

1 The psychology of risk and power: Power desires
2 and sexual choices.

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4 ¹ The University of Edinburgh

5 Abstract

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

Two to three sentences of **more detailed background**, comprehensi-
ble to scientists in related disciplines.

One sentence clearly stating the **general problem** being addressed by
this particular study.

One sentence summarizing the main result (with the words “**here we
show**” or their equivalent).

6 Two or three sentences explaining what the **main result** reveals in
direct comparison to what was thought to be the case previously, or
how the main result adds to previous knowledge.

One or two sentences to put the results into a more **general context**.

Two or three sentences to provide a **broader perspective**, readily
comprehensible to a scientist in any discipline.

Keywords: keywords

Word count: 2004

Add complete departmental affiliations for each author here. Each new line herein must be
indented, like this line.

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38 **1.1 Literature Review**39 **1.1.1 General Introduction**

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

52 In 2016, the year of most recent global data collection, there were 376
 53 million necases of the four curable sexually transmitted infections, chlamydia,
 54 gonorrheatrachomoniasis, and syphilis (World Health Organization, 2018). The
 55 World HealtOrganization [WHO] further estimates that there are one million
 56 new cases of a curablsexually transmitted infection each day. Due to multiple
 57 factors, certain minoritpopulations are more at risk for contracting new sexually
 58 transmitted infections, e., men who have sex with men and female sex workers
 59 (World Health Organization, 2018). Some factors includcertain societal beliefs
 60 men who have sex with men might engage in nonrelational sex “just trying to
 61 figure things out...it’s just a hook up phase” (Elder et al., 2015) , ambiguous
 62 laws concerning the legality of sex work interfering witsafe and available locations
 63 for such activity, as well as. There may alsbe some difficulties in their willingness
 64 in their activities be it forced by anotheor sheer necessity. For countries like
 65 Scotland there have been a reduction ithe amount of new cases of STIs like
 66 HIV amongst key populations, however new risks oantibiotic resistant gonorrhea,
 67 *Neisseria gonorrhoeae*, have shown a new prevalence in many countries (Ison &
 68 Alexander, 2011).

69 **1.1.2 Who is at risk?**

70 There is then the arduous task of how to research the topic of sexually
 71 transmitted infections and methods of then understanding what is occurring in
 72 the individual. There are neurobiological explanations such as certain brain for-

mations occurring that cause individuals to have difficulty understanding the consequences of their actions (Moll et al., 2005; Schaich Borg et al., 2008; Tsoi et al., 2018). There are also more cognitive explanations as well that have shown promising results. For example in the cognitive sub-area of metacognition there is an understanding that there are certain cognitive mechanisms that aid in the individuals ability to regulate their own cognitive understanding of their decisions (Anderson & Bushman, 2002; Yeung & Summerfield, 2012). This self-regulation then contributes to their ability to control whether they act on their baser needs or are able to understand the consequences of what they might or might not engage in (Anderson & Bushman, 2002; Crandall et al., 2017). How individuals had reached the information on the effectiveness of certain behavioral changes that reduce the chances of contracting an STI is also in question. For example, research shows that individuals that have a greater understanding of the impact and chances of contracting HIV, actually engage in risky sexual behaviors and therefore increase their chances of contracting the very infection they have more knowledge (Kirby et al., 2007). Skills based training showed more positive results on practicing safer sex practices. How an individual sees themselves as either a sexual person or person in general is also a factor in how they later may meet an STI [Gesink et al. (2016); Anderson et al., 1994; Anderson et al., 1999; Elder et al. (2015)]. Aggression, in the cognitive sense, also has an impact as well demonstrating a dominance over another person that may cause difficulties in their own ability to make decisions on their sexual health (Malamuth et al., 1996; Williams et al., 2017).

Aggression is one method of exerting control over another individual. Overall, the exertion of control itself denotes a power disparity between parties which varies in effects, methods, and domains. [citation]. For example, most research has looked at power-over or one person controlling the behavior of another person. This area of research connects the cognitive explanation to behavioral outcomes. Research in power also includes looking at minority populations and aspects of power over to help explain the increased prevalence of certain STIs by discussing and researching certain power dynamics [citations]. The institutional support of those power dynamics often reflect power based on age, gender, political orientation, sexual orientation and gender identity (Anderson & Bushman, 2002; Chiappori & Molina, 2019; Volpe et al., 2013; Winter, 1988). Investigations of the power structure of a family unit has shown to have some interesting consequences on sexual health depending on the type of parenting style and parental attachment [Bugental and Shennum (2002); Chiappori and Molina (2019); Kim and Miller (2020); citations]. A new area of research coming out of power and cognition is the phenomenon where an individual will harm themselves in some

way to also inflict harm on another. This type of behavior has been researched extensively in the animal kingdom and is known as spiteful behavior in that one brings down their own wellbeing to spite the other person. There would be interesting avenues to research how spiteful thinking may affect an individual in how they choose one course of action over another. ### Current Methodology

An interesting aspect of the power dynamics and cognition is the moral aspect of decision-making. Often, sexually transmitted infections and risky sexual behavior are used as examples to discuss moral issues. Methods at understanding these situations and other moral issues are through dilemmas or vignettes where individuals are presented with a short scenario and given the opportunity to choose one outcome over another (Ellemers et al., 2019). A trademark example is the trolley car experiment where there is a runaway trolley car that is going towards five people (Greene, 2001). The decision is thus, allow the trolley to careen towards the five people or you could divert the trolley by pushing and sacrificing a large man for the sake of the other five. This type of dilemma poses an interesting method of understanding how and what the decision maker would choose. The researcher can then change the dilemma on its severity and complexity. There could also be a change in situation and the types of individuals that are at risk. Individual choice tasks investigating risky sexual behaviors and STIs could be furthered with investigating the moral decision-making aspect of those issues. Current STI research has focused on methods of ways of curbing why individuals act a certain way when presented with a risky sexual situation (Kirby et al., 2007). Current methods have shown mixed results. In many countries, how people are taught about risk and sex can vary wildly [UNESCO, 2015]. For example, some countries may have one standard that is a mix of religious and scientific findings of STIs. While others may not even have a formal sexual education program. Some aspects of sexual activity are not even discussed, for example non-heterosexual sex is not always present in education [Ellis & High, 2013]. This becomes problematic in that men who have sex with men tend to be more at risk to contracting an STI than their peers who engage in heterosexual intercourse. There has also been a lot of research in STI rates. Evidence by governments and international health organizations constantly partnering with universities and healthcare providers to collect new incidences of STIs. There might be one way of researching the topic however, it might not look at all the aspects. Some may be more focused on the outcome while ignoring the causes or hypothesized causes of the outcome. Continued research into the understanding of decision-making is important in that understanding the general helps later understanding of the specific.

