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# The psychology of risk and power: Power desires and sexual choices

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# 1 Chapter 1:

## 1.1 Literature Review

### 1.1.1 General Introduction

Research in decision-making is not only concerned with understanding monumental decisions done in a study or saving a life, but equally in more mundane decisions such as understanding choosing what tea to drink in the morning, what clothes to wear that day or whether a couple should have a divorce. Making models of decisions can be difficult given uncertainty is involved along with risk [citation]. For example, two adult men [or a man and a woman] that are intending to have sex need to make the decision of whether or not to use a condom. Added uncertainty is involved with the decision-making process. One partner may have multiple sexual partners while the other may have only had one, one partner may have a sexually transmitted infection and might not feel the need or feel comfortable with informing their partner of their status. Consequences of not informing can have dire consequences on both partners.

In 2016, the year of most recent global data collection, there were 376 million necases of the four curable sexually transmitted infections, chlamydia, gonorrheatrachomoniasis, and syphilis (World Health Organization, 2018). The World Health Organization [WHO] further estimates that there are one million new cases of a curable sexually transmitted infection each day. Due to multiple factors, certain minority populations are more at risk for contracting new sexually transmitted infections, e., men who have sex with men and female sex workers (World Health Organization, 2018). Some factors include certain societal beliefs men who have sex with men might engage in nonrelational sex “just trying to figure things out it’s just a hook up phase” (Elder et al., 2015) , ambiguous laws concerning the legality of sex work interfering with safe and available locations for such activity, as well as. There may also be some difficulties in their willingness

158 in their activities be it forced by another sheer necessity. For countries like  
159 Scotland there have been a reduction in the amount of new cases of STIs like  
160 HIV amongst key populations, however new risks antibiotic resistant gonorrhea,  
161 *Neisseria gonorrhoeae*, have shown a new prevalence in many countries (Ison &  
162 Alexander, 2011).

### 163 **1.1.2 Who is at risk?**

164 There is then the arduous task of how to research the topic of sexually  
165 transmitted infections and methods of then understanding what is occurring in  
166 the individual. There are neurobiological explanations such as certain brain for-  
167 mations occurring that cause individuals to have difficulty understanding the  
168 consequences of their actions (Moll et al., 2005; Schaich Borg et al., 2008; Tsoi  
169 et al., 2018). There are also more cognitive explanations as well that have shown  
170 promising results. For example in the cognitive sub-area of metacognition there  
171 is an understanding that there are certain cognitive mechanisms that aid in the  
172 individuals ability to regulate their own cognitive understanding of their deci-  
173 sions (C. A. Anderson & Bushman, 2002; Yeung & Summerfield, 2012). This  
174 self-regulation then contributes to their ability to control whether they act on  
175 their baser needs or are able to understand the consequences of what they might  
176 or might not engage in (C. A. Anderson & Bushman, 2002; Crandall et al., 2017).  
177 How individuals had reached the information on the effectiveness of certain be-  
178 havioral changes that reduce the chances of contracting an STI is also in question.  
179 For example, research shows that individuals that have a greater understanding  
180 of the impact and chances of contracting HIV, actually engage in risky sexual  
181 behaviors and therefore increase their chances of contracting the very infection  
182 they have more knowledge (D. B. Kirby et al., 2007). Skills based training showed  
183 more positive results on practicing safer sex practices. How an individual sees  
184 themselves as either a sexual person or person in general is also a factor in how

185 they later may meet an STI (Andersen et al., 1994, 1999; Elder et al., 2015;  
186 Gesink et al., 2016). Aggression, in the cognitive sense, also has an impact as  
187 well demonstrating a dominance over another person that may cause difficulties  
188 in their own ability to make decisions on their sexual health (Malamuth et al.,  
189 1996; Williams et al., 2017).

190         Aggression is one method of exerting control over another individual.  
191 Overall, the exertion of control itself denotes a power disparity between parties  
192 which varies in effects, methods, and domains. [citation]. For example, most re-  
193 search has looked at power-over or one person controlling the behavior of another  
194 person. This area of research connects the cognitive explanation to behavioral  
195 outcomes. Research in power also includes looking at minority populations and  
196 aspects of power over to help explain the increased prevalence of certain STIs  
197 by discussing and researching certain power dynamics [citations]. The institu-  
198 tional support of those power dynamics often reflect power based on age, gender,  
199 political orientation, sexual orientation and gender identity (C. A. Anderson &  
200 Bushman, 2002; Chiappori & Molina, 2019; Volpe et al., 2013; Winter, 1988).  
201 Investigations of the power structure of a family unit has shown to have some  
202 interesting consequences on sexual health depending on the type of parenting  
203 style and parental attachment [Bugental and Shennum (2002); Chiappori and  
204 Molina (2019); Kim and Miller (2020); citations]. A new area of research coming  
205 out of power and cognition is the phenomenon where an individual will harm  
206 themselves in some way to also inflict harm on another. This type of behavior  
207 has been researched extensively in the animal kingdom and is known as spiteful  
208 behavior in that one brings down their own wellbeing to spite the other person.  
209 There would be interesting avenues to research how spiteful thinking may affect  
210 an individual in how they choose one course of action over another. ### Cur-  
211 rent Methodology An interesting aspect of the power dynamics and cognition is  
212 the moral aspect of decision-making. Often, sexually transmitted infections and

213 risky sexual behavior are used as examples to discuss moral issues. Methods at  
214 understanding these situations and other moral issues are through dilemmas or  
215 vignettes where individuals are presented with a short scenario and given the  
216 opportunity to choose one outcome over another (Ellemers et al., 2019). A trade-  
217 mark example is the trolley car experiment where there is a runaway trolley car  
218 that is going towards five people (Greene, 2001). The decision is thus, allow the  
219 trolley to careen towards the five people or you could divert the trolley by pushing  
220 and sacrificing a large man for the sake of the other five. This type of dilemma  
221 poses an interesting method of understanding how and what the decision maker  
222 would choose. The researcher can then change the dilemma on its severity and  
223 complexity. There could also be a change in situation and the types of individuals  
224 that are at risk. Individual choice tasks investigating risky sexual behaviors and  
225 STIs could be furthered with investigating the moral decision-making aspect of  
226 those issues. Current STI research has focused on methods of ways of curbing why  
227 individuals act a certain way when presented with a risky sexual situation (D. B.  
228 Kirby et al., 2007). Current methods have shown mixed results. In many coun-  
229 tries, how people are taught about risk and sex can vary wildly (Unesco, 2015).  
230 For example, some countries may have one standard that is a mix of religious  
231 and scientific findings of STIs. While others may not even have a formal sexual  
232 education program. Some aspects of sexual activity are not even discussed, for  
233 example non-heterosexual sex is not always present in education (Ellis & High,  
234 2004). This becomes problematic in that men who have sex with men tend to be  
235 more at risk to contracting an STI than their peers who engage in heterosexual  
236 intercourse. There has also been a lot of research in STI rates. Evidence by  
237 governments and international health organizations constantly partnering with  
238 universities and healthcare providers to collect new incidences of STIs. There  
239 might be one way of researching the topic however, it might not look at all the  
240 aspects. Some may be more focused on the outcome while ignoring the causes

241 or hypothesized causes of the outcome. Continued research into the understand-  
242 ing of decision-making is important in that understanding the general helps later  
243 understanding of the specific.

## 244 1.2 Risky Sexual Behaviors and STIs

245 Sexual activity/ability to reproduce being one of the seven characteristics  
246 of life can cause health, financial, and/or social dangers (to all participants)  
247 through risk and neglect [citation]. The curability or manageability also plays  
248 a factor in how an STI will affect an individual or community. For example, if  
249 the treatment is simple and cheap the effect could be minimal. However, if the  
250 treatment cost is expensive the drain on multiple resources could be detrimental.

251 There is a large array of different sexually transmitted infections. Cur-  
252 rently, there are eight common types of STIs, chlamydia, gonorrhea, trichomo-  
253 niasis, genital warts, genital herpes, pubic lice, scabies, and syphilis (Carmona-  
254 Gutierrez et al., 2016), chlamydia being the most common. Treatment for these  
255 STIs can range from a simple course of antibiotics such as is the case with chlamy-  
256 dia or gonorrhea. Conversely, treatment for syphilis or human immunodeficiency  
257 virus [HIV], can be increasingly more involved, cause difficulty in daily life, and  
258 have higher costs [citation]. Globally, 37.9 million people are living with HIV  
259 [104,000 in the United Kingdom], with 1.7 million being under the age of 15  
260 years old (Ison & Alexander, 2011). The treatment for HIV currently is through  
261 antiretroviral medication, which is often a combination of multiple medications  
262 to account for the high adaptability of the virus (Costa-Lourenço et al., 2017).

263 New difficulties appear from the most common treatment strategies. The  
264 main strategy for arises given the fluctuating nature of STI treatment and costs.  
265 As such, costs for treatments have seen a markable increase with some treatments  
266 costing [enter average amount]. An increasing number of antibiotic resistant gon-  
267 orrhea is occurring globally, with a recent discovery in Japan with a strain that

268 is resistant to ceftriaxone, the most prescribed antibiotic [citations]. Two in-  
269 dividuals in the United Kingdom recently [2019] separately tested positive with  
270 different strains resistant to not just ceftriaxone but also azithromycin [citations].  
271 The confirmed cases may seem small however, 10% of men and half of women do  
272 not show visible symptoms when infected with the bacteria. Medical treatment  
273 alone has not been the only strides made in STIs around the with strides in ac-  
274 ceptances and less persecution for those that have HIV for example. However,  
275 while persecution and stereotyping has gone down in recent years, treatments and  
276 availability to those treatments have become increasingly more costly.

277 Sexually active individuals can become infected with an STI through various  
278 forms. The first and most prominent vector is through risky sexual behaviors,  
279 i.e., multiple sexual partners, unknown sexual history of partners/high-risk indi-  
280 viduals, and unprotected sex [citations]. The most common vector is through en-  
281 gaging in unprotected sex. Condoms are the most common and effective method  
282 of protection, with spermicides increasing their effectiveness [citation]. Once in-  
283 fected, the STIs may have detrimental health effects. For example, genital herpes  
284 may cause infertility in women and certain types of cancers [citations]. Infections  
285 can also be transmitted to infants during childbirth. If left untreated death is  
286 possible for example in the case of syphilis which results in an agonizing death  
287 [citations]. Condoms are still one of the most effective strategies to practice safe  
288 sex along with asking partners about their sexual histories.

289 Even though condoms are the most effective prophylactic, there is still a  
290 chance that an individual may contract an STI. Other risky sexual behaviors can  
291 increase an individual's susceptibility such as having multiple sexual partners.  
292 The age of first sexual intercourse is one of the leading factors that has been  
293 associated with increased sexual risk taking and later transmission of STI (de  
294 Sanjose et al., 2008; Dickson et al., 1998; Tuoyire et al., 2018). Dickson and  
295 colleagues investigated the age at first sexual intercourse and found that women

that had their first sexual intercourse before 16 years-old were more likely to report having contracted an STI. In the United Kingdom, age at first heterosexual intercourse has decreased over the last 70 years (Mercer et al., 2013). Mercer and colleagues conducted a longitudinal analysis of age at first sexual intercourse by separating individuals into birth cohorts. Individuals age 65-74 years reported their age at first heterosexual intercourse at 18 years. Every ten years that number has steadily decreased by one with the most recent being 16 years old. Thirty percent of individuals between the ages of 16-24 report have had heterosexual intercourse before the age of sixteen.

Individuals 18-24 years of age are not just having intercourse at earlier ages, they are the group with the highest susceptibility of contracting an STI, amounting for #### of new incidences [citation]. College students/aged individuals have also increased alcohol consumption which contributes to lowered inhibitions and increased risky sexual behavior. Because many are developing sexually including some living away from home for the first time, they are more likely to engage in sexual experimentation such as multiple sex partners and in some cases may not use protection such as a condom. Lack of communication has also been shown to influence the likeliness of contracting an STI. Desiderato and Crawford investigated risky sexual behaviors in college students and found that failing to report the number of previous sexual partners and their STI status was common in both men and women (1995). The social stigma of having contracted or being suspected of contracting an STI is one of the most common barriers that inhibits open communication between sexually active individuals (Cunningham et al., 2009). Stigma concerning a positive STI diagnosis can affect not just the physical health of an individual but the psychological health as well. In a series of five experiments, Young and colleagues investigated how the belief of having an STI has an individual's likelihood of getting tested/treatment (2007). They discovered two key points on stigma, others perceive those that have an STI as

324 being less moral and others believe that others will see them as being immoral.  
325 This threat of appearing to be immoral may cause the individual to feel as though  
326 the mere perception of having an STI is shameful (Cunningham et al., 2009).

327         The social effects of sexuality in general influence how people see them-  
328 selves. For gay men in particular there is not just the social stigma that some  
329 may have of homosexuality, within the gay community there are some that are  
330 expected to be promiscuous or appear to be promiscuous (Elder et al., 2015). In  
331 a study based on grounded theory, Elder and colleagues asked gay men all aspects  
332 of sexuality to discover and investigate their sexual schemas. A sexual schema  
333 is, “a generalization about the sexual aspects of oneself.” (Elder et al., 2015, pg.  
334 943). The effects of negative sexual self-schema are also seen in bisexual and  
335 straight men and women (Andersen et al., 1994; CYRANOWSKI et al., 1999;  
336 Elder et al., 2012, 2015). Having poor sexual self-schema can result in women  
337 having issues with sexual desire and an inability of reaching orgasm while in men  
338 can result in climaxing too early and erectile dysfunction (CYRANOWSKI et al.,  
339 1999; Kilimnik et al., 2018). Long lasting impairments can often lead to more  
340 psychological issues.

341         Individuals that have contracted an STI are also more likely to be ostrac-  
342 ized from their immediate community. For example, gay men who contracted  
343 HIV in the beginning of the AIDs crisis were often ostracized by society even  
344 when they were seeking treatment in the hospital. Nurses would often, for lack  
345 of knowledge of transmission of the virus, would often drop medication in front  
346 of the patient’s door and would rarely physically interact with them [citations].  
347 This ostracization further compounds the psychological and physical trauma that  
348 individuals with HIV already have. As more knowledge of how HIV is transmitted  
349 individuals can get more efficient and better treatment. However, ostracization  
350 often occurs [citations].



### 351 1.3 Moral Judgment and Decision-Making

352 Sam has frequent and unprotected sex with multiple partners, resulting  
353 in a sexually transmitted infection that causes visible sores on the mouth and  
354 hands. On the way to the chemist one day, Sam has an acute heart attack. By-  
355 standers rush to help, but see the sores on Sam's mouth and hands. How would  
356 the bystanders react? Would they resuscitate Sam? Would it be morally wrong  
357 for them not to risk contracting an unknown disease from Sam, even if it may  
358 cost Sam's life? Similar sorts of dilemmas are often used to study moral decision  
359 making of various sorts (Clifford et al., 2015). the thought experiment of the  
360 trolley dilemma. Research by Haidt and colleagues, compared psychologically  
361 normal adults to psychopathic traits and performance on the Moral Foundations  
362 Questionnaire [MFQ; Graham et al. (2011)]. Findings included higher psycho-  
363 pathic tendencies were associated with lower likelihood of following justice-based  
364 norms, a weak relationship with disgust-based and in-group norms, and finally  
365 an increased willingness to violate any type of norms for money (Glenn et al.,  
366 2009). The key factor in the Moral Foundations Questionnaire are these moral  
367 foundations of which there are five moral domains: harm versus care, fairness  
368 versus cheating, loyalty versus betrayal, authority versus subversion, and purity  
369 versus degradation (Clifford et al., 2015). Each of these moral domains have a  
370 good and bad component compared to the action type.

371 The MFQ has been extensively used in research on moral decision-making,  
372 with common subjects being on political thought [citation]. In the early studies of  
373 moral foundations theory, Haidt investigated the moral foundational differences  
374 between individuals that lean either politically liberal or conservative. Of the five  
375 moral domains, differences appeared in the likelihood of how either conservatism  
376 or liberalism affects the likelihood of individuals to endorse each domain. For  
377 example, liberalism suggests protecting the individual from harm by the society,  
378 especially if they are a member of a minority group. Conversely, conservatism,

379 namely religious conservatism suggests a propensity for sanctity and purity, along  
380 with respecting authority and following the societal moral codes [citations]. Emo-  
381 tional valence is often the best predictors of moral judgments [citation]. The more  
382 emotional valence the faster the response time the decision-maker decides and the  
383 more staunchly held they are to their decision. Interestingly, participants would  
384 be unable to express or support the decisions that they made. Often, partici-  
385 pants would downplay their decisions by laughing or stuttering (Haidt, 2001).  
386 Additionally, as their emotional valence of the decision is higher, people are con-  
387 sistently holding on to their judgments regardless if they were able to support  
388 their judgements when asked or not. It then makes sense why some individuals  
389 are more politically intransigent given their deeply held moral codes.

