership with gender interactions predicting the perceptions and benefits of risk.

Table 8*General Risk * DoPL: Experiment 2*

Parameter	Estimate	Est.Error	Est.Error.1	CI (95%)
Intercept	0.55	0.19	0.19	0.17 - 0.92
Dominance	0.22	0.10	0.10	0.02 - 0.42
Gender	0.24	0.11	0.11	0.02 - 0.46
Age	-0.02	0.01	0.01	-0.04 - -0.01

Note. Fixed effect results of Dominance, Prestige, and Leadership with gender interactions predicting general risk preference.

Table 9*General Correlation Matrix / Experiment 2*

Parameter	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Ethical Preference	0.68***	0.67***	0.42***	0.68***	-0.30***	0.18**	-0.05	-0.02	-0.14*	-0.1	0.02	0.33***	0.08	0.28***	0.56***	0.38***	1
Financial Preference	0.60***	0.68***	0.37***	0.68***	-0.09	0.05	0.02	0.06	-0.08	0.1	0.06	0.14*	0.23***	0.27***	0.25***	1	
Health and Safety Preference	0.71***	0.74***	0.44***	0.74***	-0.24***	0.15**	-0.02	0.02	-0.12*	0.01	-0.07	0.27***	0.28***	0.50***	1		
Recreational Preference	0.68***	0.70***	0.43***	0.70***	-0.23***	0.13*	0.05	0.09	-0.07	0.12*	-0.01	0.21***	0.38***	1			
Social Preference	0.43***	0.56***	0.22***	0.56***	0.08	0.27***	0.28***	0.27***	0.24***	0.32***	0.22***	0.09	1				
Dominance	0.33***	0.30***	0.35***	0.30***	-0.19***	0.47***	0.11*	0.13*	0.01	0.29***	0.30***	1					
Prestige	0.03	0.06	0.17**	0.06	0.05	0.45***	0.66***	0.62***	0.55***	0.46***	1						
Leadership	0.08	0.13*	0.14*	0.13*	0.07	0.29***	0.42***	0.40***	0.35***	1							
UMS Affiliation	-0.12*	-0.06	-0.09	-0.06	0.19***	0.34***	0.74***	0.56***	1								
UMS Intimacy	0.09	0.12*	0.21***	0.12*	0.03	0.27***	0.97***	1									
UMS Sum	0.04	0.08	0.14**	0.08	0.07	0.31***	1										
B-PNI	0.17**	0.22***	0.26***	0.22***	0.04	1											
Risk Perception	-0.58	-0.23***	-0.39***	-0.23***	1												
Risk Benefit	0.92***	1.00***	0.56***	1													
Risk Sum	0.62***	0.56***	1														
General Expected Benefits	0.92***	1															
General Risk Preference	1																

Note: * denotes significance level. 1 = General Risk Preference, 2 = General Expected Benefits, 3 = Risk Sum, 4 = Risk Benefit, 5 = Risk Perception, 6 = B-PNI, 7 = UMS Sum, 8 = UMS Intimacy, 9 = UMS Affiliation, 10 = Leadership, 11 = Prestige, 12 = Dominance, 13 = Social Preference, 14 = Recreational Preference, 15 = Health and Safety Preference, 16 = Financial Preference, 17 = Ethical Preference

Table 10*General Correlation Matrix / Experiment 2*

Parameter	1	2	3	4	5	6	7	8	9	10	11	12	13
Dominance	0.18**	0.15*	0.49***	0.30***	0.52***	0.30***	0.34***	0.44***	0.36***	0.46***	0.29***	0.30***	1
Leadership	0.30***	0.26***	0.51***	0.07	0.22***	0.04	0.05	0.12	0.48***	0.29***	0.46***	1	
Prestige	0.46***	0.38***	0.34***	0.16*	0.40***	0.19**	0.32***	0.32***	0.53***	0.45***	1		
B-PNI	0.65***	0.63***	0.48***	0.76***	0.79***	0.73***	0.74***	0.92***	0.80***	1			
Grandiosity	0.75***	0.79***	0.66***	0.42***	0.50***	0.34***	0.43***	0.51***	1				
Vulnerability	0.45***	0.41***	0.28***	0.82***	0.82***	0.84***	0.79***	1					
Contingent Self-Esteem	0.42***	0.33***	0.19**	0.56***	0.57***	0.55***	1						
Devaluing	0.35***	0.28***	0.14	0.58***	0.63***	1							
Entitlement Rage	0.42***	0.35***	0.35***	0.50***	1								
Hiding the Self	0.33***	0.37***	0.23***	1									
Exploitativeness	0.26***	0.24***	1										
Grandiose Fantasy	0.45***	1											
Self-Sacrificing and Self-Enhancement	1												

Note: * denotes significance level. 1 = Self-Sacrificing and Self-Enhancement, 2 = Grandiose Fantasy, 3 = Exploitativeness, 4 = Hiding the Self, 5 = Entitlement Rage, 6 = Devaluing, 7 = Contingent Self-Esteem, 8 = Vulnerability, 9 = Grandiosity, 10 = B-PNI, 11 = Prestige, 12 = Leadership, 13 = Dominance

Figure captions

588

589 *Figure 1.* Violin plot visually showing the distribution of dominance,
 590 prestige, and leadership of participants in experiment 1. As
 591 seen in the figure, of participants within each power orienta-
 592 tion dominance oriented people are more evenly distributed
 593 while those that were more prestige and leadership oriented
 594 were tended to be more prestigious oriented than others.

595 *Figure 2.* Depicted is the gender distribution of Men and Women with
 596 regard to level of dominance. As can be seen, men are
 597 slightly higher in dominance than women.

598 *Figure 3.* Depicted is the gender distribution of Men and Women with
 599 regard to level of prestige. As can be seen, men are slightly
 600 higher in prestige than women.

601 *Figure 4.* Depicted is the gender distribution of Men and Women with
 602 regard to level of leadership. As can be seen, men are slightly
 603 higher in dominance than women.

604 *Figure 5.* Depicted is the gender distribution of Men and Women with
 605 regard to each sub-domain of the domain specific risk-taking
 606 scale.

607 *Figure 6.* Violin plot visually showing the distribution of dominance,
 608 prestige, and leadership of participants in experiment 1. As
 609 seen in the figure, of participants within each power orienta-
 610 tion dominance oriented people are more evenly distributed
 611 while those that were more prestige and leadership oriented
 612 were tended to be more prestigious oriented than others.

613 *Figure 7.* Depicted is the gender distribution of Men and Women with
 614 regard to each sub-domain of the domain specific risk-taking
 615 scale.

616 *Figure 8.* Scatterplot depicting pathological narcissism, using the B-
 617 PNI, as a function of age.

618 *Figure 9.* Depicted here is a correlation plot of the indices of exper-
 619 iment 2. The legend denotes stronger positive correlation
 620 (closer to 1 and darker red) or stronger negative correlation
 621 (closer to -1 and darker blue).

622 *Figure 10.* Depicted here is a correlation plot of the indices of exper-
 623 iment 2. The legend denotes stronger positive correlation
 624 (closer to 1 and darker red) or stronger negative correlation
 625 (closer to -1 and darker blue).

626 *Figure 11.* Figure represents a mediation model with Dominance as the
627 central mediator in the model. The outcome variables being
628 risk behaviors along with hypothetical consequences like STI
629 and the like.