150 1.2 Risky Sexual Behaviors and STIs

151 Sexual activity/ability to reproduce being one of the seven characteris-
152 tics of life can cause health, financial, and/or social dangers [to all participants]
153 through risk and neglect [citation]. The curability or manageability also plays
154 a factor in how an STI will affect an individual or community. For example, if
155 the treatment is simple and cheap the effect could be minimal. However, if the
156 treatment cost is expensive the drain on multiple resources could be detrimental.

157 There is a large array of different sexually transmitted infections. Cur-
158 rently, there are eight common types of STIs, chlamydia, gonorrhea, trichomo-
159 niasis, genital warts, genital herpes, pubic lice, scabies, and syphilis [citation],
160 chlamydia being the most common. Treatment for these STIs can range from
161 a simple course of antibiotics such as is the case with chlamydia or gonorrhea.
162 Conversely, treatment for syphilis or human immunodeficiency virus [HIV], can
163 be increasingly more involved, cause difficulty in daily life, and have higher costs
164 [citation]. Globally, 37.9 million people are living with HIV [104,000 in the United
165 Kingdom], with 1.7 million being under the age of 15 years old [citations]. The
166 treatment for HIV currently is through antiretroviral medication, which is often
167 a combination of multiple medications to account for the high adaptability of the
168 virus [citations].

169 New difficulties appear from the most common treatment strategies. The
170 main strategy being through targeted and high doses of antibiotics. Concern
171 arises given the fluctuating nature of STI treatment and costs. As such, costs
172 for treatments have seen a markable increase with some treatments costing [en-
173 ter average amount]. An increasing number of antibiotic resistant gonorrhea is
174 occurring globally, with a recent discovery in Japan with a strain that is resistant
175 to ceftriaxone, the most prescribed antibiotic [citations]. Two individuals in the
176 United Kingdom recently [2019] separately tested positive with different strains
177 resistant to not just ceftriaxone but also azithromycin [citations]. The confirmed
178 cases may seem small however, 10% of men and half of women do not show visi-
179 ble symptoms when infected with the bacteria. Medical treatment alone has not
180 been the only strides made in STIs around the with strides in acceptances and
181 less persecution for those that have HIV for example. However, while persecution
182 and stereotyping has gone down in recent years, treatments and availability to
183 those treatments have become increasingly more costly.

184 Sexually active individuals can become infected with an STI through various
185 forms. The first and most prominent vector is through risky sexual behaviors,
186 i.e., multiple sexual partners, unknown sexual history of partners/high-risk indi-
187 viduals, and unprotected sex [citations]. The most common vector is through en-

gaging in unprotected sex. Condoms are the most common and effective method of protection, with spermicides increasing their effectiveness [citation]. Once infected, the STIs may have detrimental health effects. For example, genital herpes may cause infertility in women and certain types of cancers [citations]. Infections can also be transmitted to infants during childbirth. If left untreated death is possible for example in the case of syphilis which results in an agonizing death [citations]. Condoms are still one of the most effective strategies to practice safe sex along with asking partners about their sexual histories.

Even though condoms are the most effective prophylactic, there is still a chance that an individual may contract an STI. Other risky sexual behaviors can increase an individual's susceptibility such as having multiple sexual partners. The age of first sexual intercourse is one of the leading factors that has been associated with increased sexual risk taking and later transmission of STI [Tuoyire, Anku, Alidu, & Amo-Adjei, 2018; Sanjose et al., 2008; Dickson et al., 1997]. Dickson and 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 being less moral and others believe that others will see them as being immoral. This threat of appearing to be immoral may cause the individual to feel as though the mere perception of having an STI is shameful [Cunningham et al., 2009].

The social effects of sexuality in general influence how people see themselves. For gay men in particular there is not just the social stigma that some may have of homosexuality, within the gay community there are some that are expected to be promiscuous or appear to be promiscuous [Elder et al., 2015a]. In a study based on grounded theory, Elder and colleagues asked gay men all aspects of sexuality to discover and investigate their sexual schemas. A sexual schema is, "a generalization about the sexual aspects of oneself." [Elder et al., 2015a, pg. 943]. The effects of negative sexual self-schema are also seen in bisexual and straight men and women [Elder et al., 2015b; Elder et al., 2012; Anderson et al., 1994; Cyranowski et al., 1999]. Having poor sexual self-schema can result in women having issues with sexual desire and an inability of reaching orgasm while in men can result in climaxing too early and erectile dysfunction [Kilimnik et al., 2018; Cyranowski et al., 1999]. Long lasting impairments can often lead to more psychological issues.

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

1.3 Moral Judgment and Decision-Making

Sam has frequent and unprotected sex with multiple partners, resulting in a sexually transmitted infection that causes visible sores on the mouth and hands. On the way to the chemist one day, Sam has an acute heart attack. Bystanders rush to help, but see the sores on Sam's mouth and hands. . . How would the bystanders react? Would they resuscitate Sam? Would it be morally wrong

264 for them not to risk contracting an unknown disease from Sam, even if it may cost
265 Sam's life? Similar sorts of dilemmas are often used to study moral decision mak-
266 ing of various sorts [citations]. the thought experiment of the trolley dilemma. In
267 research by Haidt and colleagues, compared psychologically normal adults to psy-
268 chopathic traits and performance on the Moral Foundations Questionnaire [MFQ;
269 Blair, 2011; Haidt]. Findings included higher psychopathic tendencies were asso-
270 ciated with lower likelihood of following justice based norms, weak relationship
271 with disgust-based and in-group norms, and finally an increased willingness to
272 violate any type of norms for money [Glenn et al., 2008]. The key factor in the
273 Moral Foundations Questionnaire are these moral foundations of which there are
274 five moral domains: harm versus care, fairness versus cheating, loyalty versus
275 betrayal, authority versus subversion, and purity versus degradation [citations].
276 Each of these moral domains have a good and bad component compared to the
277 action type.

278 The MFQ has been extensively used in research on moral decision-making,
279 with common subjects being on political thought [citation]. In the early studies of
280 moral foundations theory, Haidt investigated the moral foundational differences
281 between individuals that lean either politically liberal or conservative. Of the five
282 moral domains, differences appeared in the likelihood of how either conservatism
283 or liberalism affects the likelihood of individuals to endorse each domain. For
284 example, liberalism suggests protecting the individual from harm by the society,
285 especially if they are a member of a minority group. Conversely, conservatism,
286 namely religious conservatism suggests a propensity for sanctity and purity, along
287 with respecting authority and following the societal moral codes [citations]. Emo-
288 tional valence is often the best predictors of moral judgments [citation]. The more
289 emotional valence the faster the response time the decision-maker decides and the
290 more staunchly held they are to their decision. Interestingly, participants would
291 be unable to express or support the decisions that they made. Often, partic-
292 ipants would downplay their decisions by laughing or stuttering [Haidt et al.,
293 2000]. Additionally, as their emotional valence of the decision is higher, peo-
294 ple are consistently holding on to their judgments regardless if they were able
295 to support their judgements when asked or not. It then makes sense why some
296 individuals are more politically intransigent given their deeply held moral codes.