390         Politically held beliefs are often emotionally laden (G. Marcus, 2000). Ac-  
391 cordingly, moral foundations theory postulates that there is a good versus bad  
392 in the moral domains. When participants are asked to respond to statements  
393 that are only offensive but were not harming anyone, participants had issues sup-  
394 porting whether the statement was good or bad. For example, when participants  
395 were given a story of cleaning the toilet with the national flag, participants would  
396 respond that it is bad and said that they just knew that it was wrong [citation].  
397 Often when individuals violate the moral rules of “cleaning the toilet with the  
398 national flag” violators will be judged as immoral and sometimes punished for  
399 their actions [citations]. Intuitively the participants responded that the actions  
400 were morally were obviously morally wrong. Requiring little to no explanation  
401 as to whAn interesting facet of moral judgment is how individuals react to moral  
402 decisions when they are reminded of their own mortality (Greenberg et al., 1990;  
403 Rosenblatt et al., 1989). Reminding individuals of their mortality causes them,  
404 according to terror management theory, to want to push away from the thought  
405 of their eventual death. To do this people often cling to their deeply held cultural  
406 beliefs to remove their thoughts from reality (Greenberg et al., 1990). In the

407 first of a series of experiments Rosenblatt and colleagues found that participants  
408 that were reminded of their mortality judged prostitutes more harshly, more so  
409 if the participants already had negative opinions on prostitution. This was also  
410 seen conversely with heroes that follow the cultural norms. Those participants  
411 advocated for a larger reward for those individuals (Rosenblatt et al., 1989). The  
412 already held opinions were further investigated to where Christians were asked  
413 to report their impressions of Christian and Jewish individuals after mortality  
414 became salient. Those that were a member of the in-group, Christian, were more  
415 likely to be regarded as more positive than their out-group counterparts, Jewish  
416 individuals (Greenberg et al., 1990). In-group bias is an oft studied concept in  
417 psychological research. Mortality salience and moral violations tend to increase  
418 the strength of the in-group bias and then moral judgement and condemnation  
419 [citation].

420         When a person does a negative action, the reason for the action is often  
421 judged and assumed. An action is commonly seen as being intentional when  
422 the individual actively does the action directly. However, intentionality becomes  
423 problematic participants have already had negative evaluations of the individ-  
424 ual. In an experiment where participants were asked to judge the culpability of  
425 an airline passenger that was forced by high-jackers to kill another passenger,  
426 the high-jackers were the external force forcing the passenger to commit murder.  
427 However, when the participants were told that the passenger already wanted to  
428 kill that passenger before the hijacking was occurring, they were judged as more  
429 culpable. With or without the internal motivation of wanting to already kill the  
430 other passenger, the resulting death still occurs. When participants were given  
431 a, less vivid, story of a manager that was only mistreated a black employee and  
432 another story of a non-bigoted manager that was mistreating all of their employ-  
433 ees, participants judged the bigoted manager more negatively. Even though there  
434 were differences in those affected between the managers, participants already held

435 a negative opinion for those that hold bigoted views, and thus judged the bigoted  
436 manager more severely [citation].

437         Research in attributional blame continued with an experiment investigat-  
438 ing passengers on a sinking boat (Uhlmann et al., 2013). Participants were given  
439 a story where there were several individuals on a sinking lifeboat. There were too  
440 many people in the boat and the only course of action given was that some of the  
441 passengers had to be thrown overboard. In the utilitarian perspective, used for  
442 this example, the morally correct judgment was a few must be sacrificed for the  
443 safety of the larger group [citation]. However, the participants often judged the  
444 surviving passengers as acting selfishly. Thus, they were seeing the passengers as  
445 immoral.

446         When individuals commit a moral violation, as would be the case for the  
447 surviving passengers, it is not only important to investigate how others would  
448 judge and react but also how the individual reacts to their own action (Tangney  
449 et al., 2006). Emotional reactions occur when someone does a behavioral action,  
450 or they expect a behavioral action to follow. An interesting aspect of emotional  
451 reactions are emotional reactions tied to moral judgment. When an individual  
452 violates a moral norm, they often feel a personal feeling of shame or guilt which  
453 are two of the most commonly studied of these self-evaluative emotions (Tangney  
454 et al., 2006). There is an inherent difference between these two emotions, shame is  
455 inferred as being negative feelings of oneself that has a public display, while guilt  
456 is similar sans the public display (Tangney et al., 1996). Individuals who violate  
457 the community's customs on purity often feel a sense of shame. While guilt is  
458 commonly felt with a violation of community [citations]. People with STIs are  
459 often left feeling shame from their suspected purity violation and thus are often  
460 stigmatized for their behavior and punished in some form by the community.  
461 This can lead, as discussed in the previous section, to increasing their sense of  
462 isolation and negative self-worth. How the moral violators react to their shame

463 or guilt is dependent on whether they experience the former or the latter. There  
464 are often attempts to amend the situation when individuals have violated moral  
465 norms. Depending on the self-evaluative emotion that is being felt, people will  
466 make amends to try to change the situation or they may hide it (Tangney et al.,  
467 1996). Guilt is the former and shame is the latter. In most cases individuals that  
468 are feeling shame will attempt to ignore their moral violation where they will deny  
469 or evade the situation that is causing them shame. Conversely, people with guilt  
470 are often motivated by those negative feelings to fix the situation that caused  
471 them to feel the guilt. Guilt is often feeling negativity towards a specific action  
472 while feeling ashamed or shame is usually a reflection of the entire self [citations].  
473 Thus, in relation to how to repair the guilt inducing act, it would appear to be  
474 more manageable if the inducing situation was a singular event rather than a  
475 feeling of the entire self. Participants that were prompted to feel shame were less  
476 likely to express empathy for someone with a disability (Marschall, 1998 as cited  
477 in Tangney et al., 2006). When people feel a sense of shame, they self-evaluate  
478 and reflect on themselves. This hinders the empathy process that would require  
479 them to focus their attention on the emotions of another person.

480 Barnett and Mann investigated sexual offenders to understand how feelings  
481 of empathy are blocked for their victim at time of the offense (2013). In empathy  
482 research, emotions cannot only just be inferred by the situation but be “felt” to be  
483 classified as expressed empathy. Earlier research looking at empathy by sexual  
484 offenders has not shown them as being unempathetic. However, Barnett and  
485 Mann contend that sexual offenders may have a disruption in seeing distress in  
486 their victim. The offender may then believe and assert that their victim deserves  
487 the distress that they are experiencing and have a cascading effect where they  
488 may be powerful and enjoy the distress of the victim (Barnett & Mann, 2013).

## 489 1.4 Power

490 A common denominator in research on the dark personality and moral  
491 judgment is the influence of power. To define power, one would have to first  
492 define the actor and the recipient of the power. Therefore, there is either power-  
493 over, power-to, and power-with. Each aspect has their own different consequences  
494 [citation]. Power-over is when there is one individual, the one with power, which  
495 wields control over a subordinate individual [citation]. Power-to is when an in-  
496 dividual of privilege uses their status and power to control and enact a certain  
497 consequence [citation]. Finally, power-with is an interesting concept where a per-  
498 son of power uses their own power to lift or elevate someone without power to a  
499 power position [citation]. This is often seen in community projects where some-  
500 one in power goes into a troubled community and facilitates the situation so that  
501 those that have less power can have their voices be heard. Power also has var-  
502 ious sources each with their own complex consequences: institutional, cultural,  
503 gender, age, ethnicity, orientation, and gender-identity [citations]. Some sources  
504 of power compound on one another to increase the level of power over other sin-  
505 gular sources of power. For example, in many areas of the world a straight white  
506 cisgender man would hold the most power relative to other individuals.

507 Power influences relationships be it romantic or familial, work, academics,  
508 including each of their derivatives. The three variations of power have various  
509 influences on each of the areas of life. Power is neither good nor bad, it is how  
510 the power is used that makes it either good or bad [citation]. Power and power  
511 structures are often in the media. Often when there is a military coup in a far-  
512 off country, individuals discuss power-over. When a humanitarian goes into an  
513 impoverished community to help their voices heard, power-with is discussed. As  
514 with the previous example, when a legislator uses their influence to pass a law,  
515 that legislator uses power-to.

516 Early discussions of power descended from Greek and Roman political

517 philosophy (Aristotle, 1984). Greek Philosopher, Plato's brothers Glaucon and  
518 Adeimantus discuss the viability or requirement of citizens being just and lawful if  
519 they are able to escape conviction because of some social power or fortune (Aris-  
520 totle, 1984). Aristotle continued the discussion by posing the questions, "There is  
521 also doubt as to what is to be the supreme power in the state: Is it the multitude?  
522 Or the wealthy? Or the good?..." (Aristotle, 1984). Power discussions such as  
523 that by Aristotle point to what is the source of someone's power. Does the power  
524 come from the majority? Does it come from money? Does it come from those  
525 that are just? Each source of power has different effects on those that are gov-  
526 erned by those with that power. Polybius of Greece discussed how a constitution  
527 should be created and power should be delineated. Polybius power should be  
528 split between multiple groups, each with a different form of power and distinct  
529 genre to wield that power [citation]. Power continued to be discussed well beyond  
530 the Greek philosophers and continued by political researchers and philosophers.  
531 Discussions of power soon developed into research on how it influences at the  
532 community level.

533 Sociologists, following many of the philosophical thought experiments pre-  
534 vious and current to the time, began to research power. Sociologists soon devel-  
535 oped the area of research in social power, where political power was a subset.  
536 According to Bierstadt, power is always successful, whenever it fails then it is no  
537 longer power [1950]. Sociologists asserted that power be conceived of as a force,  
538 something that is applied to control a situation. Power can also be conceived of  
539 as more passive authority. There are three sources of power: number of people,  
540 social organization, and resources. From that individuals that are the class or  
541 group or have the most resources that are in need are those that will have the  
542 most power. Resources need not be physical objects they can also be more psy-  
543 chological such as skills or knowledge. From history there are many examples  
544 where power becomes toxic and the leader becomes the oppressor. Be it Mao

545 Ze Dong, Stalin, Lenin, or Hitler. The question then becomes what causes the  
546 powerful to become oppressors? In some cases, those that are in power are trying  
547 to do good for the community, restrictive from the example.

548 Recently, issues and abuses of power have become much of the forefront  
549 of news due to the explosion caused by the me-too movement [citation]. The me-  
550 too movement was first coined by activist and sexual harassment survivor Tarana  
551 Burke. A decade after she disclosed her sexual assault, the me-too movement and  
552 the abuse of power dominated the new cycle with accusations against film pro-  
553 ducer Harvey Weinstein [citation]. Weinstein was known for doing philanthropic  
554 initiatives during his career by using his influence and money to aid the certain  
555 initiatives that he had chosen. However, soon news of his sexual assault accu-  
556 sations and threats became news. Soon multiple women came forward accusing  
557 Weinstein of assaulting them as well and using his power over them to intimidate  
558 and silence them [citation]. This exemplifies how resources and position aid in  
559 individuals become powerful. Weinstein had the resources and the authority to  
560 abuse his power with many of his peers knowing what he was doing [citation].

561 In psychology, it was originally conceived that power corrupted individ-  
562 uals exemplified by the Stanford prison experiment where “regular” individuals  
563 were instructed to play the prison guards of a simulated prison. Similar indi-  
564 viduals were instructed to portray the prisoners [citation]. Zimbardo, the lead  
565 researcher for the experiment, soon noted that the individuals that portrayed the  
566 prison guards became aggressive with the prisoners. They verbally and physically  
567 assault them. The experiment was halted to stop any more damage from occur-  
568 ring. News spread of the results of the experiment and power was seen as causing  
569 or influencing the “prison guards” to become aggressive and abuse towards the  
570 “prisoners.” However, the nature of the participants became into question [cita-  
571 tion]. Later researchers noted that there could have been a self-selection bias of  
572 the participants. The experiment was advertised such that the prison experiment



573 was known to the participant. This would then cause individuals to self-select  
574 into the group which could possibly skew the results given that the participants  
575 may have had authoritarian tendencies and the experiment and added power  
576 may have given the opportunity for the participants to express their authoritar-  
577 ian tendencies already present [citation]. Similar explanations have occurred in  
578 politics.

579       Throughout political history individuals that have reached powerful posi-  
580 tions on multiple occasions have given some powerful people the outlet to express  
581 their prejudiced and problematic beliefs [citation]. Fear of communist infiltration  
582 in the United States caused many fears and blacklisting was a frequent practice.  
583 Joseph McCarthy, a Wisconsin senator, would soon use his power as a legisla-  
584 tor/senator [citation]. McCarthy would call individuals to the front of the House  
585 Un-American Activities Committee because they were suspected of being spies  
586 for the Soviet Union. McCarthy and the committee used strong arm tactics and  
587 would often threaten individuals brought in front of the committee. Many in-  
588 dividuals brought forward often had their lives irrevocably changed [citation].  
589 Soon Senator Margaret Chase Smith and six others condemned McCarthy for his  
590 actions and tactics. McCarthy was soon censured, and the House Un-American  
591 Activities Committee was disbanded. The political issue of power being used  
592 as an outlet for prejudiced and authoritarianism became apparent recently after  
593 the 2016 United States Presidential Election [citation]. Donald Trump's political  
594 exploits would soon highlight his past and present use of power and his uneth-  
595 ical dealings. Often Donald Trump would use his power for personal gain and  
596 to express his prejudicial and racist beliefs. Examples range from in the 1990's  
597 Donald Trump advocated for the Central Park Five, five African-American men  
598 accused of raping and murdering a young White woman in Central Park, to be  
599 put to death [citation]. However, DNA evidence exonerated on the men of the  
600 crime [citation]. Recently, Donald Trump on the campaign trail accused Mexico

601 of sending individuals across the border that were rapists and drug dealers. How-  
602 ever, there was no physical proof of the case and became a common trope used by  
603 Donald Trump supporters. Because of the misuse of power and authority, there  
604 have been increased hate crimes towards Mexican Americans and African Amer-  
605 icans [citation]. The Southern Poverty Law Center, an organization that records  
606 the number of hate groups currently active in the United States has documented  
607 a clear increase in the number of active hate groups after the 2016 election [cita-  
608 tion]. The supporters feel a sense of validation for their own beliefs and opinions  
609 which they feel allows them some power in and of itself. This then poses an  
610 interesting question in power research in psychology. What are the correlates of  
611 the power complex? What are the consequences of power? How does a power  
612 imbalance affect relationships? The list of questions is vast and varied.

613         Power imbalances in relationships can have negative effects spanning the  
614 entirety of an individual's life, be it emotionally, physically, psychologically, and  
615 socially [citation]. Dr. Helene Papanek, director of the Alfred Adler institute, a  
616 sub-clinic of the Alfred Adler Mental Hygiene Clinic, discussed at a meeting of  
617 the Association of Humanistic Psychology, multiple cases of controlling and power  
618 disturbances in personal relationships. A relational example was presented where  
619 a father, Mr. A had complete control over his wife and daughter. Controlling  
620 when they should be home and where they should go. Mr. A even controlled  
621 the frequency and positions of sex (Papanek, 1972). Power-over someone can  
622 also manifest feelings of low self-worth and destructive behaviors. For example,  
623 Ms. C was a young mother of a child born out of wedlock. She was abandoned  
624 by her parents and the father of her child. She was constantly controlled by  
625 her mother and their disdain for her child out of wedlock. Soon she developed  
626 panic attacks but also a sense of superiority over others as a defense mechanism.  
627 Dr. Papanek noted that Ms. C developed and lived a life of spiteful behaviors one  
628 after the other.