297 Politically held beliefs are often emotionally laden [Marcus, 2000]. Accord-
298 ingly, moral foundations theory postulates that there is a good versus bad in the
299 moral domains. When participants are asked to respond to statements that are
300 only offensive but were not harming anyone, participants had issues supporting
301 whether the statement was good or bad. For example, when participants were
302 given a story of cleaning the toilet with the national flag, participants would re-

303 spond that it is bad and said that they just knew that it was wrong [citation].
 304 Often when individuals violate the moral rules of “cleaning the toilet with the
 305 national flag” violators will be judged as immoral and sometimes punished for
 306 their actions [citations]. Intuitively the participants responded that the actions
 307 were morally were obviously morally wrong. Requiring little to no explanation
 308 as to whAn interesting facet of moral judgment is how individuals react to moral
 309 decisions when they are reminded of their own mortality [Rosenblatt et al., 1989;
 310 Greenberg et al., 1990]. Reminding individuals of their mortality causes them,
 311 according to terror management theory, to want to push away from the thought
 312 of their eventual death. To do this people often cling to their deeply held cul-
 313 tural beliefs to remove their thoughts from reality [Greenberg et al., 1986]. In the
 314 first of a series of experiments Rosenblatt and colleagues found that participants
 315 that were reminded of their mortality judged prostitutes more harshly, more so
 316 if the participants already had negative opinions on prostitution. This was also
 317 seen conversely with heroes that follow the cultural norms. Those participants
 318 advocated for a larger reward for those individuals [Rosenblatt et al., 1989]. The
 319 already held opinions were further investigated to where Christians were asked
 320 to report their impressions of Christian and Jewish individuals after mortality
 321 became salient. Those that were a member of the in-group, Christian, were more
 322 likely to be regarded as more positive than their out-group counterparts, Jewish
 323 individuals [Greenberg et al., 1990]. In-group bias is an oft studied concept in
 324 psychological research. Mortality salience and moral violations tend to increase
 325 the strength of the in-group bias and then moral judgement and condemnation
 326 [citation].

327 When a person does a negative action, the reason for the action is often
 328 judged and assumed. An action is commonly seen as being intentional when
 329 the individual actively does the action directly. However, intentionality becomes
 330 problematic participants have already had negative evaluations of the individ-
 331 ual. In an experiment where participants were asked to judge the culpability of
 332 an airline passenger that was forced by high-jackers to kill another passenger,
 333 the high-jackers were the external force forcing the passenger to commit murder.
 334 However, when the participants were told that the passenger already wanted to
 335 kill that passenger before the hijacking was occurring, they were judged as more
 336 culpable. With or without the internal motivation of wanting to already kill the
 337 other passenger, the resulting death still occurs. When participants were given
 338 a, less vivid, story of a manager that was only mistreated a black employee and
 339 another story of a non-bigoted manager that was mistreating all of their employ-
 340 ees, participants judged the bigoted manager more negatively. Even though there
 341 were differences in those affected between the managers, participants already held

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

344 Research in attributional blame continued with an experiment investigat-
345 ing passengers on a sinking boat [Uhlmann, Zhu, & Tannenbaum, 2013]. Par-
346 ticipants were given a story where there were several individuals on a sinking
347 lifeboat. There were too many people in the boat and the only course of action
348 given was that some of the passengers had to be thrown overboard. In the util-
349 itarian perspective, used for this example, the morally correct judgment was a
350 few must be sacrificed for the safety of the larger group [citation]. However, the
351 participants often judged the surviving passengers as acting selfishly. Thus, they
352 were seeing the passengers as immoral.

353 When individuals commit a moral violation, as would be the case for the
354 surviving passengers, it is not only important to investigate how others would
355 judge and react but also how the individual reacts to their own action [Tangney
356 et al., 2006]. Emotional reactions occur when someone does a behavioral action,
357 or they expect a behavioral action to follow. An interesting aspect of emotional
358 reactions are emotional reactions tied to moral judgment. When an individual
359 violates a moral norm, they often feel a personal feeling of shame or guilt which
360 are two of the most commonly studied of these self-evaluative emotions [Tangney
361 et al., 2006]. There is an inherent difference between these two emotions, shame is
362 inferred as being negative feelings of oneself that has a public display, while guilt
363 is similar sans the public display [Tangney et al., 1996]. Individuals who violate
364 the community’s customs on purity often feel a sense of shame. While guilt is
365 commonly felt with a violation of community [citations]. People with STIs are
366 often left feeling shame from their suspected purity violation and thus are often
367 stigmatized for their behavior and punished in some form by the community.
368 This can lead, as discussed in the previous section, to increasing their sense of
369 isolation and negative self-worth. How the moral violators react to their shame
370 or guilt is dependent on whether they experience the former or the latter. There
371 are often attempts to amend the situation when individuals have violated moral
372 norms. Depending on the self-evaluative emotion that is being felt, people will
373 make amends to try to change the situation or they may hide it [Tangney et al.,
374 1996]. Guilt is the former and shame is the latter. In most cases individuals that
375 are feeling shame will attempt to ignore their moral violation where they will deny
376 or evade the situation that is causing them shame. Conversely, people with guilt
377 are often motivated by those negative feelings to fix the situation that caused
378 them to feel the guilt. Guilt is often feeling negativity towards a specific action
379 while feeling ashamed or shame is usually a reflection of the entire self [citations].
380 Thus, in relation to how to repair the guilt inducing act, it would appear to be

381 more manageable if the inducing situation was a singular event rather than a
382 feeling of the entire self. Participants that were prompted to feel shame were less
383 likely to express empathy for someone with a disability [Marschall, 1998]. When
384 people feel a sense of shame, they self-evaluate and reflect on themselves. This
385 hinders the empathy process that would require them to focus their attention on
386 the emotions of another person.

387 Barnett and Mann investigated sexual offenders to understand how feelings
388 of empathy are blocked for their victim at time of the offense [2013]. In empathy
389 research, emotions cannot only just be inferred by the situation but be “felt” to be
390 classified as expressed empathy. Earlier research looking at empathy by sexual
391 offenders has not shown them as being unempathetic. However, Barnett and
392 Mann contend that sexual offenders may have a disruption in seeing distress in
393 their victim. The offender may then believe and assert that their victim deserves
394 the distress that they are experiencing and have a cascading effect where they
395 may be powerful and enjoy the distress of the victim (Barnett & Mann, 2013).

396 1.4 Power

397 A common denominator in research on the dark personality and moral
398 judgment is the influence of power. To define power, one would have to first
399 define the actor and the recipient of the power. Therefore, there is either power-
400 over, power-to, and power-with. Each aspect has their own different consequences
401 [citation]. Power-over is when there is one individual, the one with power, which
402 wields control over a subordinate individual [citation]. Power-to is when an in-
403 dividual of privilege uses their status and power to control and enact a certain
404 consequence [citation]. Finally, power-with is an interesting concept where a per-
405 son of power uses their own power to lift or elevate someone without power to a
406 power position [citation]. This is often seen in community projects where some-
407 one in power goes into a troubled community and facilitates the situation so that
408 those that have less power can have their voices be heard. Power also has var-
409 ious sources each with their own complex consequences: institutional, cultural,
410 gender, age, ethnicity, orientation, and gender-identity [citations]. Some sources
411 of power compound on one another to increase the level of power over other sin-
412 gular sources of power. For example, in many areas of the world a straight white
413 cisgender man would hold the most power relative to other individuals.

414 Power influences relationships be it romantic or familial, work, academics,
415 including each of their derivatives. The three variations of power have various
416 influences on each of the areas of life. Power is neither good nor bad, it is how
417 the power is used that makes it either good or bad [citation]. Power and power

418 structures are often in the media. Often when there is a military coup in a far-
419 off country, individuals discuss power-over. When a humanitarian goes into an
420 impoverished community to help their voices heard, power-with is discussed. As
421 with the previous example, when a legislator uses their influence to pass a law,
422 that legislator uses power-to. Early discussions of power descended from Greek
423 and Roman political philosophy [citations]. Greek Philosopher, Plato's brothers
424 Glaucon and Adeimantus discuss the viability or requirement of citizens being
425 just and lawful if they are able to escape conviction because of some social power
426 or fortune [citations]. Aristotle continued the discussion by posing the questions,
427 "There is also doubt as to what is to be the supreme power in the state: Is it the
428 multitude? Or the wealthy? Or the good?..." [citation]. Power discussions such
429 as that by Aristotle point to what is the source of someone's power. Does the
430 power come from the majority? Does it come from money? Does it come from
431 those that are just? Each source of power has different effects on those that are
432 governed by those with that power. Polybius of Greece discussed how a consti-
433 tution should be created and power should be delineated. Polybius power should
434 be split between multiple groups, each with a different form of power and distinct
435 genre to wield that power [citation]. Power continued to be discussed well beyond
436 the Greek philosophers and continued by political researchers and philosophers.
437 Discussions of power soon developed into research on how it influences at the
438 community level.

439 Sociologists, following many of the philosophical thought experiments pre-
440 vious and current to the time, began to research power. Sociologists soon devel-
441 oped the area of research in social power, where political power was a subset.
442 According to Bierstadt, power is always successful, whenever it fails then it is no
443 longer power [1950]. Sociologists asserted that power be conceived of as a force,
444 something that is applied to control a situation. Power can also be conceived of
445 as more passive authority. There are three sources of power: number of people,
446 social organization, and resources. From that individuals that are the class or
447 group or have the most resources that are in need are those that will have the
448 most power. Resources need not be physical objects they can also be more psy-
449 chological such as skills or knowledge. From history there are many examples
450 where power becomes toxic and the leader becomes the oppressor. Be it Mao
451 Ze Dong, Stalin, Lenin, or Hitler. The question then becomes what causes the
452 powerful to become oppressors? In some cases, those that are in power are trying
453 to do good for the community, restrictive from the example.

454 Recently, issues and abuses of power have become much of the forefront
455 of news due to the explosion caused by the me-too movement [citation]. The me-
456 too movement was first coined by activist and sexual harassment survivor Tarana

457 Burke. A decade after she disclosed her sexual assault, the me-too movement and
458 the abuse of power dominated the new cycle with accusations against film pro-
459 ducer Harvey Weinstein [citation]. Weinstein was known for doing philanthropic
460 initiatives during his career by using his influence and money to aid the certain
461 initiatives that he had chosen. However, soon news of his sexual assault accu-
462 sations and threats became news. Soon multiple women came forward accusing
463 Weinstein of assaulting them as well and using his power over them to intimidate
464 and silence them [citation]. This exemplifies how resources and position aid in
465 individuals become powerful. Weinstein had the resources and the authority to
466 abuse his power with many of his peers knowing what he was doing [citation].

467 In psychology, it was originally conceived that power corrupted individ-
468 uals exemplified by the Stanford prison experiment where “regular” individuals
469 were instructed to play the prison guards of a simulated prison. Similar indi-
470 viduals were instructed to portray the prisoners [citation]. Zimbardo, the lead
471 researcher for the experiment, soon noted that the individuals that portrayed the
472 prison guards became aggressive with the prisoners. They verbally and physically
473 assault them. The experiment was halted to stop any more damage from occur-
474 ring. News spread of the results of the experiment and power was seen as causing
475 or influencing the “prison guards” to become aggressive and abuse towards the
476 “prisoners.” However, the nature of the participants became into question [cita-
477 tion]. Later researchers noted that there could have been a self-selection bias of
478 the participants. The experiment was advertised such that the prison experiment
479 was known to the participant. This would then cause individuals to self-select
480 into the group which could possibly skew the results given that the participants
481 may have had authoritarian tendencies and the experiment and added power
482 may have given the opportunity for the participants to express their authoritar-
483 ian tendencies already present [citation]. Similar explanations have occurred in
484 politics.