629       The behaviors of Ms. C and Mr. A are not the only examples of individu-  
630 als having power over another person or being subjected to the power over them.  
631 Power-over has occurred throughout human history and is ingrained in all cultures  
632 [citation]. Institutional power-over is quite common cross-culturally. Contracep-  
633 tion and control over one's own reproductive system is a prescient debate globally  
634 [citation]. In 1960 and 1963 Enovid was approved for use in the United States and  
635 United Kingdom respectively [citation]. Doses for contraception early on were of-  
636 ten high and news of multiple deaths was reported widely. Cases were brought  
637 forward to control the use of contraception. The Roman Catholic Church's stance  
638 on hormonal contraception shifted from permission to outlawing anything that  
639 would be believed as stopping the ability to propagate [citation]. Interestingly  
640 in 1989 researchers working for Pfizer in the United Kingdom were researching a  
641 new drug that would aid in treating heart conditions [citations]. The researchers  
642 soon discovered sildenafil also could treat erectile dysfunction. Ten years later,  
643 sildenafil, brand name Viagra, would be patented and approved for use for the  
644 primary treatment for erectile dysfunction [citation]. The same individuals that  
645 were trying to reduce the use of female contraception were not trying to do the  
646 same for Viagra. The Japanese government and officials had similar attempts  
647 to quell the use of female contraception while not doing the same for erectile  
648 dysfunction treatments [citation].

649       The Council on Foreign Relations [CFR] a non-profit that specializes in the United  
650 States and international affairs, conducts an international index on women's work-  
651 place equality by rating each country on factors: accessing institutions, getting a  
652 job, going to court, protecting women from violence etc. [citation]. Scores range  
653 from 0 to 100 where 100 is near total equality in all areas. Of 189 countries on the  
654 list only 9 scores over 90% in the ranking. One hundred and thirty-eight score be-  
655 low 75 with Yemen having the lowest score of 24.5. Including those that intersect  
656 with other minorities have even less power like women of color and trans individ-

657 uals [citation]. Women having less power than their male counterparts can have  
658 multiple negative outcomes such as continued and sustained sexual aggression,  
659 low self-esteem, financial insecurity, lack of freedom of movement, lack of freedom  
660 of thought, and in some extreme cases even death [citations]. Cultural relativism  
661 creates a difficulty in cultures that have opposing views on the rights and how to  
662 navigate that can in and of itself reflect institutional power imbalances.

663         Power imbalances can create a dissociative state where those with less  
664 power are seen as more of an object than a person (Gwinn et al., 2013; Haslam &  
665 Loughnan, 2014; Lammers & Stapel, 2011; Smith, 2016). While others with more  
666 power may see those with less as be less human, some individuals attribute the  
667 dehumanization to themselves as well and self-dehumanize (Bastian et al., 2013;  
668 Bastian et al., 2012; Bastian & Haslam, 2010; Kouchaki et al., 2018). Effects of  
669 prolonged dehumanization by those with more power often, unchecked and under  
670 constant pressure, can lead some individuals to believe what the powerholders  
671 say is true. The question remains, why do people in power begin to dehumanize  
672 those with less power? Commonly when an individual harms another usually  
673 there is some perspective taking by the harmer. However, to dehumanize the  
674 other person it lessens the sense of empathy that one would normally feel thus  
675 allowing for more damage and harm to be committed [citations]. “With great  
676 power comes great responsibility” often quoted by Uncle Ben in the Spider-Man  
677 comic books, yet has its possible historical foundations in the French National  
678 Convention in 1793, leads credence to the wane and flow of the effects of power  
679 (Nationale (Paris), 1793). Those in power make decisions for those for which they  
680 are leaders. As is the case with every decision there is a reaction to the decision.  
681 Sometimes those effects are negative and those with less power may be harmed in  
682 the process. Dehumanization of those in less power acts as a defense mechanism  
683 to continue making life changing decisions.

684         Often dehumanization is left to more extreme occasions such as war,

685 infrahumanization, where ascriptions of nonhuman qualities are more subtle  
686 and not as extreme (Haslam & Loughnan, 2014). Research in dehumaniza-  
687 tion/infrhumanization by Gwinn and colleagues used game theory and univer-  
688 sity students to simulate power differentials (2013). In their research, they found  
689 that once individuals began to gain power, they would ascribe fewer humanlike  
690 personality traits than those with less power ascribing traits to the powerful.  
691 Interestingly, there is a reciprocal relationship between self-dehumanization and  
692 immoral behavior (Kouchaki et al., 2018). When individuals would commit an  
693 immoral behavior, they would afterwards often feel less human, which in turn has  
694 them act more immoral.

## 695 1.5 Cognition

696 When deciding, the decisions are not subject to a vacuum. Every decision  
697 that is made is contingent on the prior understanding and knowledge of the  
698 situation and the possible outcomes of those decisions. The woman choosing one  
699 tie over another or the little boy choosing one doll to play with is contingent on  
700 the knowledge that they both separately have gained in their lives so far. It could  
701 be said that the time at which an infant is first learning about the world is when  
702 individual decisions are made by instinct without gained knowledge. When the  
703 infant ages and acquires more memories from the environment, it will begin to  
704 use those memories in making future decisions.

705 The first step at acquiring new knowledge is interacting with the environ-  
706 ment. One explanation that has been garnering more cognitive and biological  
707 attention is from Dr. Nelson Cowan’s integrated working memory model (Cowan,  
708 1999). In the integrated working memory model there are four key areas in at-  
709 taining new information: [1] a brief sensory store, [2] a long term store, [3] the  
710 focus of attention, [4] and the central executive. Each key area has a separate  
711 function[s] that allows for new information to be “judged” against the existing

712 information. The information that is then held temporarily in a sensory store  
713 to where it is then sent to the long term store to be “directed” by the central  
714 executive which is a metacognitive process that controls and directs where atten-  
715 tion should be placed on the incoming information. There is then a controlled  
716 more conscious action or an automatic action based on the type of incoming in-  
717 formation. Information that is automatic usually is considered habituated to the  
718 memory system and is therefore not a novel stimulus. More focus is given to  
719 information/stimuli that is more novel. In the integrated working memory model  
720 information that is incoming in the brain is often “filtered” through a lens that  
721 is understandable to the individual, novel stimuli. From here the information is  
722 then encoded and stored in long-term memory for reactivation by new stimuli.

723         The integrated working memory model is similar in thought to how indi-  
724 viduals make decisions based on the laws and customs of a society. Johnathan  
725 is a normal member of his community. They participate in a common game in  
726 the park with some friends. Johnathan says an inappropriate joke to one of their  
727 friends. The others overhear and judge, automatically, the content of the joke to  
728 the governed norms of the community. Because this joke is outside the common  
729 norms of the community, the others see Johnathan as violating their moral code.  
730 Johnathan’s friends would then automatically analyze the joke against existing  
731 information and attend to the key features. Like how the central executive guides  
732 and directs attention to the new novel stimuli, the inappropriate joke. Interesting  
733 research has been done with morality and metacognition.

734         Common to research in metacognition and moral reasoning is theory of  
735 mind. A theory of mind is the ability for an individual to attribute or recognize  
736 the inner workings of the mind and differentiate those from the self and others  
737 [citation]. Research in theory of mind has contributed to our understanding of  
738 autism, schizophrenia, and traumatic brain injury (Byom & Mutlu, 2013). An  
739 individual with deficits of theory of mind would for example be unable to attribute

740 signs of happiness on other people, such as a smile or a frown [citation]. In the  
741 case of Johnathan, if they had a theory of mind deficits, they would be unable or  
742 have difficulty in noticing the dissatisfaction of their joke. Research using theory  
743 of mind to investigate social situations such as the example with Jonathan helps  
744 psychologists get a better understanding of how moral judgement works and is  
745 affected by deficits in the cognitive system.

746         As discussed thus far, cognitively, each component contributes and affects  
747 the individual in a multitude of ways. As previously discussed in the section  
748 on risky sexual behaviors, how the individual sees themselves and how they be-  
749 lieve others see them is exceptionally important to their overall cognitive health.  
750 These sexual schemas that each of us create about ourselves is influenced by daily  
751 interactions and prior history, whether sexual. Outside of how the sexual schema  
752 individuals create about themselves affects their later sexual health, it can change  
753 how they see and interact with the world around them.

754         The prior knowledge that individuals have can have a negative effect on  
755 their ability to gain and hold new information. Those with lower prior knowledge  
756 of a given technology often have difficulty in reconstructing the information of a  
757 new product compared to those that have less prior knowledge [Wood & Lynch,  
758 2002]. When people are presented with new information, a new technology, en-  
759 coding of the new information takes place. As that occurs, prior information of  
760 the technology is retrieved, and an inference is made on subsequent information  
761 by comparing the new and old information. This affects the ability to encode the  
762 new information “correctly” and can disrupt later retrieval of the former. Similar  
763 effects are seen when investigating motivational forces. Individuals with prior  
764 knowledge may also have an overconfidence of the information that they already  
765 have and are not as motivated to attend to the information they are learning.

766         Extending the research on prior knowledge and new technology, prior  
767 knowledge and complacency has also been seen with contracting an STI, a virus,

768 or chances of getting pregnant [citations]. The decisional factors that occur cog-  
769 nitively to choose safe sex practices is complex and subject to frequent change.  
770 Many people that are confronted with decisions, such as the mundane choice of  
771 what shoes to wear, base their decisions from using a variety of cognitive methods.  
772 Often, the choice to wear a condom or other safe sex practices is through a risk  
773 heuristic of contracting or transmitting a sexually transmitted infection. With  
774 decisions based on issues of purity, such as sex, one heuristic that is commonly  
775 employed is the affect heuristic. The affect heuristic in judgements of risk is where  
776 the thought or priming of a specific word triggers a quick emotional response to  
777 that stimuli word (Finucane et al., 2000). When presented with words that are  
778 physically harmful such as cigarettes or pesticides, participants rated the words  
779 as too risky and reported negative feelings concerning those stimulus words. Af-  
780 fective considerations of high-risk situations are often put into perspective with  
781 individuals in risky situations.

782         An artifact of how issues such as HIV, Human Immunodeficiency Virus,  
783 discussed in the media and the community that it affects creates a cognitive  
784 problem with individuals judging the likelihood of catching the virus, especially  
785 women. In the media it is often discussed how men who have sex with men  
786 are the main individuals catching and spreading HIV. While HIV still affects the  
787 LGBTQ+ community, the discussion around susceptibility affects other individu-  
788 als outside of the LGBTQ+ community negatively as well. Women, for example,  
789 have a genetically higher susceptibility to the virus [citation]. That being so,  
790 often due to unintended ignorance to their chances are one of the leading groups  
791 contracting new cases of HIV [citation]. Downlow culture as well increases the  
792 chances of contracting the virus. Amongst some men that do not wish to ac-  
793 knowledge their own homosexuality will choose to forgo the condom, implies a  
794 premeditation, and do not necessarily believe they will contract the virus [cita-  
795 tion]. Both examples are contributed by the representation of HIV in the media



796 and the current zeitgeist.

797 Common in all decisions is the difficulty and uncomfortability between  
798 different decisions and opposing situations, is cognitive dissonance (Festinger,  
799 1957). An interesting cognitive dissonant series of thoughts that some males  
800 have is when choosing to wear a condom. Often, there will be the cognition of not  
801 wanting to contract an STI, but also believing that condoms are uncomfortable  
802 (MacPhail & Campbell, 2001). In addition to believing they are uncomfortable  
803 there is an interesting cultural belief amongst some young men that wearing a  
804 condom makes them less of a man (Pleck et al., 1993; Vincent et al., 2016). To  
805 some the main decisional factor in whether to wear a condom is not contracting an  
806 STI or getting pregnant [citation]. While, as noted with perceptions on condoms,  
807 often comfort and how others will see them is the main factor. Sexually active  
808 or those thinking to become sexually active often get their opinions on sexual  
809 activity and safety practices from their peers. Often, the opinions of peers are  
810 more influential than those of the parent[s]. Interestingly, some men believe that  
811 due to the cultural cognition around contraception, discussions and decisions of  
812 contraception is a female decision (Castro-Vázquez, 2000).

### 813 **1.5.1 Aggression and Cognition**

814 Connected to spitefulness, moral judgment, and cognition is human ag-  
815 gression. Traditionally, aggression is differentiated between the outcome or moti-  
816 vation of the incident. Aggression as it is operationally defined is behavior that is  
817 committed by the actor to another with the intent to harm the other (C. A. An-  
818 derson & Bushman, 2002). This is then further differentiated to violence where  
819 violence is the intent to cause severe harm such as death. From aggression re-  
820 search and moral judgment, cognitive neoassociation theory [CNT] was beginning  
821 to become tantamount in research on aggressive behavior.

822 In CNT, similar to the study of disgust association where some research

suggests that inducing the disgust response to smell causes individuals to become more conservative against breaking moral norms (Eskine et al., 2011; Horberg et al., 2009; Laakasuo et al., 2017; Tybur et al., 2009). Important to the present discussion on sexual judgment, research by Laakasuo and colleagues suggest that disgust is only predictive of sexual disgust (2017). From CNT, Anderson and Bushman developed the General Aggression Model [GAM] is a theoretical outline that combines multiple smaller domain specific theories on aggression like CNT (2002). The GAM has processes: inputs, routes, and outcomes of a social situation. The inputs separate into a person and situation centered inputs. The individual then has an internal examination of the person or situation, cognitions like affective processes, availability heuristics, theory of mind evaluations, scripts and schemata [Barnett and Mann (2013); Kahneman and Tversky (1972); scripts and schemata citation]. Appraisal and a decision process are the last step in the GAM, where the individual evaluates the situation based on the inputs and routes. Anderson and Bushman contend that there are two types of outcomes, thoughtful and impulsive actions. Like the affective heuristic, the impulsive action is often fast and does not require as much deliberation. While the thoughtful action requires more time and evaluation of all the possible outcomes.

Scripts and schemata are key components of the GAM. Schema, more broadly than sexual schema, are cognitive compositions or structures that represent objects or ideas interconnected by their features (DiMaggio, 1997). Multiple representations of schema and stereotypical event sequences are labelled as scripts (Abelson, 1981). A classic example of a cognitive script is events surrounding reading the menu at a restaurant (Abelson, 1981). An individual is at a restaurant and needs to order from the menu. However, they lost their reading glasses. As Abelson contends, the reader must infer what is needed in reading a menu, what occurs at a restaurant, and so on. The automatic process of schematic activation begins with certain key features of an object or event being noticed

851 by the individual. For example, recognizing a tree one of the first features that  
852 are noticed that distinguishes a tree are the leaves. From the leaves, the bark is  
853 activated, and so on making up the concept of a tree.

854 Often aggression and discrimination can be understood through the  
855 schematic model. Media and social representations of individuals, especially men  
856 of color, have often made assumptions and portrayed them as violent and crim-  
857 inals. Currently a majority of US adults in a recent Pew Research Center poll  
858 report that race relations are currently worse, Black Americans and people of  
859 color in general report more cases of discrimination, and a majority say Black  
860 Americans in particular are treated unfairly by the police (Pew Research Center,  
861 2019). Aggression or discrimination is often the result of associating one group  
862 with negative connotations. For example, in the case of those that believe Black  
863 Americans are criminals they have through cognitive associations have related  
864 the schematic concept of criminal with the features/schema of what they believe  
865 is a Black American. The discrimination and aggression then occur through the  
866 GAM processes with negative actions being the outcome.

867 Pertinent after the advent of the me-too movement, see section 3, issues of  
868 how these power over views of women, especially women of color and trans women  
869 of color, become learned and develop in sexual aggression. Sexual aggression in  
870 and of itself is a subgroup of aggression where the intent to harm is sexual in  
871 nature (C. A. Anderson & Bushman, 2002; Malamuth et al., 1995). Many of  
872 the targets of sexual aggression are women of color and trans women of color  
873 [citations]. In the reported cases men are often the perpetrators of the crimes  
874 (C. A. Anderson & Bushman, 2002). The aggression itself appears to be domain  
875 specific to one gender, women. Often, acts of sexual aggression are verbal in  
876 nature, such as asking repeatedly for sex or threatening to break up with them  
877 (Testa et al., 2015). When individuals gain power they may aggress more over  
878 those that have less power, which may pay head to the continued sexual aggression

879 and sexual violence against women of color and trans women of color for whom  
880 have historically low levels of power [citations].

881       Recent research by Garnett and Mann investigate the cognitive and em-  
882 pathetic processes of those that commit a sexual aggression or sexual violence,  
883 labeled as sexual offending (2013). Common to research on sexual offenses, re-  
884 search contends that those that do offend do so with a lack of empathy towards  
885 their victims (Marshall et al., 1993). As noted in the previous section on moral  
886 judgment, see section 3, empathetic processing by these offenders are more com-  
887 plex than the simple inability to “feel” or identify the emotions of others. There  
888 is a recurring theme amongst offenders of women being deceitful and sexually en-  
889 titled (Barnett & Mann, 2013; Gannon, 2009). The offenders often feel slighted  
890 when a woman denies their sexual advances which then tends to lead to some  
891 sexual aggression (Gannon, 2009; Williams et al., 2017).

892       The rejection of the sexual advances of the man often damage their sense  
893 of masculinity (Malamuth et al., 1996). Relating back to beliefs on condom  
894 use amongst men, even the request of wearing condom could be interpreted as  
895 damaging their sense of masculinity (Castro-Vázquez, 2000). If the woman, in  
896 a heterosexual relationship, brings the condom they are damaging the males  
897 masculinity but if the male brings the condom he could also be considered a  
898 thoughtful individual. While the woman would be seen as easy. This could  
899 then lead to bullying behavior and ostracization from the moral judgment of the  
900 community on the woman’s purity, see section moral judgment.

### 901 **1.5.2 *Exploratory Experiment***

## 902 **1.6 Method**

### 903 **1.6.1 *Participants***

904       Participants were a convenience sample of 92 (Mage = 26.14, SD = 8.69)  
905 individuals from Prolific Academic crowdsourcing platform (“www.prolific.co”).

906 Requirements for participation were: (1) be 18 years of age or older and (2) and  
907 as part of Prolific Academics policy, have a prolific rating of 90 or above. Par-  
908 ticipants received £4 or £8 an hour as compensation for completing the survey.  
909 Table 1 shows the demographic information for experiment one.

### 910 **1.6.2 Demographic Questionnaire**

911 Prior to the psychometric scales, participants are asked to share their  
912 demographic characteristics (e.g., age, gender, ethnicity, ethnic origin, and edu-  
913 cational attainment).

### 914 **1.6.3 Spitefulness Scale**

915 The Spitefulness scale (D. K. Marcus et al., 2014) is a measure with seven-  
916 teen one-sentence vignettes to assess the spitefulness of participants. The original  
917 spitefulness scale has 31-items. In the original Marcus and colleagues’ paper, fif-  
918 teen were removed. For the present study, however, 4-items were removed because  
919 they did not meet the parameters for the study i.e., needed to be dyadic, more  
920 personal. Three reverse-scored items from the original thirty-one were added af-  
921 ter meeting the requirements. Example questions included, “It might be worth  
922 risking my reputation in order to spread gossip about someone I did not like,” and  
923 “Part of me enjoys seeing the people I do not like to fail even if their failure hurts  
924 me in some way”. Items are scored on a 5-point scale ranging from 1 (“Strongly  
925 disagree”) to 5 (“Strongly agree”). Higher spitefulness scores represent higher  
926 acceptance of spiteful attitudes. Internal consistency reliability for the current  
927 sample is  $\alpha = 0.84$ .

### 928 **1.6.4 Sexuality Self-Esteem Subscale**

929 The Sexuality Self-Esteem subscale (SSES; Snell and Papini (1989)) is a  
930 subset of the Sexuality scale that measures the overall self-esteem of participants.  
931 Due to the nature of the study, the sexuality subscale was chosen from the overall

30-item scale. The 10-items chosen reflected questions on the sexual esteem of participants on a 5-point scale of +2 (Agree) and -2 (Disagree). For ease of online use the scale was changed to 1 (“Disagree”) and 5 (“Agree”), data analysis will follow the sexuality scale scoring procedure. Example questions are, “I am a good sexual partner,” and “I sometimes have doubts about my sexual competence.” Higher scores indicate a higher acceptance of high self-esteem statements. Internal consistency reliability for the current sample is  $\alpha = 0.95$ .

#### **1.6.5 Sexual Jealousy Subscale**

The Sexual Jealousy subscale by Worley and Samp (2014) are 3-items from the 12-item Jealousy scale. The overall jealousy scale measures jealousy in friendships ranging from sexual to companionship. The 3-items are “I would worry about my partner being sexually unfaithful to me.”, “I would suspect there is something going on sexually between my partner and their friend.”, and “I would suspect sexual attraction between my partner and their friend.” The items are scored on a 5-point scale ranging from 1 (“Strongly disagree”) to 5 (“Strongly agree”). Higher scores indicate a tendency to be more sexually jealous. Internal consistency reliability for the current sample is  $\alpha = 0.72$ .

#### **1.6.6 Sexual Relationship Power Scale**

The Sexual Relationship Power Scale (SRPS; Pulerwitz et al. (2000)) is a 23-item scale that measures the overall power distribution in a sexually active relationship. The SRPS is split into the Relationship Control Factor/Subscale (RCF) and the Decision-Making Dominance Factor/Subscale (DMDF). The RCF measures the relationship between the partners on their agreement with statements such as, “If I asked my partner to use a condom, he[they] would get violent.”, and “I feel trapped or stuck in our relationship.” Items from the RCF are scored on a 4-point scale ranging from 1 (“Strongly agree”) to 4 (“Strongly disagree”). Lower scores indicate an imbalance in the relationship where the par-

959 participant indicates they believe they have less control in the relationship. Internal  
960 consistency reliability for the current sample is  $\alpha = 0.87$ .

961 The DMDF measures the dominance level of sexual and social decisions in  
962 the relationship. Example questions include, “Who usually has more say about  
963 whether you have sex?”, and “Who usually has more say about when you talk  
964 about serious things?” Items on the DMDF are scored on a 3-item scale of 1  
965 (“Your Partner”), 2 (“Both of You Equally”), and 3 (“You”). Higher scores indi-  
966 cate more dominance by the participant in the relationship. Internal consistency  
967 reliability for the current sample is  $\alpha = 0.64$ .

### 968 **1.6.7 Scenario Realism Question**

969 Following Worley and Samp in their 2014 paper on using vi-  
970 gnettes/scenarios in psychological studies, a question asking the participant how  
971 realistic or how much they can visualize the scenario is. The 1-item question is  
972 “This type of situation is realistic.” The item is scored on a 5-point scale with how  
973 much the participants agreed with the above statement, 1 (“Strongly agree”) to  
974 5 (“Strongly disagree”). Higher scores indicate disagreement with the statement  
975 and reflect the belief that the scenario is not realistic.

### 976 **1.6.8 Spiteful Vignettes**

977 After participants complete the above scales, they are presented with 10-  
978 hypothetical vignettes. Each vignette was written to reflect a dyadic or triadic  
979 relationship with androgynous names to control for gender. Five vignettes have  
980 a sexual component while five are sexually neutral. An example vignette is,

981 “Casey and Cole have been dating for 6 years. A year ago, they both  
982 moved into a new flat together just outside of the city. Casey had an  
983 affair with Cole’s best-friend. Casey had recently found out that they  
984 had an STI that they had gotten from Cole’s best-friend. Casey and  
985 Cole had sex and later Cole found out they had an STI.”

986 For each vignette, the participant is asked to rate each vignette on how  
987 justified they believe the primary individual, Casey in the above, is with their  
988 spiteful reaction. Scoring ranges from 1 (“Not justified at all”) to 5 (“Being  
989 very justified”). Higher scores overall indicate higher agreement with spiteful  
990 behaviors.

## 991 1.7 Procedure

992 Participants were recruited on Prolific Academic. Participants must be  
993 18-years of age or older, restriction by study design and Prolific Academic’s user  
994 policy. The published study is titled, “Moral Choice and Behavior”. The study  
995 description follows the participant information sheet including participant com-  
996 pensation. Participants were asked to accept their participation in the study.  
997 Participants were then automatically sent to the main survey (Qualtrics, Inc.).

998 Once participants accessed the main survey, they were presented with the  
999 consent form for which to accept they responded by selecting “Yes”. Participants  
1000 were then asked to provide demographic characteristics such as gender, ethnic-  
1001 ity, and educational attainment. Participants would then complete in order, the  
1002 spitefulness scale, the sexual relationship power scale, the sexual jealousy sub-  
1003 scale, and sexuality self-esteem subscale. Next, participants were presented ten  
1004 vignettes where they were instructed to rate on the level of justification for the  
1005 action carried out in the vignette. After each vignette, participants would rate  
1006 the realism of the scenario. Upon completion of the survey (median completion  
1007 time 20 minutes SD = 10 Minutes 30 seconds), participants were shown a de-  
1008 briefing message and shown the contact information of the Primary Investigator  
1009 (Andrew Ithurburn). Participants were then compensated at £8/hr. via Prolific  
1010 Academic.



**Table 1***Participant Demographic Information (Experiment 1)*

Demographic Characteristic	
Age	
Mean (SD)	26.14 (8.69)
Median [Min, Max]	23 [18,60]
Gender	
Female	30 (32.6%)
Male	62 (67.4%)
Ethnic Origin	
Scottish	2 (2.2%)
English	10 (10.9%)
European	69 (75.0%)
Latin American	2 (2.2%)
Asian	5 (5.4%)
Arab	1 (1.1%)
Other	2 (2.2%)
Prefer not to answer	1 (1.1%)
Education	
Primary School	3 (3.3%)
GCSes or Equivalent	8 (8.7%)
A-Levels or Equivalent	32 (34.8%)
University Undergraduate Program	31 (33.7%)
University Post-Graduate Program	17 (18.5%)
Prefer not to answer	1 (1.1%)
Ethnicity	
White	82 (89.1%)
Mixed or Multiple ethnic origins	4 (4.3%)
Asian or Asian Scottish or Asian British	5 (5.4%)
Other ethnic group	1 (1.1%)

## 1011 1.8 Data Analysis

1012 Demographic characteristics were analyzed using a one-way analysis for  
1013 continuous variables (age) and Chi-squares tests for categorical variables (sex,  
1014 ethnicity, ethnic origin, and educational attainment). Means and standard de-  
1015 viations were calculated for the surveys along with correlational analyses (e.g.,  
1016 spitefulness, SESS, SRPS, SJS).

1017 Bayesian multilevel models were used to test differences between levels of  
1018 justifications of vignettes that are either sexually or non-sexually vindictive in  
1019 behavior.

## 1020 1.9 Experiment One

### 1021 1.10 Method

#### 1022 1.10.1 *Participants*

1023 Participants were a convenience sample of 92 ( $M_{age} = 26.14$ ,  $SD = 8.69$ )  
1024 individuals from Prolific Academic crowdsourcing platform (“www.prolific.co”).  
1025 Requirements for participation were: (1) be 18 years of age or older and (2) and  
1026 as part of Prolific Academics policy, have a prolific rating of 90 or above. Par-  
1027 ticipants received £4 or £8 an hour as compensation for completing the survey.  
1028 Table 1 shows the demographic information for experiment one.

#### 1029 1.10.2 *Demographic Questionnaire*

1030 Prior to the psychometric scales, participants are asked to share their  
1031 demographic characteristics (e.g., age, gender, ethnicity, ethnic origin, and edu-  
1032 cational attainment).

#### 1033 1.10.3 *Dominance, Prestige, and Leadership Orientation*

1034 The 18-item Dominance, Prestige, and Leadership scale [DoPL; Suessen-  
1035 bach et al. (2019)], is used to measure dominance, prestige, and leadership orien-

1036 tation. Each question corresponds to one of the three domains. Each domain is  
1037 scored across six unique items related to those domains (e.g., “I relish opportuni-  
1038 ties in which I can lead others” for leadership) rated on a scale from 0 (Strongly  
1039 disagree) to 5 (Strongly agree). Internal consistency reliability for the current  
1040 sample is  $\alpha = 0.85$ .

#### 1041 **1.10.4 Spitefulness Scale**

1042 The Spitefulness scale (D. K. Marcus et al., 2014) is a measure with seven-  
1043 teen one-sentence vignettes to assess the spitefulness of participants. The original  
1044 spitefulness scale has 31-items. In the original Marcus and colleagues’ paper, fif-  
1045 teen were removed. For the present study, however, 4-items were removed because  
1046 they did not meet the parameters for the study i.e., needed to be dyadic, more  
1047 personal. Three reverse-scored items from the original thirty-one were added af-  
1048 ter meeting the requirements. Example questions included, “It might be worth  
1049 risking my reputation in order to spread gossip about someone I did not like,” and  
1050 “Part of me enjoys seeing the people I do not like to fail even if their failure hurts  
1051 me in some way”. Items are scored on a 5-point scale ranging from 1 (“Strongly  
1052 disagree”) to 5 (“Strongly agree”). Higher spitefulness scores represent higher  
1053 acceptance of spiteful attitudes. Internal consistency reliability for the current  
1054 sample is  $\alpha = 0.84$ .

#### 1055 **1.10.5 Sexuality Self-Esteem Subscale**

1056 The Sexuality Self-Esteem subscale (SSES; Snell and Papini (1989)) is a  
1057 subset of the Sexuality scale that measures the overall self-esteem of participants.  
1058 Due to the nature of the study, the sexuality subscale was chosen from the overall  
1059 30-item scale. The 10-items chosen reflected questions on the sexual esteem of  
1060 participants on a 5-point scale of +2 (Agree) and -2 (Disagree). For ease of online  
1061 use the scale was changed to 1 (“Disagree”) and 5 (“Agree”), data analysis will  
1062 follow the sexuality scale scoring procedure. Example questions are, “I am a good

sexual partner,” and “I sometimes have doubts about my sexual competence.”  
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consistency reliability for the current sample is  $\alpha = 0.95$ .

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in friendships ranging from sexual to companionship. The 3-items are “I would  
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is something going on sexually between my partner and their friend.”, and “I  
would suspect sexual attraction between my partner and their friend.” The items  
are scored on a 5-point scale ranging from 1 (“Strongly disagree”) to 5 (“Strongly  
agree”). Higher scores indicate a tendency to be more sexually jealous. Internal  
consistency reliability for the current sample is  $\alpha = 0.72$ .

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The Sexual Relationship Power Scale (SRPS; Pulerwitz et al. (2000)) is  
a 23-item scale that measures the overall power distribution in a sexually active  
relationship. The SRPS is split into the Relationship Control Factor/Subscale  
(RCF) and the Decision-Making Dominance Factor/Subscale (DMDF). The RCF  
measures the relationship between the partners on their agreement with state-  
ments such as, “If I asked my partner to use a condom, he[they] would get vi-  
olent.”, and “I feel trapped or stuck in our relationship.” Items from the RCF  
are scored on a 4-point scale ranging from 1 (“Strongly agree”) to 4 (“Strongly  
disagree”). Lower scores indicate an imbalance in the relationship where the par-  
ticipant indicates they believe they have less control in the relationship. Internal  
consistency reliability for the current sample is  $\alpha = 0.87$ .

The DMDF measures the dominance level of sexual and social decisions in  
the relationship. Example questions include, “Who usually has more say about

1090 whether you have sex?”, and “Who usually has more say about when you talk  
1091 about serious things?” Items on the DMDF are scored on a 3-item scale of 1  
1092 (“Your Partner”), 2 (“Both of You Equally”), and 3 (“You”). Higher scores indi-  
1093 cate more dominance by the participant in the relationship. Internal consistency  
1094 reliability for the current sample is  $\alpha = 0.64$ .

### 1095 **1.10.8 Scenario Realism Question**

1096 Following Worley and Samp in their 2014 paper on using vi-  
1097 gnettes/scenarios in psychological studies, a question asking the participant how  
1098 realistic or how much they can visualize the scenario is. The 1-item question is  
1099 “This type of situation is realistic.” The item is scored on a 5-point scale with how  
1100 much the participants agreed with the above statement, 1 (“Strongly agree”) to  
1101 5 (“Strongly disagree”). Higher scores indicate disagreement with the statement  
1102 and reflect the belief that the scenario is not realistic.

### 1103 **1.10.9 Spiteful Vignettes**

1104 After participants complete the above scales, they are presented with 10-  
1105 hypothetical vignettes. Each vignette was written to reflect a dyadic or triadic  
1106 relationship with androgynous names to control for gender. Five vignettes have  
1107 a sexual component while five are sexually neutral. An example vignette is,

1108 “Casey and Cole have been dating for 6 years. A year ago, they both  
1109 moved into a new flat together just outside of the city. Casey had an  
1110 affair with Cole’s best-friend. Casey had recently found out that they  
1111 had an STI that they had gotten from Cole’s best-friend. Casey and  
1112 Cole had sex and later Cole found out they had an STI.”