485 Throughout political history individuals that have reached powerful posi-
486 tions on multiple occasions have given some powerful people the outlet to express
487 their prejudiced and problematic beliefs [citation]. Fear of communist infiltration
488 in the United States caused many fears and blacklisting was a frequent practice.
489 Joseph McCarthy, a Wisconsin senator, would soon use his power as a legisla-
490 tor/senator [citation]. McCarthy would call individuals to the front of the House
491 Un-American Activities Committee because they were suspected of being spies
492 for the Soviet Union. McCarthy and the committee used strong arm tactics and
493 would often threaten individuals brought in front of the committee. Many in-
494 dividuals brought forward often had their lives irrevocably changed [citation].
495 Soon Senator Margaret Chase Smith and six others condemned McCarthy for his

actions and tactics. McCarthy was soon censured, and the House Un-American Activities Committee was disbanded. The political issue of power being used as an outlet for prejudiced and authoritarianism became apparent recently after the 2016 United States Presidential Election [citation]. Donald Trump's political exploits would soon highlight his past and present use of power and his unethical dealings. Often Donald Trump would use his power for personal gain and to express his prejudicial and racist beliefs. Examples range from in the 1990's Donald Trump advocated for the Central Park Five, five African-American men accused of raping and murdering a young White woman in Central Park, to be put to death [citation]. However, DNA evidence exonerated on the men of the crime [citation]. Recently, Donald Trump on the campaign trail accused Mexico of sending individuals across the border that were rapists and drug dealers. However, there was no physical proof of the case and became a common trope used by Donald Trump supporters. Because of the misuse of power and authority, there have been increased hate crimes towards Mexican Americans and African Americans [citation]. The Southern Poverty Law Center, an organization that records the number of hate groups currently active in the United States has documented a clear increase in the number of active hate groups after the 2016 election [citation]. The supporters feel a sense of validation for their own beliefs and opinions which they feel allows them some power in and of itself. This then poses an interesting question in power research in psychology. What are the correlates of the power complex? What are the consequences of power? How does a power imbalance affect relationships? The list of questions is vast and varied.

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

535 The behaviors of Ms. C and Mr. A are not the only examples of individu-
536 als having power over another person or being subjected to the power over them.
537 Power-over has occurred throughout human history and is ingrained in all cultures
538 [citation]. Institutional power-over is quite common cross-culturally. Contracep-
539 tion and control over one's own reproductive system is a prescient debate globally
540 [citation]. In 1960 and 1963 Enovid was approved for use in the United States and
541 United Kingdom respectively [citation]. Doses for contraception early on were of-
542 ten high and news of multiple deaths was reported widely. Cases were brought
543 forward to control the use of contraception. The Roman Catholic Church's stance
544 on hormonal contraception shifted from permission to outlawing anything that
545 would be believed as stopping the ability to propagate [citation]. Interestingly
546 in 1989 researchers working for Pfizer in the United Kingdom were researching a
547 new drug that would aid in treating heart conditions [citations]. The researchers
548 soon discovered sildenafil also could treat erectile dysfunction. Ten years later,
549 sildenafil, brand name Viagra, would be patented and approved for use for the
550 primary treatment for erectile dysfunction [citation]. The same individuals that
551 were trying to reduce the use of female contraception were not trying to do the
552 same for Viagra. The Japanese government and officials had similar attempts
553 to quell the use of female contraception while not doing the same for erectile
554 dysfunction treatments [citation].

555 The Council on Foreign Relations [CFR] a non-profit that specializes in United
556 States and international affairs, conducts an international index on women's work-
557 place equality by rating each country on factors: accessing institutions, getting a
558 job, going to court, protecting women from violence etc. [citation]. Scores range
559 from 0 to 100 where 100 is near total equality in all areas. Of 189 countries on the
560 list only 9 score over 90% in the ranking. One hundred and thirty-eight score be-
561 low 75 with Yemen having the lowest score of 24.5. Including those that intersect
562 with other minorities have even less power like women of color and trans individ-
563 uals [citation]. Women having less power than their male counterparts can have
564 multiple negative outcomes such as continued and sustained sexual aggression,
565 low self-esteem, financial insecurity, lack of freedom of movement, lack of freedom
566 of thought, and in some extreme cases even death [citations]. Cultural relativism
567 creates a difficulty in cultures that have opposing views on the rights and how to
568 navigate that can in and of itself reflect institutional power imbalances.

569 Power imbalances can create a dissociative state where those with less
570 power are seen as more of an object than a person [Lammers & Stapel, 2011;
571 Gwinn et al., 2013; Smith, 2016; Haslam & Loughnan, 2014]. While others with
572 more power may see those with less as be less human, some individuals attribute
573 the dehumanization to themselves as well and self-dehumanize [Bastian et al.,

2010; Bastian et al., 2013; Bastain et al., 2012; Kouchaki et al., 2018]. Effects of prolonged dehumanization by those with more power often, unchecked and under constant pressure, can lead some individuals to believe what the powerholders say is true. The question remains, why do people in power begin to dehumanize those with less power? Commonly when an individual harms another usually there is some perspective taking by the harmer. However, to dehumanize the other person it lessens the sense of empathy that one would normally feel thus allowing for more damage and harm to be committed [citations]. “With great power comes great responsibility” often quoted by Uncle Ben in the Spider-Man comic books, yet has its possible historical foundations in the French National Convention in 1793, leads credence to the wane and flow of the effects of power [Convention Nationale, 1793]. Those in power make decisions for those for which they are leaders. As is the case with every decision there is a reaction to the decision. Sometimes those effects are negative and those with less power may be harmed in the process. Dehumanization of those in less power acts as a defense mechanism to continue making life changing decisions.

Often dehumanization is left to more extreme occasions such as war, inhumanization, where ascriptions of nonhuman qualities are more subtle and not as extreme [Haslam & Loughnan, 2014]. Research in dehumanization/inhumanization by Gwinn and colleagues used game theory and university students to simulate power differentials [2012]. In their research they found that once individuals began to gain power, they would ascribe fewer humanlike personality traits than those with less power ascribing traits to the powerful. Interestingly, there is a reciprocal relationship between self-dehumanization and immoral behavior [Kouchaki et al., 2018]. When individuals would commit an immoral behavior, they would afterwards often feel less human, which in turn has them act more immoral.

1.5 Cognition

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

611 The first step at acquiring new knowledge is interacting with the envi-
612 ronment. One explanation that has been garnering more cognitive and biological
613 attention is from Dr. Nelson Cowan’s integrated working memory model [citation].
614 In the integrated working memory model there are four key areas in attaining
615 new information: [1] a brief sensory store, [2] a long term store, [3] the focus of
616 attention, [4] and the central executive. Each key area has a separate function[s]
617 that allows for new information to be “judged” against the existing information.
618 The information that is then held temporarily in a sensory store to where it is
619 then sent to the long term store to be “directed” by the central executive which
620 is a metacognitive process that controls and directs where attention should be
621 placed on the incoming information. There is then a controlled more conscious
622 action or an automatic action based on the type of incoming information. Infor-
623 mation that is automatic usually is considered habituated to the memory system
624 and is therefore not a novel stimulus. More focus is given to information/stimuli
625 that is more novel. In the integrated working memory model information that
626 is incoming in the brain is often “filtered” through a lens that is understandable
627 to the individual, novel stimuli. From here the information is then encoded and
628 stored in long-term memory for reactivation by new stimuli.