1113 For each vignette, the participant is asked to rate each vignette on how  
1114 justified they believe the primary individual, Casey in the above, is with their  
1115 spiteful reaction. Scoring ranges from 1 (“Not justified at all”) to 5 (“Being

1116 very justified”). Higher scores overall indicate higher agreement with spiteful  
1117 behaviors.

## 1118 **1.11 Procedure**

1119 Participants were recruited on Prolific Academic. Participants must be  
1120 18-years of age or older, restriction by study design and Prolific Academic’s user  
1121 policy. The published study is titled, “Moral Choice and Behavior”. The study  
1122 description follows the participant information sheet including participant com-  
1123 pensation. Participants were asked to accept their participation in the study.  
1124 Participants were then automatically sent to the main survey (Qualtrics, Inc.).

1125 Once participants accessed the main survey, they were presented with the  
1126 consent form for which to accept they responded by selecting “Yes”. Participants  
1127 were then asked to provide demographic characteristics such as gender, ethnic-  
1128 ity, and educational attainment. Participants would then complete in order, the  
1129 spitefulness scale, the sexual relationship power scale, the sexual jealousy sub-  
1130 scale, and sexuality self-esteem subscale. Next, participants were presented ten  
1131 vignettes where they were instructed to rate on the level of justification for the  
1132 action carried out in the vignette. After each vignette, participants would rate  
1133 the realism of the scenario. Upon completion of the survey (median completion  
1134 time 20 minutes SD = 10 Minutes 30 seconds), participants were shown a de-  
1135 briefing message and shown the contact information of the Primary Investigator  
1136 (Andrew Ithurburn). Participants were then compensated at £8/hr. via Prolific  
1137 Academic.

## 1138 **1.12 Data Analysis**

1139 Demographic characteristics were analyzed using a one-way analysis for  
1140 continuous variables (age) and Chi-squares tests for categorical variables (sex,  
1141 ethnicity, ethnic origin, and educational attainment). Means and standard de-

**Table 2***Participant Demographic Information (Experiment 1)*

Demographic Characteristic	
Age	
Mean (SD)	26.14 (8.69)
Median [Min, Max]	23 [18,60]
Gender	
Female	30 (32.6%)
Male	62 (67.4%)
Ethnic Origin	
Scottish	2 (2.2%)
English	10 (10.9%)
European	69 (75.0%)
Latin American	2 (2.2%)
Asian	5 (5.4%)
Arab	1 (1.1%)
Other	2 (2.2%)
Prefer not to answer	1 (1.1%)
Education	
Primary School	3 (3.3%)
GCSEs or Equivalent	8 (8.7%)
A-Levels or Equivalent	32 (34.8%)
University Undergraduate Program	31 (33.7%)
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Prefer not to answer	1 (1.1%)
Ethnicity	
White	82 (89.1%)
Mixed or Multiple ethnic origins	4 (4.3%)
Asian or Asian Scottish or Asian British	5 (5.4%)
Other ethnic group	1 (1.1%)

**Table 3***Bayesian Correlation with 95% Credibility Intervals*

	Estimate	Upper CI	Lower CI
SSES * SRPS	-0.40	-0.45	-0.34
SSES * Spite	0.08	0.02	0.14
SRPS * Spite	-0.16	-0.23	-0.10
SSES * SJS	0.23	0.17	0.29
SRPS * SJS	-0.27	-0.33	-0.21
Spite * SJS	0.19	0.12	0.25
SSES * Dominance	-0.20	-0.26	-0.14
SRPS * Dominance	0.07	0.00	0.13
Spite * Dominance	0.50	0.45	0.54
SJS * Dominance	0.25	0.19	0.31
SSES * Prestige	-0.07	-0.13	0.00
SRPS * Prestige	0.27	0.21	0.33
Spite * Prestige	0.06	0.00	0.13
SJS * Prestige	-0.01	-0.08	0.05
Dominance * Prestige	0.19	0.12	0.25
SSES * Leadership	-0.29	-0.35	-0.23
SRPS * Leadership	0.30	0.24	0.36
Spite * Leadership	-0.03	-0.09	0.04
SJS * Leadership	-0.08	-0.15	-0.02
Dominance * Leadership	0.31	0.25	0.36
Prestige * Leadership	0.37	0.31	0.42

1142 viations were calculated for the surveys along with correlational analyses (e.g.,  
1143 spitefulness, SESS, SRPS, SJS).

1144 Bayesian multilevel models were used to test differences between levels of  
1145 justifications of vignettes that are either sexually or non-sexually vindictive in  
1146 behavior.

### 1147 1.13 Results and Discussion

1148 Ninety-Two individuals participated in the present experiment. A major-  
1149 ity of the participants in experiment 1 identified as male ( $n = 62$ ). Table 1 shows  
1150 the demographic information for experiment 1. Table 2 presents the results of  
1151 a Bayesian correlational matrix of all measures. As evidenced in the Bayesian



1152 correlational matrix, most surveys positively correlated with one another.

### 1153 **1.13.1 Spitefulness**

1154 For this analysis we used the Bayesian parameter estimation using R and  
1155 brms (Bürkner, 2018; R Core Team, 2021). An annotated r script file, includ-  
1156 ing all necessary information is available at <https://osf.io/jz6qb>. On average,  
1157 individuals were not rated as being more spiteful, ( $M = 33.92$ ,  $SD = 9.32$ , Min-  
1158 max = [16 - 57]). Justification as a function of the four indices was moderately  
1159 explained by the model ( $R^2 = 0.54$ ). We conducted an exploratory Bayesian  
1160 correlation analysis on the data, where we investigated correlations between 8 of  
1161 the indices (e.g., Spite, Dominance, Prestige, Leadership, Sexual Jealousy, Sexual  
1162 Self-Esteem, and Sexual Relationship Power Scale).

1163 Selected notable non-null correlations were found between Spite and Sex-  
1164 ual Jealousy (95% CI: []), Spite and Dominance (95% CI: []), and Sexual Rela-  
1165 tionship Power and Dominance (95% CI: []). Table 2 contains a complete list of  
1166 all Bayesian correlations.

## 1167 **1.14 Limitations and Future Directions**

## 1168 **1.15 Experiment 2**

## 1169 **1.16 Methods**

1170 Materials remain the same in terms of the (1) Demographic Questionnaire,  
1171 (2) Dominance, Prestige, and Leadership Questionnaire, and (3) DOSPERT  
1172 Questionnaire. However, we added the Brief-Pathological Narcissism Inventory to  
1173 assess possible interactions of dominance and narcissism in risky decision-making.  
1174 Materials and methods were approved by the University of ## Participants

1175 Following experiment 1, participants were a convenience sample of 111  
1176 individuals from Prolific Academic’s crowdsourcing platform ([www.prolific.io](http://www.prolific.io)).  
1177 Prolific Academic is an online crowdsourcing service that provides participants

1178 access to studies hosted on third-party websites. Participants were required to be  
1179 18 years of age or older and be able to read and understand English. Participants  
1180 received £4.00, which is above the current minimum wage pro-rata in the United  
1181 Kingdom, as compensation for completing the survey. The Psychology Research  
1182 Ethics Committee at the University of Edinburgh approved all study procedures  
1183 [ref: 212-2021/2]. The present study was pre-registered along with a copy of  
1184 anonymized data and a copy of the R code is available at (<https://osf.io/s4j7y>).

## 1185 **1.17 Materials**

### 1186 **1.17.1 Brief-Pathological Narcissism Inventory**

1187 The 28 item Brief Pathological Narcissism Inventory (B-PNI; Schoenleber  
1188 et al., 2015) is a modified scale of the original 52-item Pathological Narcissism  
1189 Inventory (PNI; Pincus et al., 2009). Like the PNI the B-PNI is a scale measuring  
1190 individuals' pathological narcissism. Items in the B-PNI retained all 7 patholog-  
1191 ical narcissism facets from the original PNI (e.g., exploitativeness, self-sacrificing  
1192 self-enhancement, grandiose fantasy, contingent self-esteem, hiding the self, de-  
1193 valuing, and entitlement rage). Each item is rated on a 5 point Likert scale  
1194 ranging from 1 (not at all like me) to 5 (very much like me). Example items  
1195 include "I find it easy to manipulate people" and "I can read people like a book."

## 1196 **1.18 Procedure**

1197 Participants were recruited via a study landing page on Prolific's website  
1198 or via a direct e-mail to eligible participants (Prolific Academic, 2018). The study  
1199 landing page included a brief description of the study including any risks and ben-  
1200 efits along with expected compensation for successful completion. Participants  
1201 accepted participation in the experiment and were directed to the main survey  
1202 on pavlovia.org (an online JavaScript hosting website similar to Qualtrics) where  
1203 they were shown a brief message on study consent.

1204 Once participants consented to participate in the experiment they an-  
1205 swered a series of demographic questions. Once completed, participants com-  
1206 pleted the Dominance, Prestige, and Leadership Scale and the Domain Specific  
1207 Risk-taking scale. An additional survey was added (the novel aspect of experi-  
1208 ment 2) where participants, in addition to the two previous surveys, were asked to  
1209 complete the brief-pathological narcissism inventory. The three scales were coun-  
1210 terbalanced to account for order effects. After completion of the main survey,  
1211 participants were shown a debriefing statement that briefly mentions the purpose  
1212 of the experiment along with the contact information of the main researcher (AI).  
1213 Participants were compensated £4.00 via Prolific Academic.

### 1214 **1.19 Data analysis**

1215 Demographic characteristics were analyzed using multiple regression for  
1216 continuous variables (age) and Chi-square tests for categorical variables (gender,  
1217 race, ethnicity, ethnic origin, and education). Means and standard deviations  
1218 were calculated for the relevant scales (i.e., DoPL and DOSPERT). All analyses  
1219 were done using (R Core Team, 2021) along with (Bürkner, 2017) package.

1220 The use of bayesian statistics has a multitude of benefits to statistical  
1221 analysis and research design. One important benefit is through the use of prior  
1222 data in future analyses. Termed as priors, is the use of prior distributions for  
1223 future analysis. This allows for the separation of how the data might have been  
1224 collected or what the intention was. In essence, the data is the data without the  
1225 interpretation of the scientist.

1226 All relevant analyses were conducted in a Bayesian framework using the  
1227 brms package (Bürkner, 2018) along with the cmdstanr packages notes (Gabry &  
1228 Cesnovar, 2021). In addition to the aforementioned packages, we used bayestestR,  
1229 rstan, and papaja for analysis along with the creation of this manuscript (Aust  
1230 & Barth, 2020; Makowski et al., 2019; Stan Development Team, 2020).

1231	<b>1.20</b>	<b>Results</b>
1232	<b>1.21</b>	<b>Preregistered Analyses</b>
1233	<b>1.21.1</b>	<b>Demographic and DoPL</b>
1234	<b>1.22</b>	<b>Domain-Specific Risk-Taking</b>
1235	<b>1.23</b>	<b>Interactions</b>
1236	<b>1.24</b>	<b>Discussion</b>
1237	<b>1.25</b>	<b>Limitations</b>
1238	<b>1.26</b>	<b>Future Implications</b>

**Table 4**

	Parameter	CI	CI_low	CI_high
8	b_Intercept	0.95	0.74	3.27
18	b_Spite_z	0.95	0.06	0.24
5	b_Dominance_z:ContentSexual	0.95	0.01	0.28

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

### 2.1 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 individ-

1261 uals in power sought power or were bestowed upon them. Often these dominant  
1262 individuals will wield their power with force and potentially cause risk to them-  
1263 selves to hold onto that power. @

### 1264 **2.1.1 Dominance**

1265 The dominance motive is one of the more researched methods and well-  
1266 depicted power motives. Individuals with a dominant orientation display the  
1267 more primal of human behavior. These individuals will seek power through di-  
1268 rect methods such as asserting dominance, control over resources, or physically  
1269 assaulting someone (M. W. Johnson & Bruner, 2012; Winter, 1993). Early re-  
1270 search in dominance motives has shown that acts of dominance ranging from  
1271 asserting physical dominance over another to physical displays of violence have  
1272 been shown in many mammalian species, including humans (Petersen et al., 2018;  
1273 Rosenthal et al., 2012).

1274 Individuals high in dominance are often high in Machiavellianism, and  
1275 narcissism, and often are prone to risky behavior (discussion further in the next  
1276 section). Continued research has hinted at a possible tendency for males to dis-  
1277 play these dominant seeking traits more than females (Bareket & Shnabel, 2020;  
1278 Sidanius et al., 2000). When high dominance individuals assert themselves they  
1279 are doing so to increase their sense of power (C. Anderson et al., 2012; Bierst-  
1280 edt, 1950). Asserting one's sense of dominance over another can be a dangerous  
1281 task. In the animal kingdom, it can often lead to injury. While, humans asserting  
1282 dominance can take a multitude of actions such as leering behaviors, physical dis-  
1283 tance, or other non-verbal methods to display dominance (Petersen et al., 2018;  
1284 Witkower et al., 2020). Power from a dominant perspective is not always be-  
1285 stowed upon someone. Often, high dominance individuals will take control and  
1286 hold onto it.

## 1287 2.1.2 Prestige

1288 Contrary to the dominant motivation of using intimidation and aggression  
1289 to gain more power, a prestige motivation or prestige, in general, is bestowed  
1290 upon an individual from others in the community (Maner & Case, 2016;  
1291 Suessenbach et al., 2019). Different from the dominance motivation, a prestige  
1292 motivation is generally unique to the human species (Maner & Case, 2016).  
1293 Due in part to ancestral human groups being smaller hunter-gatherer societies,  
1294 individuals that displayed and used important behaviors beneficial to the larger  
1295 group were often valued and admired by the group. Therein, the social group  
1296 bestows the authority onto the individual. Generally, this type of behavior  
1297 can be passively achieved by the prestigious individual. However, this does  
1298 not remove the intent of the actor in that they too can see prestige from the  
1299 group, but the method of achieving that social status greatly differs from that of  
1300 dominance-seeking individuals.

1301

1302 Apart from dominance-motivated individuals that continually have to fight  
1303 for their right to have power over others, individuals that seek or were given  
1304 power through a prestige motivation are not generally challenged in the same  
1305 sense as dominant individuals. Displaying behaviors that the community would  
1306 see as beneficial would endear them to the community making the survival of the  
1307 community as a whole better (Maner & Case, 2016). Evolutionarily this would  
1308 increase the viability of the prestigious individual and their genes. Similar to  
1309 the dominance perspective, the prestige perspective overall increases the power  
1310 and future survivability of the individual. However, due to the natural difference  
1311 between prestige and dominance, dominance-seeking individuals are challenged  
1312 more often resulting in more danger to their position (M. W. Johnson & Bruner,  
1313 2012).

### 1314 **2.1.3 Leadership**

1315         With a shared goal a leader is someone that takes initiative and attracts  
1316 followers for that shared goal (Van Vugt, 2006). Leadership is an interesting  
1317 aspect of behavior in that it is almost exclusive to human interaction. Dis-  
1318 cussions by evolutionary psychologists point to the formation of early human  
1319 hunter-gatherer groups where the close interconnectedness created a breeding  
1320 ground for leadership roles. As early humans began to evolve it would become  
1321 advantageous for individuals to work together for a common goal (King et  
1322 al., 2009). Often, individuals with more knowledge of a given problem would  
1323 demonstrate leadership and take charge or be given power. Multiple explanations  
1324 of the evolution of leadership exist such as coordination strategies, and safety,  
1325 along with evidence for growth in social intelligence in humans (King et al.,  
1326 2009; Van Vugt, 2006).

1327

1328         An interesting aspect of leadership motivation is the verification of the  
1329 qualities of the leader by the communities. Individuals that are often put into  
1330 leadership roles or take a leadership role often display the necessary goals, qual-  
1331 ities, and knowledge to accomplish the shared/stated goal. However, this is not  
1332 always the case, especially for those charismatic leaders who could stay on as a  
1333 leader longer than the stated goal requires (Vugt & Ronay, 2014). Traditionally,  
1334 leadership was thought to be fluid in that those with the necessary knowledge at  
1335 the time would be judged and appointed as the leader. However, these charis-  
1336 matic leaders use their charisma, uniqueness, nerve, and talent to hold onto their  
1337 status.

## 1338 **2.2 Risk**

1339         Every time people leave the relative safety of their home, every decision  
1340 they make they are taking some form of risk. Financial risk is often discussed



1341 in the media usually concerning the stock market. However, the risk is not  
1342 just present in finances but also in social interactions such as social risk, sexual  
1343 risk, health, and safety risk, recreational, and ethical risks (Breakwell, 2007;  
1344 Kühberger & Tanner, 2009; Shearer et al., 2005; Weber et al., 2002). Each  
1345 individual is different in their likelihood and perception of participating in those  
1346 risks. Some will be more inclined to be more financially risky while others would  
1347 risk their health and safety.

1348

1349 Whether to engage in a risky situation is very complex depending on a  
1350 cost-benefit analysis (P. S. Johnson et al., 2015). Do the positives outweigh  
1351 the negatives? In practice, not all individuals will do a cost-benefit analysis of  
1352 a risky situation. Often, the timing of an event makes such an analysis dis-  
1353 advantageous. The benefits are often relative to the individual decision-maker.  
1354 Differences emerge in the general likelihood to engage in risky behavior such that  
1355 males tend to be more likely to engage in risky behaviors than their female coun-  
1356 terparts (Chen & John, 2021; Desiderato & Crawford, 1995). Women tended to  
1357 avoid risky situations except for social risks.

## 1358 **2.3 The Present Studies**

1359 The present study sought to further our understanding of dominance, pres-  
1360 tige, and leadership motivations in human decision-making. Furthering this, we  
1361 seek to bridge the connection between risk-taking behaviors, from diverse do-  
1362 mains, and the dominance, prestige, and leadership orientations. Following the  
1363 literature, we predicted that participants that were high in dominance orientation  
1364 would be more likely to not only engage in risky behaviors but praise the ben-  
1365 efits of participating in those behaviors. Individuals with prestige or leadership  
1366 orientation.

## 3 Experiment 1

### 3.1 Methods

Participants were a convenience sample of 111 individuals from Prolific Academic’s crowdsourcing platform ([www.prolific.io](http://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. Participants received £4.00, 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: 212-2021/1]. The present study was pre-registered along with a copy of anonymized data along with a copy of the R code and supplemental materials are available at (<https://osf.io/s4j7y>).

### 3.2 Materials

#### 3.2.1 Demographic Questionnaire

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

#### 3.2.2 Dominance, Prestige, and Leadership Orientation

The 18-item Dominance, Prestige, and Leadership scale, DoPL (Suessenbach et al., 2019), is used to measure dominance, prestige, and leadership orientation. Each question corresponds to one of the three domains. Each domain is scored across six unique items related to those domains (e.g., “I relish opportunities in which I can lead others” for leadership) and rated on a scale from 0 (Strongly disagree) to 5 (Strongly agree). Included in this scale are 15 masking

1393 questions obtained from the unified motives scale (Schönbrodt & Gerstenberg,  
1394 2012) consistency reliability for the current sample is  $\alpha = 0.86$ .

### 1395 **3.2.3 Domain Specific Risk-taking Scale**

1396 The 40-item Domain-Specific Risk-taking Scale, DOSPERT (Weber et al.,  
1397 2002) is a scale assessing individuals' likelihood of engaging in risky behaviors  
1398 within 5 domain-specific risky situations: financial ("Gambling a week's income  
1399 at a casino."), social ("Admitting that your tastes are different from those of your  
1400 friends"), recreational ("Trying out bungee jumping at least once"), health and  
1401 safety ("Engaging in unprotected sex"), and ethical ("Cheating on an exam")  
1402 situations. Each risky situation is then rated on a five-point Likert scale (1 being  
1403 very unlikely and 5 being very likely). Two additional five-point Likert scales  
1404 assess risk perception and expected benefits (1 being not at all risky and 5 being  
1405 extremely risky; 1 being no benefits at all and 5 being great benefits) respectively.  
1406 Example risky situations are "Admitting that your tastes are different from those  
1407 of a friend" and "Drinking heavily at a social function." Internal consistency  
1408 reliability for the current samples for the 3 sub-domains are  $\alpha = 0.85$ ,  $\alpha = 0.90$ ,  
1409  $\alpha = 0.92$  respectively.

## 1410 **3.3 Procedure**

1411 Participants were recruited via a study landing page on Prolific's web-  
1412 site or via a direct e-mail to eligible participants (Prolific Academic, 2018). The  
1413 study landing page included a brief description of the study including any risks  
1414 and benefits along with expected compensation for successful completion. Par-  
1415 ticipants accepted participation in the experiment and were directed to the main  
1416 survey (Qualtrics, Inc; Provo, UT) where they were shown a brief message on  
1417 study consent.

1418 Once participants consented to participate in the experiment they an-  
1419 swered a series of demographic questions. Once completed, participants com-

1420 pleted the Dominance, Prestige, and Leadership Scale and the Domain Specific  
1421 Risk-taking scale. The two scales were counterbalanced to account for order ef-  
1422 fects. After completion of the main survey, participants were shown a debriefing  
1423 statement that briefly mentions the purpose of the experiment along with the  
1424 contact information of the main researcher (AI). Participants were compensated  
1425 £4.00 via Prolific Academic.

### 1426 **3.4 Data analysis**

1427 Demographic characteristics were analyzed using multiple regression for  
1428 continuous variables (age) and Chi-square tests for categorical variables (gender,  
1429 race, ethnicity, ethnic origin, and education). Means and standard deviations  
1430 were calculated for the relevant scales (i.e., DoPL and DOSPERT). All analyses  
1431 were done using (R Core Team, 2021) along with the (Bürkner, 2017) package.

1432 The use of bayesian statistics has a multitude of benefits to statistical anal-  
1433 ysis and research design. One important benefit is the use of prior data in future  
1434 analyses. Termed as priors, is the use of prior distributions for future analysis.  
1435 This allows for the separation of how the data might have been collected or what  
1436 the intention was. In essence, the data is the data without the interpretation of  
1437 the scientist.

1438 All relevant analyses were conducted in a Bayesian framework using the  
1439 brms package (Bürkner, 2018) along with the cmdstanr packages notes (Gabry &  
1440 Cesnovar, 2021). In addition to the aforementioned packages, we used bayestestR,  
1441 rstan, and papaja (Aust & Barth, 2020; Makowski et al., 2019; Stan Development  
1442 Team, 2020).

### 1443 **3.5 Results**

1444 One hundred and eleven individuals completed the main survey. Of these  
1445 individuals, 111 completed all sections without incomplete data and were there-  
1446 fore retained in most data analyses. In later analyses to account for outliers, two

1447 participants had to be excluded from the dataset. Table 1 shows the demographic  
 1448 information for the participants. The average completion time for participants  
 1449 was 20M 58s ( $SD = 10M\ 43s$ ).

### 1450 **3.5.1 Preregistered Analyses**

1451 We first investigated DoPL orientation on general risk preference (Figure  
 1452 1). General risk preference was anecdotally explained by dominance orientation,  
 1453 participant gender, and participant age (see table 2).

1454 **3.5.1.1 Demographic and DoPL.** All participants completed the  
 1455 dominance, leadership, and prestige scale (Suessenbach et al., 2019). Empirically,  
 1456 men have generally been more dominance-oriented in their behavior (Rosenthal  
 1457 et al., 2012). Following the literature, men tended to be more dominance ori-  
 1458 entated than women. The marginal posterior distribution of each parameter  
 1459 is summarized in Table #. Interestingly, older individuals tended to be more  
 1460 dominance-oriented than younger individuals.

1461 **3.5.1.2 General Risk and DoPL.** Further investigations, as pre-  
 1462 viously mentioned investigated DoPL’s interactions with general risk preference.  
 1463 As stated, domianance appears to be the strongest predictor of general risk pref-  
 1464 erence (95% CI  $b = 3$ , [1.07, 4.9]). Overall, younger individuals tended to have a  
 1465 stronger preference for risk (95% CI  $b = -2.85$ , [-4.76, -0.95]). Those that tended  
 1466 to be lower in leadership orientation had a tendency to be generally more risk  
 1467 averse than their counterparts (95% CI  $b = -1.91$ , [-3.82, -0.02]). Following the  
 1468 literature as well, dominant men tended to prefer risk moreso those than women  
 1469 (95% CI  $b = -3.02$ , [-4.97, -1.06]).

### 1470 **3.5.2 Domain-Specific Risk-Taking**

1471 As predicted individuals that identified as male were more likely to endorse  
 1472 risk-taking behaviors, namely ethical, social, financial, and recreational domains  
 1473 (see fig. ##).

### 1474 **3.5.3 Interactions**

1475 When investigating dominance, prestige, and leadership motivations with  
1476 domain-specific risk-taking findings supported the common expectations in the  
1477 literature. Table 5 shows the interactions with like CI values. Dominance overall  
1478 explained the relationship between DoPL orientation and preference, specifically  
1479 for ethical, financial, social, health and safety, and recreational preferences (95%  
1480 CI  $b = 1.15$ ,  $[0.61, 1.71]$ ,  $b = 0.87$ ,  $[0.13, 1.58]$ ,  $b = 1.81$ ,  $[0.64, 2.94]$ ,  $b =$   
1481  $1.09$ ,  $[0.41, 1.77]$ , and  $b = 1.22$ ,  $[0.67, 1.76]$ ) respectively. Full interactions can be  
1482 found in table 4. Participant age and gender also appeared to affect recreational  
1483 preference (95% CI  $b = -1.14$ ,  $[-1.83, -0.47]$ ,  $b = 0.46$ ,  $[0.05, 0.86]$ ) respectively.

1484 Following these findings, we investigated the effect of DoPL on general  
1485 risk preference and found that dominance overall predicted risk preference along  
1486 with gender and age of the participant (Table 5).

### 1487 **3.5.4 DOSPERT Sub-categorizations**

1488 Risk preferences is generally made up of benefits and perceptions of risk.  
1489 Outside of perceptions and benefits, dominance and males who are dominance  
1490 oriented were the strongest predictors of likelihood in engaging in a risky situation  
1491 (95% CI  $b = 0.65$ ,  $[0.36, 0.95]$  and  $b = -0.48$ ,  $[-0.85, -0.11]$ ). Dominance also  
1492 appeared to be a strong predictor of perceiving more benefits of engaging in a  
1493 risky situation (95% CI  $b = 0.38$ ,  $[0.07, 0.71]$ ) along with gender where males are  
1494 more likely to perceive benefits (95% CI  $b = -0.6$ ,  $[-0.98, -0.22]$ ).

1495 Alternatiively, prestige appeared to be a stronger predictor of perceiving  
1496 risks than others along with female participants and female participants that are  
1497 higher in leadership orientation (95% CI  $b = 0.31$ ,  $[0.01, 0.61]$ ,  $b = 0.43$ ,  $[0.05,$   
1498  $0.8]$ , and  $b = 0.43$ ,  $[0.03, 0.82]$ ). Full predictors can be seen in table 5.

1500 **4 Experiment 2**1501 **4.1 Methods**

1502 Materials remain the same in terms of the (1) Demographic Questionnaire,  
1503 (2) Dominance, Prestige, and Leadership Questionnaire, and (3) DOSPERT  
1504 Questionnaire. However, we added the Brief-Pathological Narcissism Inventory to  
1505 assess possible interactions of dominance and narcissism in risky decision-making.

1506 **4.2 Participants**

1507 Following experiment 1, participants were a convenience sample of 279  
1508 individuals from Prolific Academic’s crowdsourcing platform ([www.prolific.io](http://www.prolific.io)).  
1509 Prolific Academic is an online crowdsourcing service that provides participants  
1510 access to studies hosted on third-party websites. Participants were required to  
1511 be 18 years of age or older and be able to read and understand English. In  
1512 addition, similar to participant demographics in experiment 1, participants were  
1513 majority white along with having a university undergraduate degree. Participants  
1514 received £3.00, which is above the current minimum wage pro-rata in the United  
1515 Kingdom, as compensation for completing the survey. The Psychology Research  
1516 Ethics Committee at the University of Edinburgh approved all study procedures  
1517 [ref: 212-2021/2]. The present study was pre-registered along with a copy of  
1518 anonymized data and a copy of the R code is available at (<https://osf.io/s4j7y>).

1519 **4.3 Materials**1520 **4.3.1 Brief-Pathological Narcissism Inventory**

1521 The 28-item Brief Pathological Narcissism Inventory (B-PNI; Schoenleber  
1522 et al. (2015)) is a modified scale of the original 52-item Pathological Narcissism  
1523 Inventory (PNI; Pincus et al. (2009)). Like the PNI, the B-PNI is a scale mea-

1524 suring individuals' pathological narcissism. Items in the B-PNI retained all 7  
1525 pathological narcissism facets from the original PNI (e.g., exploitativeness, self-  
1526 sacrificing self-enhancement, grandiose fantasy, contingent self-esteem, hiding the  
1527 self, devaluing, and entitlement rage). Each item is rated on a 5-point Likert scale  
1528 ranging from 1 (not at all like me) to 5 (very much like me). Example items in-  
1529 clude "I find it easy to manipulate people" and "I can read people like a book."  
1530 B-PNI was well correlated within itself 0.90 along with strong internal consis-  
1531 tency within the sub-domains of pathological narcissism, i.e., Grandiosity (0.79)  
1532 and Vulnerability (0.89).

#### 1533 4.4 Procedure

1534 Participants were recruited via a study landing page on Prolific's website  
1535 or via a direct e-mail to eligible participants (Prolific Academic, 2018). The study  
1536 landing page included a brief description of the study including any risks and ben-  
1537 efits along with expected compensation for successful completion. Participants  
1538 accepted participation in the experiment and were directed to the main survey  
1539 on pavlovia.org (an online JavaScript hosting website similar to Qualtrics) where  
1540 they were shown a brief message on study consent.

1541 Once participants consented to participate in the experiment they an-  
1542 swered a series of demographic questions. Once completed, participants com-  
1543 pleted the Dominance, Prestige, and Leadership Scale and the Domain Specific  
1544 Risk-taking scale. An additional survey was added (the novel aspect of experi-  
1545 ment 2) where participants, in addition to the two previous surveys, were asked to  
1546 complete the brief-pathological narcissism inventory. The three scales were coun-  
1547 terbalanced to account for order effects. After completion of the main survey,  
1548 participants were shown a debriefing statement that briefly mentions the purpose  
1549 of the experiment along with the contact information of the main researcher (AI).  
1550 Participants were compensated £3.00 via Prolific Academic.



## 1551 4.5 Data analysis

1552 Demographic characteristics were analyzed using multiple regression for  
1553 continuous variables (age) and Chi-square tests for categorical variables (gender,  
1554 race, ethnicity, ethnic origin, and education). Means and standard deviations  
1555 were calculated for the relevant scales (i.e., DoPL and DOSPERT). All analyses  
1556 were done using (R Core Team, 2021) along with the (Bürkner, 2017) package.

1557 The use of bayesian statistics has a multitude of benefits to statistical anal-  
1558 ysis and research design. One important benefit is the use of prior data in future  
1559 analyses. Termed as priors, is the use of prior distributions for future analysis.  
1560 This allows for the separation of how the data might have been collected or what  
1561 the intention was. In essence, the data is the data without the interpretation of  
1562 the scientist.

1563 All relevant analyses were conducted in a Bayesian framework using the  
1564 brms package (Bürkner, 2018) along with the cmdstanr packages notes (Gabry &  
1565 Cesnovar, 2021). In addition to the aforementioned packages, we used bayestestR,  
1566 rstan, and papaja for analysis along with the creation of this manuscript (Aust  
1567 & Barth, 2020; Makowski et al., 2019; Stan Development Team, 2020).

## 1568 4.6 Results and Discussion

1569 Two hundred and eighty-nine individuals participated in the present ex-  
1570 periment. Of those 54% identified as male ( $n = 155$ ). Table 3 shows the demo-  
1571 graphic information for Experiment 2. Furthering, table 4 illustrates a Bayesian  
1572 correlational matrix of all the measures wherein content-based similar measures  
1573 illustrated positive and negative correlations consistent with expectations.

1574 In general, male participants were more likely to endorse dominance-  
1575 oriented statements, (95% CI  $b = 0.27$ , [0.03, 0.51]). Along with younger in-  
1576 dividuals tending to also endorse dominant-oriented statements, (95% CI  $b =$   
1577  $-0.02$ , [-0.03, 0]).