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

640 Common to research in metacognition and moral reasoning is theory of
641 mind. A theory of mind is the ability for an individual to attribute or recognize
642 the inner workings of the mind and differentiate those from the self and others
643 [citation]. Research in theory of mind has contributed to our understanding
644 of autism, schizophrenia, and traumatic brain injury [Byom & Mutlu, 2013]. An
645 individual with deficits of theory of mind would for example be unable to attribute
646 signs of happiness on other people, such as a smile or a frown [citation]. In the
647 case of Johnathan, if they had a theory of mind deficits, they would be unable or
648 have difficulty in noticing the dissatisfaction of their joke. Research using theory
649 of mind to investigate social situations such as the example with Jonathan helps

650 psychologists get a better understanding of how moral judgement works and is
651 affected by deficits in the cognitive system.

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

660 The prior knowledge that individuals have can have a negative effect on
661 their ability to gain and hold new information. Those with lower prior knowledge
662 of a given technology often have difficulty in reconstructing the information of a
663 new product compared to those that have less prior knowledge [Wood & Lynch,
664 2002]. When people are presented with new information, a new technology, en-
665 coding of the new information takes place. As that occurs, prior information of
666 the technology is retrieved, and an inference is made on subsequent information
667 by comparing the new and old information. This affects the ability to encode the
668 new information “correctly” and can disrupt later retrieval of the former. Similar
669 effects are seen when investigating motivational forces. Individuals with prior
670 knowledge may also have an overconfidence of the information that they already
671 have and are not as motivated to attend to the information they are learning.

672 Extending the research on prior knowledge and new technology, prior
673 knowledge and complacency has also been seen with contracting an STI, a virus,
674 or chances of getting pregnant [citations]. The decisional factors that occur cog-
675 nitively to choose safe sex practices is complex and subject to frequent change.
676 Many people that are confronted with decisions, such as the mundane choice of
677 what shoes to wear, base their decisions from using a variety of cognitive methods.
678 Often, the choice to wear a condom or other safe sex practices is through a risk
679 heuristic of contracting or transmitting a sexually transmitted infection. With
680 decisions based on issues of purity, such as sex, one heuristic that is commonly
681 employed is the affect heuristic. The affect heuristic in judgements of risk is where
682 the thought or priming of a specific word triggers a quick emotional response to
683 that stimuli word [Finucane et al., 2000]. When presented with words that are
684 physically harmful such as cigarettes or pesticides, participants rated the words
685 as too risky and reported negative feelings concerning those stimulus words. Af-
686 fective considerations of high-risk situations are often put into perspective with
687 individuals in risky situations.

688 An artifact of how issues such as HIV, Human Immunodeficiency Virus,

discussed in the media and the community that it affects creates a cognitive problem with individuals judging the likelihood of catching the virus, especially women. In the media it is often discussed how men who have sex with men are the main individuals catching and spreading HIV. While HIV still affects the LGBTQ+ community, the discussion around susceptibility affects other individuals outside of the LGBTQ+ community negatively as well. Women, for example, have a genetically higher susceptibility to the virus [citation]. That being so, often due to unintended ignorance to their chances are one of the leading groups contracting new cases of HIV [citation]. Downlow culture as well increases the chances of contracting the virus. Amongst some men that do not wish to acknowledge their own homosexuality will choose to forgo the condom, implies a premeditation, and do not necessarily believe they will contract the virus [citation]. Both examples are contributed by the representation of HIV in the media and the current zeitgeist.

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

1.5.1 *Aggression and Cognition*

Connected to spitefulness, moral judgment, and cognition is human aggression. Traditionally, aggression is differentiated between the outcome or motivation of the incident. Aggression as it is operationally defined is behavior that is committed by the actor to another with the intent to harm the other (Anderson & Bushman, 2002). This is then further differentiated to violence where violence is the intent to cause severe harm such as death. From aggression research and moral judgment, cognitive neoassociation theory [CNT] was beginning to become

727 tantamount in research on aggressive behavior.

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

747 Scripts and schemata are key components of the GAM. Schema, more
748 broadly than sexual schema, are cognitive compositions or structures that repre-
749 sent objects or ideas interconnected by their features (DiMaggio, 1997). Multiple
750 representations of schema and stereotypical event sequences are labelled as scripts
751 (Abelson, 1981). A classic example of a cognitive script is events surrounding
752 reading the menu at a restaurant (Abelson, 1981). An individual is at a restau-
753 rant and needs to order from the menu. However, they lost their reading glasses.
754 As Abelson contends, the reader must infer what is needed in reading a menu,
755 what occurs at a restaurant, and so on. The automatic process of schematic
756 activation begins with certain key features of an object or event being noticed
757 by the individual. For example, recognizing a tree one of the first features that
758 are noticed that distinguishes a tree are the leaves. From the leaves, the bark is
759 activated, and so on making up the concept of a tree.

760 Often aggression and discrimination can be understood through the
761 schematic model. Media and social representations of individuals, especially men
762 of color, have often made assumptions and portrayed them as violent and crim-
763 inals. Currently a majority of US adults in a recent Pew Research Center poll
764 report that race relations are currently worse, Black Americans and people of
765 color in general report more cases of discrimination, and a majority say Black

766 Americans in particular are treated unfairly by the police [1]. Aggression or
767 discrimination is often the result of associating one group with negative connota-
768 tions. For example, in the case of those that believe Black Americans are crimi-
769 nals they have through cognitive associations have related the schematic concept
770 of criminal with the features/schema of what they believe is a Black American.
771 The discrimination and aggression then occur through the GAM processes with
772 negative actions being the outcome.

773 Pertinent after the advent of the me-too movement, see section 3, issues of
774 how these power over views of women, especially women of color and trans women
775 of color, become learned and develop in sexual aggression. Sexual aggression
776 in and of itself is a subgroup of aggression where the intent to harm is sexual
777 in nature [1; (Malamuth1995?)]. Many of the targets of sexual aggression
778 are women of color and trans women of color [citations]. In the reported cases
779 men are often the perpetrators of the crimes [Anderson, 1996]. The aggression
780 itself appears to be domain specific to one gender, women. Often, acts of sexual
781 aggression are verbal in nature, such as asking repeatedly for sex or threatening
782 to break up with them (Testa et al., 2015). When individuals gain power they
783 may aggress more over those that have less power, which may pay head to the
784 continued sexual aggression and sexual violence against women of color and trans
785 women of color for whom have historically low levels of power [citations].