#### 1578 **4.6.1 Preregistered Analyses**

1579 **4.6.1.1 Dominance.** Following the previous basic results, we be-  
1580 gan our pre-regisetered analysis found in the pre-registration found on OSF.io.  
1581 Dominance-oriented individual was a strong predictor of multiple domains of risk-  
1582 taking. Namely, participants that have a preference for both financial and social  
1583 risk-taking, (95% CI  $b = -0.19, [-0.22, -0.16]$ ) and (95% CI  $b = -0.08, [-0.38,$   
1584  $0.21]$ ) respectively. Investigating gender differences and found that males with a  
1585 preference for financial risk-taking were more likely to endorse dominant-oriented  
1586 statements, (95% CI  $b = 0.1, [0.02, 0.18]$ ).

1587 **4.6.1.2 Prestige.** Differentiating between DoPL domains, males  
1588 with a preference for social risk-taking were more likely to endorse prestige-  
1589 oriented statements along with individuals with a general preference for social  
1590 risk-taking, (95% CI  $b = 0.31, [0.22, 0.4]$ ) and (95% CI  $b = -0.25, [-0.28, -0.22]$ ) re-  
1591 spectively. Additionally, younger individuals tended to endorse prestige-oriented  
1592 statements, (95% CI  $b = -0.02, [-0.03, -0.01]$ ).

1593 **4.6.1.3 Leadership.** Finally, leadership orientation follows a similar  
1594 trend seen with dominance and prestige orientations. Males with a preference for  
1595 social risk-taking were more likely to endorse leadership-oriented statements along  
1596 with individuals with a less of a preference for recreational risk-taking endorsing  
1597 leadership-oriented statements , (95% CI  $b = 0.3, [0.18, 0.42]$ ) and (95% CI  $b =$   
1598  $-0.15, [-0.27, -0.03]$ ) respectively.

#### 1599 **4.6.2 Brief-Pathological Narcissism Inventory**

1600 We furthered our analyses, as seen in the pre-registration found on OSF.io  
1601 by investigating pathological narcissism and its components through the Brief-  
1602 Pathological Narcissism Inventory (B-PNI). Preliminary investigations of patho-  
1603 logical narcissism in our sample show that younger individuals on average tended  
1604 to present more narcissistic opinions (95% CI  $b = -0.02, [-0.03, -0.01]$ ). The

1605 B-PNI further differentiates between grandiose and vulnerability. Interestingly,  
1606 women tended to present more vulnerable narcissism traits than men (95% CI  
1607  $b = -0.24, [-0.45, -0.03]$ ). Younger individuals tended to present more grandiose  
1608 narcissism traits (95% CI  $b = -0.01, [-0.02, 0]$ ). This same tendency for younger  
1609 individuals was seen with vulnerable narcissism traits (95% CI  $b = -0.02, [-0.03,$   
1610  $-0.01]$ ).

1611 Grandiose narcissism is then separated further into grandiose fantasy, ex-  
1612 ploitativeness, and self-sacrificing and self-enhancement. Selected findings are  
1613 males tend to demonstrate more exploitativeness and younger individuals tended  
1614 to present more exploitative and grandiose narcissism (95% CI  $b = -0.01, [-0.03,$   
1615  $0]$  and (95% CI  $b = -0.02, [-0.03, -0.01]$ ) respectively. Further analysis is shown  
1616 in table 5.

#### 1617 **4.6.3 Risk and interactions**

1618 Overall, anecdotally dominance appears to explain the overall individual  
1619 perceptions, benefits, and likelihood of risk judgments (95% CI  $b = -0.25, [-0.38,$   
1620  $-0.11]$ ), (95% CI  $b = 0.22, [0.09, 0.35]$ ), and (95% CI  $b = 0.27, [0.13, 0.4]$ ) re-  
1621 spectively. Similarly, when looking at further sub-categorizations of general risk  
1622 preferences there does appear to be mainly a bias with regards to age, where  
1623 younger individuals overall have a higher risk preference than their older coun-  
1624 terparts.

#### 1625 **4.6.4 Domain-Specific Risk-Taking**

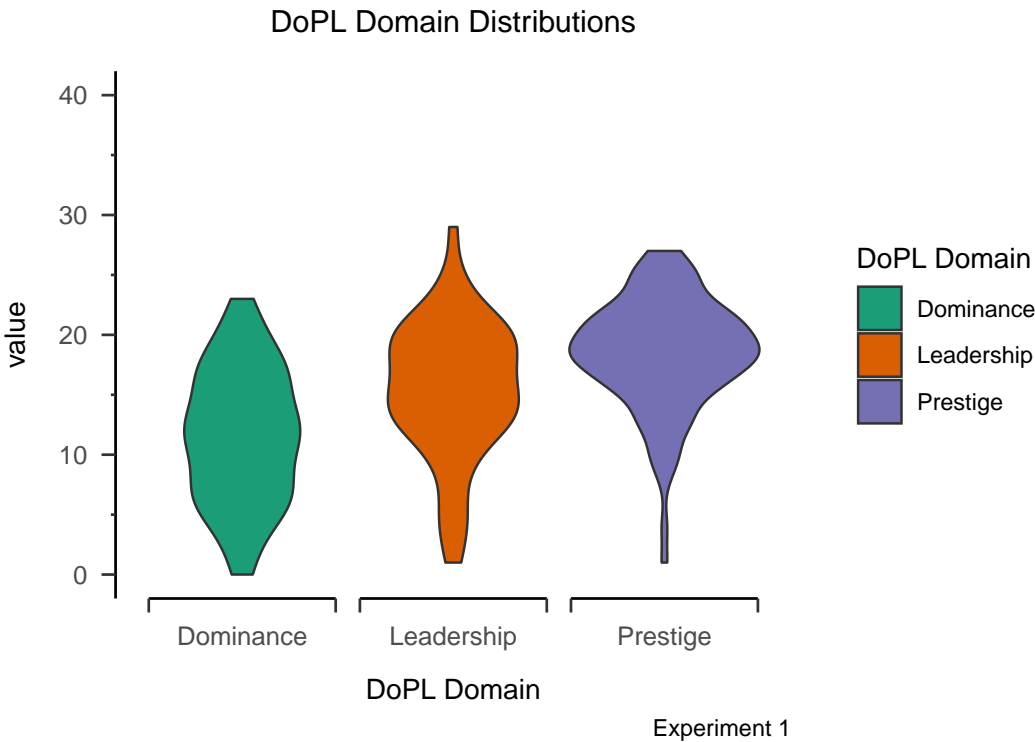
1626 Looking at Domain Specific Risk-taking, we analyzed DOSPERT similarly  
1627 to previous analyses. Overall, domain-specific risk-taking was explained by dom-  
1628 inance orientation along with prestige and leadership. Interesting interactions  
1629 were present with individual domains for narcissism as well.

1630 Overall, Age was an effective predictor for both grandiose and vulnerable  
1631 narcissism with younger individuals tending towards being more narcissitic for

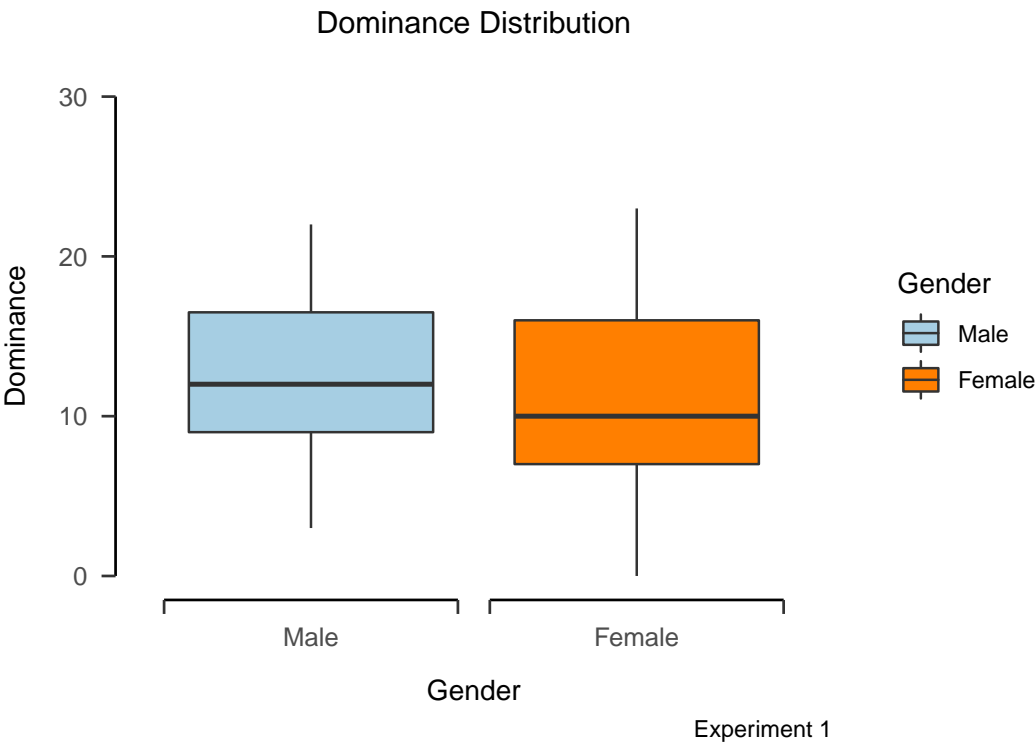
1632 both grandiose and vulnerable traits (95% CI  $b = -0.02, [-0.03, 0]$ ), and (95% CI  
1633  $b = -0.03, [-0.04, -0.02]$ ) respectively. Preferences for financial and males with a  
1634 recreational risk preference tended to express more vulnerable narcissism traits  
1635 (95% CI  $b = -0.27, [-0.47, -0.06]$ ) and (95% CI  $b = -0.04, [-0.28, 0.21]$ ) respectively.