786 Recent research by Garnett and Mann investigate the cognitive and em-
787 pathetical processes of those that commit a sexual aggression or sexual violence,
788 labelled as sexual offending [2013]. Common to research on sexual offenses, re-
789 search contends that those that do offend do so with a lack of empathy towards
790 their victims (Hudson1993?). As noted in the previous section on moral judg-
791 ment, see section 3, empathetic processing by these offenders are more complex
792 than the simple inability to “feel” or identify the emotions of others. There is a
793 recurring theme amongst offenders of women being deceitful and sexually entitled
794 (Barnett & Mann, 2013; Gannon, 2009). The offenders often feel slighted when
795 a woman denies their sexual advances which then tends to lead to some sexual
796 aggression (Gannon, 2009; Williams et al., 2017).

797 The rejection of the sexual advances of the man often damage their sense
798 of masculinity (Malamuth et al., 1996). Relating back to beliefs on condom
799 use amongst men, even the request of wearing condom could be interpreted as
800 damaging their sense of masculinity (Castro-Vázquez, 2000). If the woman, in
801 a heterosexual relationship, brings the condom they are damaging the males
802 masculinity but if the male brings the condom he could also be considered a
803 thoughtful individual. While the woman would be seen as easy. This could
804 then lead to bullying behavior and ostracization from the moral judgment of the

805 community on the woman's purity, see section moral judgment.

807 **2.1 Exploratory Experiment 1**808 **2.2 Experiment 1 Review**

809 Spitefulness or spiteful behavior is another aspect of an individual com-
 810 mitting a wrong against another person or person. Spitefulness or spite was orig-
 811 inally defined as, “behaviors that have negative consequences for both the actor
 812 and the recipient” by evolutionary biologists in research in the animal kingdom
 813 (Marcus et al., 2014). Psychoanalysts would soon define spitefulness as, “in-
 814 stances in which people harm themselves to punish another...” (Critchfield, et
 815 al., 2008). Investigations into the origins of spiteful behaviors have been varied:
 816 evolutionary psychological, behavior economic, and parental attachment (cita-
 817 tions). Spiteful behavior would be a problematic behavior that in theory should
 818 not subsist through consecutive generations. However, spite is seen throughout
 819 the animal kingdom. From the bacteria to birds and humans, with obvious vari-
 820 ations (citations). Hamilton’s seminal paper on altruism in the animal was soon
 821 changed by research on spiteful behaviors (1970). Hamiltonian spite articulates
 822 the continued existence of spite in spite of the ultimate cost in that it is genet-
 823 ically advantageous and more common for there to be spiteful behavior towards
 824 the least similar of peers than the average relatedness to the group. In this sense,
 825 spite continues to exist, according to Hamiltonian spite, because the choice of the
 826 least similar amongst the average ultimately increases adaptivity. Interestingly,
 827 Hamilton contended that if the cost to the individual is less than both or either
 828 the benefit or the genetic relatedness than altruistic behavior is favored (Gardner
 829 & West, 2004; Hamilton, 1970). Conversely and more important to spitefulness is
 830 that spitefulness may be favored if there is enough negative relatedness between
 831 the two individuals (originally hypothesized in relation to animals).

832 Spitefulness is also often misconstrued with selfishness (Smead & Forber,
 833 2012). The difference is the cost applied to the individual. To demonstrate the
 834 differences, Alex and Cody are driving down the highway. Alex drives in front
 835 and cuts off Cody from their mutual exit. There is no cost applied to Alex when
 836 cutting off Cody. However, if Alex was in front of Cody and pushed on the brakes
 837 to stop Cody from getting too close and tailgating, then both cars are damaged.
 838 In the latter, Alex damages both cars therefore inflicting damage on themselves,
 839 which exemplifies a spiteful act.

840 Researchers further parse spitefulness into either genetic or psychological
 841 spite. Genetic spite would be the explanation of the spiteful behaviors based on
 842 the genetic relatedness, the aforementioned, while psychological spite is a risky

843 behavior where the organism is required to perform a cost benefit analysis along
844 with analyzing possible futures (Hauser et al., 2009). Note: for brevity, future
845 discussions of spite for humans will be exclusive to psychological spite.

846 Early examples of genetic spitefulness were demonstrated in bacteria where
847 a bacterium will burst spreading bacteriocins, antibacterial toxins, killing the
848 competitor bacteria (Gardner & West 2006). In more complex life, some male
849 birds kill the young conspecific chicks without eating them (Barnett & Mann,
850 2013). It would not be advantageous for the species if the amount of young
851 were significantly reduced, which then would reduce the fitness of the male bird.
852 Similar yet not as drastic spiteful behavior has been seen in humans. Com-
853 mon examples are in ultimatum games where participants are asked to distribute
854 funds to other participants. Participants that believed that the funds were being
855 unequally distributed out, they would reject the offer (Marcus et al., 2014).

856 Outside of behavioral economics, spitefulness has been seen when people
857 will intentionally take longer in checkout if they are annoyed by the person be-
858 hind them or taking longer on an exam if the person is in some way annoyed by
859 the instructor. Spite has also been seen in preschoolers in experiments like the
860 ultimatum game with adults (Bauer et al., 2014). In similar research children
861 preschool children half of the time would reduce the amount of payoff of another
862 child even when there would be no reduction in their winnings (Bügelmayer &
863 Spiess, 2014). On average, boys tended to choose the more spiteful choice over
864 the non-spiteful, girls did not show a significant propensity for spiteful behavior.
865 This propensity continues where younger men tend to score the highest on spite-
866 fulness than their peers (Marcus et al., 2014). As people age, they tend to be less
867 spiteful and egalitarian and altruistic behaviors increase (Bügelmayer & Spiess,
868 2014). Spiteful behavior may persist into early and late adulthood.

869 The evolution of spite in humans continues to be researched but another research
870 finding points to parenting style. Parenting style includes parental warmth, pos-
871 itive affect, and control (Carlo et al., 2010; citations). Research investigating
872 positive parental connections has shown to predict future secure attachments in
873 relationships and helps foster multiple types of prosocial behaviors and a general
874 emotional sensitivity (citations). Conversely, a negative parenting style evidenced
875 by low parental warmth and more strict control over the child predicts more anti-
876 social behaviors and future insecure attachments (citations). Both paternal and
877 maternal warmth was predictive of future prosocial behaviors however, maternal
878 warmth was more predictive than paternal warmth. When there are negative
879 parental attachments, negative traits are predicted to occur. For example, dark
880 personality traits are more likely. These dark personalities were originally a triad
881 of psychopathy, narcissism, and Machiavellianism (citations). Eventually the

882 triad expanded to include both sadism and spitefulness (citation). Likelihood for
883 spitefulness to subsist later into life is also reflected by the education level of the
884 parents, where children of less-educated parents tended to be more selfish, less
885 altruistic, and express a weak form of spitefulness (Bauer et al., 2014). Lower
886 socioeconomic status has also been associated with deficiencies in cooperating
887 behaviors that reduce the likelihood of darker personality traits like spitefulness.
888 However, Bauer and colleagues suggest that it may be the circumstances of having
889 a lower economic status that makes it more difficult to form altruistic behaviors in
890 that there are other factors for them to think of. Still, spiteful behavior remains
891 a factor for children in families with low socioeconomic status.