#### 1636 **4.6.5 Interactions**

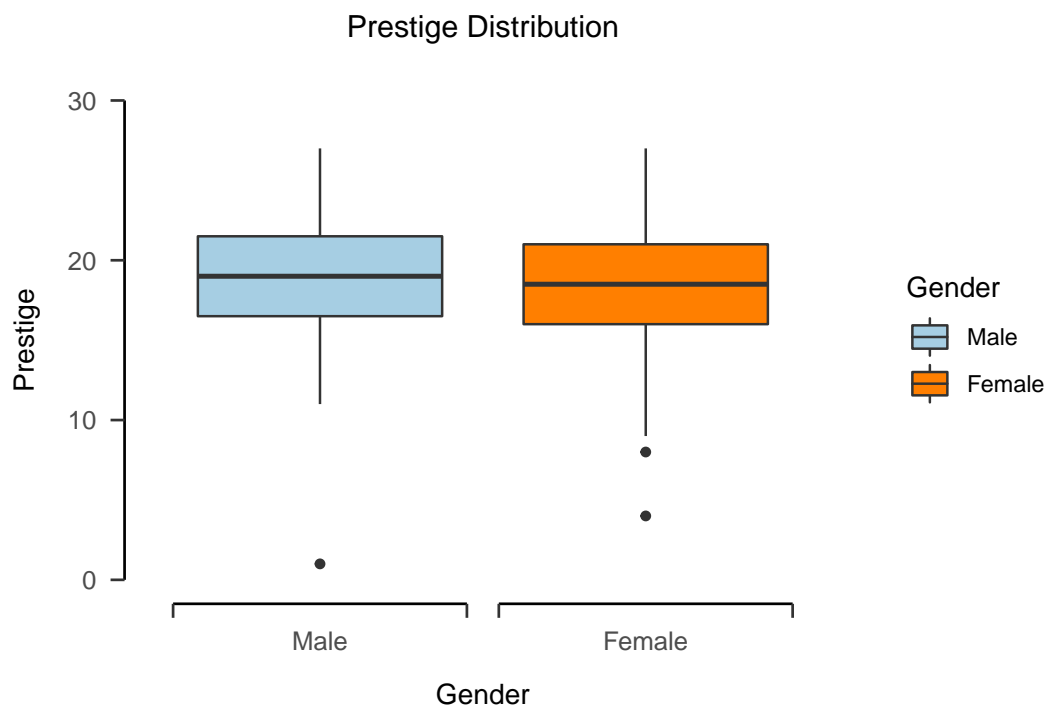
1638 5.1 Figures



1639

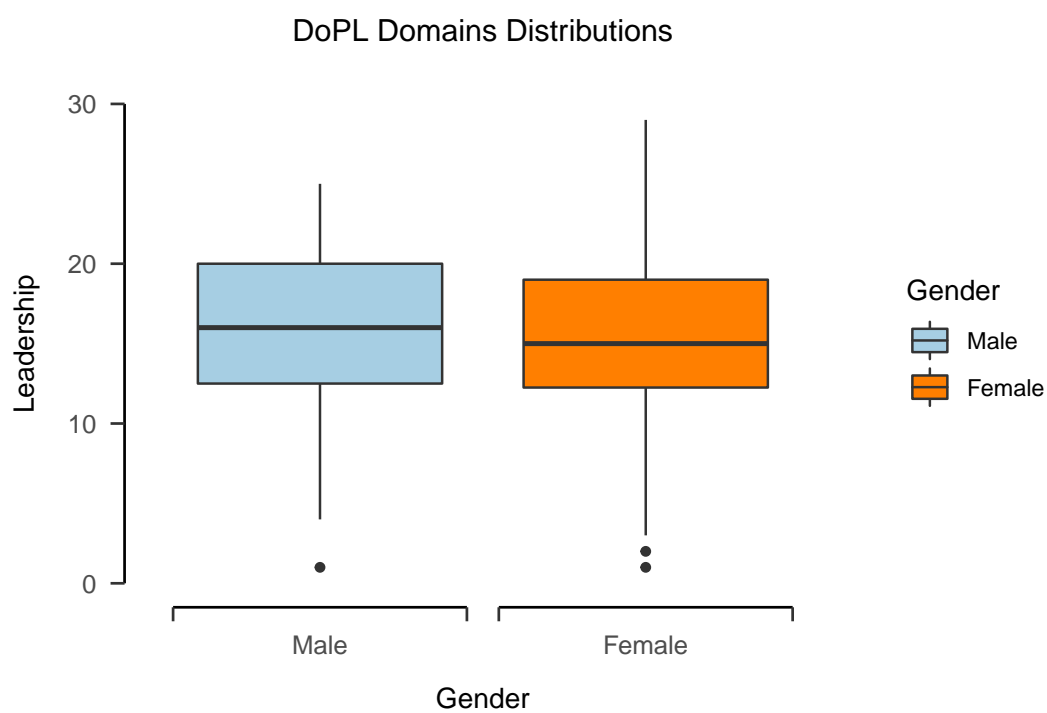


1640



Experiment 1

1641

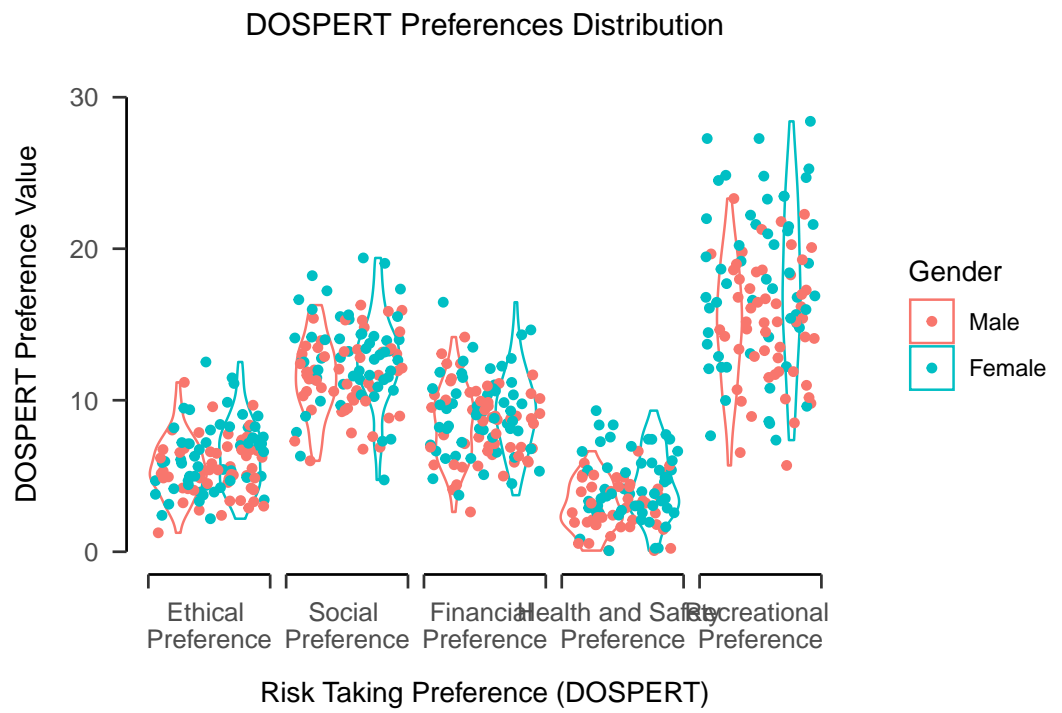


Experiment 1

1642

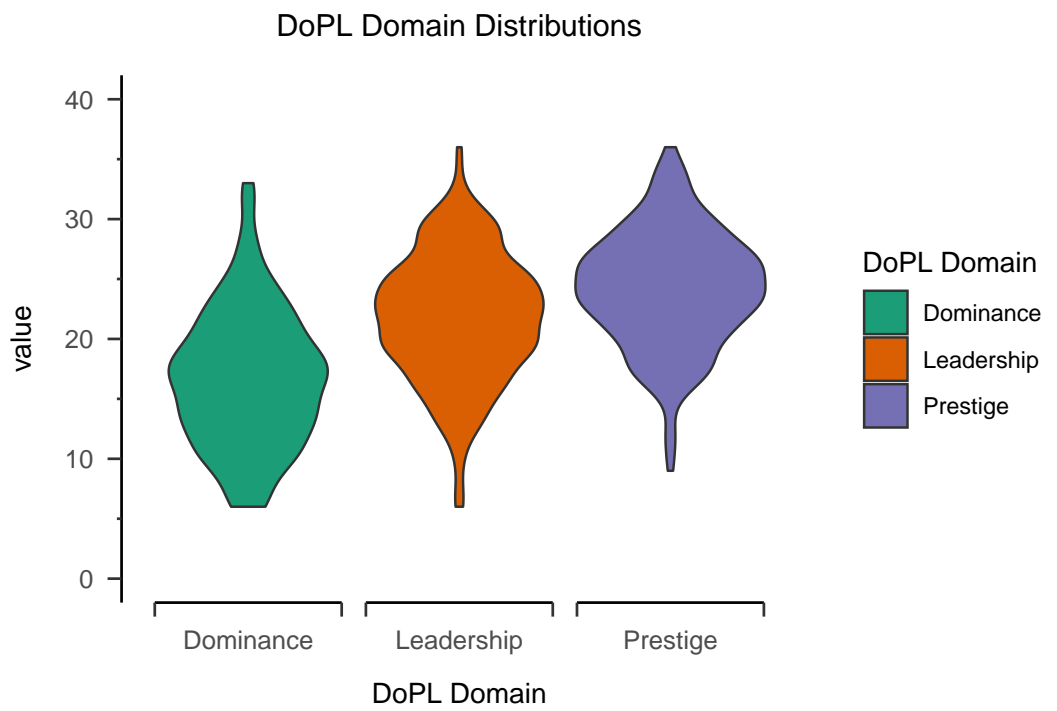
1643 `## Warning: Removed 8 rows containing non-finite values (stat_ydensity).`

1644 `## Warning: Removed 8 rows containing missing values (geom_point).`



Experiment 1

1645



Experiment 2

1646

**Table 5**

*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%)

**6 Chapter 3:**

1649 **6.1 Experiment 1:**

1650 **6.2 Experiment 1 Review**

1651 In an extension of the previous research, we sought other areas of possible  
1652 interest in what could be affecting individuals' likelihood to engage in either im-  
1653 moral or risky behaviors. So far we have shown a connection with power motives  
1654 such as Dominance, Prestige, and leadership (DoPL); along with investigating



**Table 6***Fixed Effects: DoPL \* General Risk*

Parameter	Estimate	CI	CI Low	CI High
Intercept	3.62	0.95	1.41	5.86
Dominance	3	0.95	1.08	4.93
Gender	-3.02	0.95	-4.95	-1.08
Age	-2.86	0.95	-4.78	-0.93

*Note.* Table 2 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.

the connection between DoPL and the domain-specific risk-taking scale. An intriguing area that has not been extensively researched is narcissism. Personality research is often the viewpoint at which narcissism is investigated such as using the five-factor model concept where the primary traits are extraversion and agreeableness (Hyatt et al., 2018).

### 6.3 Narcissism

Narcissism is a personality trait that originally was seen as a method or mechanism to shield the individual from feelings of low self-worth (Yakeley, 2018). The understanding of what narcissism soon shifted with a focus on empirical understandings of the individual. Researchers such as Jeffrey Young, who expanded on the work of Aaron Beck, theorized that the core beliefs of an individual along with negative self-schemas influence the individual to seek out or act in ways in line with a narcissistic personality (J. E. Young et al., 2006). Conceptualizations of narcissism would soon entail it to be an understanding of grandiose sense of self, fantastical beliefs of success and general superiority, along with a general lack of empathy (American Psychiatric Association, 2013; Okada, 2010; Yakeley, 2018)./ The earliest understandings of narcissism were through Sigmund Freud. However, the term was first coined by Havelock Ellis who used the eponymous

**Table 7***DOSPERT and DoPL Interaction: Experiment 1*

Parameter	Estimate	CI	CI Low	CI High
Ethical Preference * Intercept	3.61	0.95	2.79	4.37
Financial Preference * Intercept	8.6	0.95	7.47	9.66
Social Preference * Intercept	9.98	0.95	8.27	11.64
Health and Safety Preference * Intercept	5.6	0.95	4.6	6.54
Recreational Preference * Intercept	1.68	0.95	0.86	2.43
Ethical Preference * Dominance	1.15	0.95	0.61	1.71
Financial Preference * Dominance	0.87	0.95	0.13	1.58
Social Preference * Dominance	1.81	0.95	0.64	2.94
Health and Safety Preference * Dominance	1.09	0.95	0.41	1.77
Recreational Preference * Dominance	1.22	0.95	0.67	1.76
Recreational Preference * Gender	-1.14	0.95	-1.83	-0.47
Recreational Preference * Age	0.46	0.95	0.05	0.86

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

1673 Narcissus myth in the explanation of narcissism. Freud would then publish the  
1674 text *On Narcissism* to further our understanding of narcissism. Future under-  
1675 standings of narcissism would develop from a social cognitive framework of the  
1676 individual in relation to their environment. Such as Kernberg's assessment that  
1677 narcissism stems from an aggressive and conflict filled childhood affecting the  
1678 child's development and later aggression and envy towards others (Russell, 1985).

1679 • note on the early understandings of how narcissism was interpreted as being,  
1680 i.e., a defense mechanism Yakeley (2018)

1681 • continued lack of consensus on what constitutes narcissism Ackerman et al.  
1682 (2017)

1683 – Also the discussion of social dominance in regard to narcissistic per-  
1684 sonality disorder Ackerman et al. (2017)

**Table 8***DOSPERT Benefit and Perception: Experiment 1*

Parameter	Estimate	CI	CI Low	CI High
Risk * Dominance	0.65	0.95	0.36	0.95
Risk * Gender	-0.5	0.95	-0.85	-0.14
Risk * Dominance : Gender	-0.48	0.95	-0.85	-0.11
Risk Perception * Gender	0.43	0.95	0.05	0.8
Risk Perception * Prestige	0.31	0.95	0.01	0.61
Risk Perception * Leadership : Gender	0.43	0.95	0.03	0.82
Risk Benefit * Dominance	0.38	0.95	0.07	0.71
Risk Benefit * Gender	-0.6	0.95	-0.98	-0.22

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

**Table 9***DOSPERT Benefit and Perception: Experiment 1*

Parameter	Estimate	CI	CI Low	CI High
Ethical Perception * Prestige	0.39	0.95	0.12	0.66
Recreational Perception * Prestige	0.33	0.95	0.06	0.6
Recreational Perception * Age	-0.22	0.95	-0.4	-0.04
Recreational Perception * Dominance : Gender	-0.4	0.95	-0.77	-0.04
Health and Safety Perception * Leadership : Gender	0.44	0.95	0.07	0.8

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

## 1685 6.4 The present Experiments

1686 Pathological narcissism at it's core looks strikingly similar to self-esteem  
1687 and in turn a grandiose sense of self. Investigations at risky situations have looked  
1688 at sexual self-esteem, exploratory experiment one. The present experiment seeks  
1689 to expand to investigate the relationship between pathological narcissism and see  
1690 which is a stronger predictor of risky sexual situations and riskiness in general.

## 1691 **6.5 Methods**

1692 Participants were a convenience sample of 111 individuals from Prolific  
1693 Academic’s crowdsourcing platform ([www.prolific.io](http://www.prolific.io)). Prolific Academic is an  
1694 online crowdsourcing service that provides participants access to studies hosted  
1695 on third-party websites. Participants were required to be 18 years of age or  
1696 older and be able to read and understand English. Participants received £4.00,  
1697 which is above the current minimum wage pro-rata in the United Kingdom, as  
1698 compensation for completing the survey. The Psychology Research Ethics Com-  
1699 mittee at the University of Edinburgh approved all study procedures [ref: 174-  
1700 2122/5]. The present study was pre-registered along with a copy of anonymized  
1701 data along with a copy of the R code and supplemental materials are available  
1702 at (<https://osf.io/s4j7y>).

## 1703 **6.6 Materials**

### 1704 **6.6.1 Demographic Questionnaire**

1705 In a demographic questionnaire administered prior to the main survey,  
1706 participants were invited to respond to a series of questions about their self-  
1707 identified demographic characteristics such as age, gender, ethnicity, and ethnic  
1708 origin.

### 1709 **6.6.2 Sexual Risk-taking Behavior Scale**

1710 The 54-item Sexual Risk-taking Behavior Scale (SRTB; Spiegel and Pol-  
1711 lak (2019)), is a scale measuring individuals on their risk-taking by requesting  
1712 they respond to a series of statements and their agreement on three different do-  
1713 mains (i.e., Risk perception, likelihood, and benefit perception). They are then  
1714 given a series of statements of sexual activities and the frequency that they have  
1715 engaged in those behaviors. Example items for the first three domains are “Sex-  
1716 ual activity with multiple participants” and “Sex under influence of substances

1717 (drugs/alcohol).” For frequency, participants are asked to rate each sexual be-  
1718 havior on a scale of never [1] to at least once a day [8].

### 1719 **6.6.3 Sociosexual Orientation Inventory**

1720 The Sociosexual Orientation Inventory (SOI-R; Penke and Asendorpf  
1721 (2008)) is a 9 item scale asking participants a series of questions of how many  
1722 times participants have engaged in the questioned sexual behaviors. Example  
1723 items are “With how many different partners have you had sex with in the past  
1724 12 months?” and “With how many different partners have you had sexual inter-  
1725 course on one and only one occasion?” rated on a scale from 0 to 20 or more.

### 1726 **6.6.4 Dominance, Prestige, and Leadership**

1727 The 18-item Dominance, Prestige, and Leadership scale (DoPL; Süssen-  
1728 bach and Bohner (2011)), measures dominance, prestige, and leadership orienta-  
1729 tion. Each question corresponds to one of the three domains. Each domain is  
1730 scored across 6 unique items related to those domains (e.g., “I relish opportuni-  
1731 ties in which I can lead others” for leadership) rated on a scale from 0 (Strongly  
1732 disagree) to 5 (Strongly agree).

### 1733 **6.6.5 Pathological Narcissism**

1734 The brief Pathological Narcissism Inventory (B-PNI; Schoenleber et al.  
1735 (2015)) is a 28 item inventory measuring individuals on 7 aspects of pathological  
1736 narcissism facet scales. Example items are “I feel important when others rely  
1737 on me” and “Sacrificing for others makes me the better person” rated on a scale  
1738 from 1 (not at all like me) to 5 (Very much like me).

## 1739 **6.7 Procedure**

1740 In study 2, participants were recruited via a study landing page on Pro-  
1741 lific’s website or via a direct e-mail to eligible participants (Prolific Academic,

1742 2018). The study landing page included a brief description of the study including  
1743 any risks and benefits along with expected compensation for successful comple-  
1744 tion. Participants accepted participation in the experiment and were directed to  
1745 the main survey (Pavlov.org) where they were shown a brief message on study  
1746 consent.

1747       Once participants consented to participate in the experiment they an-  
1748 swered a series of demographic questions. Once completed, participants com-  
1749 pleted the Dominance, Prestige, and Leadership Scale and the Domain Specific  
1750 Risk-taking scale. The two scales were counterbalanced to account for order ef-  
1751 fects. After completion of the main survey, participants were shown a debriefing  
1752 statement that briefly mentions the purpose of the experiment along with the  
1753 contact information of the main researcher (AI). Participants were compensated  
1754 with course credit on the University of Edinburgh’s SONA system.

## 1755 **6.8 Data analysis**

1756       Demographic characteristics were analyzed using multiple regression for  
1757 continuous variables (age) and Chi-square tests for categorical variables (gender,  
1758 race, ethnicity, ethnic origin, and education). Means and standard deviations  
1759 were calculated for the relevant scales (i.e., DoPL and SRTB). All analyses were  
1760 done using (R Core Team, 2021) along with (Bürkner, 2017) package.

1761       The use of bayesian statistics has a multitude of benefits to statistical  
1762 analysis and research design. One important benefit is through the use of prior  
1763 data in future analyses. Termed as priors, is the use of prior distributions for  
1764 future analysis. This allows for the separation of how the data might have been  
1765 collected or what the intention was. In essence, the data is the data without the  
1766 interpretation of the scientist.

1767       All relevant analyses were conducted in a Bayesian framework using the  
1768 brms package (Bürkner, 2018) along with the cmdstanr packages notes (Gabry &

1769 Cesnovar, 2021). In addition to the aforementioned packages, we used bayestestR,  
1770 rstan, and papaja for further analysis and creation of this manuscript (Aust &  
1771 Barth, 2020; Makowski et al., 2019; Stan Development Team, 2020).

## 1772 **6.9 Results**

### 1773 **6.9.1 *Preregistered Analyses***

### 1774 **6.9.2 Demographic and DoPL**

## 1775 **6.10 Domain-Specific Risk-Taking**

## 1776 **6.11 Interactions**

## 1777 **6.12 Discussion**

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**Table 10***Experiment 2: Participant Demographics*

Characteristic	N=279
Age	
Mean (SD)	30 (9.92)
Median [Range]	26 [18.00, 78]
Gender	
Female	124 (44%)
Male	155 (56%)
Ethnicity	
African	49 (18%)
Asian or Asian Scottish or Asian British	5 (1.8%)
Mixed or Multi-ethnic	7 (2.5%)
Other ethnicity	3 (1.1%)
Prefer not to respond	1 (0.4%)
White	214 (77%)
Education	
A-Levels or Equivalent	64 (23%)
Doctoral Degree	4 (1.4%)
GCSEs or Equivalent	17 (6.1%)
Prefer not to respond	4 (1.4%)
Primary School	5 (1.8%)
University Post-Graduate Program	62 (22%)
University Undergraduate Program	123 (44%)
Ethnic Origin	
African	48 (17%)
Asian	7 (2.5%)
English	16 (5.7%)
European	193 (69%)
Latin American	6 (2.2%)
Other	9 (3.2%)



**Table 11***General Risk \* DoPL: Experiment 2*

Parameter	Estimate	CI	CI Low	CI High
Intercept	0.81	0.95	0.4	1.22
Dominance	0.51	0.95	0.17	0.86
Prestige	0.42	0.95	0.07	0.78
Age	-0.02	0.95	-0.03	-0.01

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

**Table 12***B-PNI \* DOSPERT : Gender: Experiment 2*

Parameter	Estimate	CI	CI Low	CI High
Vulnerability * Intercept	0.82	0.95	0.44	1.21
Vulnerability * Financial Preference	-0.27	0.95	-0.47	-0.06
Vulnerability * Age	-0.03	0.95	-0.04	-0.02
Vulnerability * Recreational Preference : Gender	-0.34	0.95	-0.62	-0.07
Grandiosity * Gender	0.27	0.95	0.03	0.51
Grandiosity * Social Preference	0.3	0.95	0.11	0.49
Grandiosity * Recreational Preference : Gender	-0.41	0.95	-0.69	-0.13

*Note.* Fixed effect results of individual DOSPERT domains with gender interactions predicting vulnerable and grandiose narcissism respectively.