892 Some adults have a comorbidity with spitefulness and other aggressive per-
893 sonality traits. Investigations of violent offenders have shown interesting effects of
894 spitefulness amongst the other darker characteristics (Rogier et al., 2019). Violent
895 offenders compared to their non-incarcerated controls, displayed increased aggres-
896 sion, narcissism, and spitefulness. Individuals that displayed increased spiteful
897 behavior was due to the need to punish others through external means with-
898 out internal control of their behaviors. The spitefulness displayed by the violent
899 offenders also saw an association with difficulty in emotional dysregulation (Ci-
900 tations). Emotional dysregulation is when an individual has difficulty in either
901 regulating their emotion responses and/or emotional miss regulation where the
902 individual is using the incorrect regulatory strategy in response to the current
903 situation (Gross & Jazaieri, 2014). In studies investigating the individuals show-
904 ing instances of spiteful behavior, they may have difficulty in controlling their
905 emotions along with using the incorrect regulatory strategy. Spiteful individuals
906 not only have issues in regulating their emotions, they also have difficulty in rec-
907 ognizing and attributing the emotions of others often misconstruing the causes of
908 the emotions. Furthermore, the spiteful individuals have difficulty with impulse
909 control and coupled with their misconstruing of the emotions of others they may
910 harm the other individual(s) and in turn themselves. Coupled with difficulties in
911 emotion detection, they display increased levels of detachment which may explain
912 their willingness to harm others (Zeigler-Hill & Noser, 2018). These spiteful indi-
913 viduals also have issues with future prospection, which is the ability to judge the
914 consequences of their behaviors and project them into the future (citations). In
915 doing so they may show irrational behaviors towards themselves and thus harm-
916 ing themselves, the central precept in spitefulness.

917 There are several problematic behaviors that become prevalent with individuals
918 that show spitefulness (citations). Given the readily available high-speed inter-
919 net, many behaviors are becoming fueled by increased internet use (citations). In
920 some cases, the internet use may become problematic and affect the individual

negatively. Kicaburun and Griffiths carried out a series of studies investigating the association between the dark traits or personalities and problematic internet use. Of note, each of the dark quintet traits are associated with problematic internet use. Specifically, Machiavellianism is directly associated with online gambling and online gaming. Spitefulness interestingly was directly associated with internet gaming use and indirectly with online shopping (Kicaburun & Griffiths, 2018). Enviousness and feelings of entitlement are leading motivations of spiteful behavior (Marcus et al., 2014). Consequently, individuals high in spitefulness also tend to be higher in both narcissism and low self-esteem which worsens the problematic internet use. Another problematic behavior, which may be facilitated by increased internet use, is not physical spiteful behavior. Research in humor styles has shown two variations, either injurious or benign (Vrabel, Zeigler-Hill, & Shango, 2017). Injurious as the name suggests uses humor that is aggressive that belittles themselves and others. Conversely, benign humor is more affiliative and enhances feelings of the self and others. With the increased internet use by individuals that score higher in spitefulness it stands to reason that these individuals would use the internet to further their use of belittling humor styles to harm others possibly expanding their pool of eventual targets.

2.3 Methodology

2.3.0.1 Methods. Participants: Participants were a convenience sample of 82 (Mage = 25.6, SD = 7.54) individuals from Prolific Academic crowdsourcing platform (“www.prolific.co”). Requirements for participation were: (1) be 18 years of age or older and (2) and as part of Prolific Academics policy, have a prolific rating of 90 or above. Participants received £4 or £8 an hour as compensation for completing the survey. The University of Edinburgh’s Research Ethics Committee approved all study procedures (approval reference number: 330-1920/1).

2.3.0.2 Materials: *Demographic Questionnaire:* Prior to the psychometric scales, participants are asked to share their demographic characteristics.

Spitefulness Scale. The Spitefulness scale (Marcus et al., 2014) is a measure with seventeen one sentence vignettes to assess the spitefulness of participants. The original spitefulness scale has 31-items. In the original Marcus and colleagues’ paper, fifteen were removed. For the present study however, 4-items were removed because they did not meet the parameters for the study i.e., needed to be dyadic, more personal. Three reverse scored items from the original thirty-one were added after meeting the requirements. Example questions included, “It might be worth risking my reputation in order to spread gossip about someone I

959 did not like.” and “Part of me enjoys seeing the people I do not like fail even if
960 their failure hurts me in some way.” Items are scored on a 5-point scale ranging
961 from 1 (“Strongly disagree”) to 5 (“Strongly agree”). Higher spitefulness scores
962 represent higher acceptance of spiteful attitudes.

963 *Sexuality Self-Esteem Subscale:* The Sexuality Self-Esteem subscale
964 (SSES; Snell & Papini, 1989) is a subset of the Sexuality scale that measures
965 the overall self-esteem of participants. Due to the nature of the study, the sex-
966 uality subscale was chosen from the overall 30-item scale. The 10-items chosen
967 reflected questions on the sexual esteem of participants on a 5-point scale of +2
968 (Agree) and -2 (Disagree). For ease of online use the scale was changed to 1
969 (“Disagree”) and 5 (“Agree”), data analysis will follow the sexuality scale scoring
970 procedure. Example questions are, “I am a good sexual partner,” and “I some-
971 times have doubts about my sexual competence.” Higher scores indicate a higher
972 acceptance of high self-esteem statements.

973 *Sexual Jealousy Subscale:* The Sexual Jealousy subscale (Worley & Samp,
974 2011) are 3-items from the 12-item Jealousy scale. The overall jealousy scale
975 measures jealousy in friendships ranging from sexual to companionship. The 3-
976 items are “I would worry about my partner being sexually unfaithful to me.”,
977 “I would suspect there is something going on sexually between my partner and
978 their friend.”, and “I would suspect sexual attraction between my partner and
979 their friend.” The items are scored on a 5-point scale ranging from 1 (“Strongly
980 disagree”) to 5 (“Strongly agree”). Higher scores indicate a tendency to be more
981 sexually jealous.

982 *Sexual Relationship Power Scale:* The Sexual Relationship Power Scale
983 (SRPS; Pulerwitz, Gortmaker, & DeJong, 2000) is a 23-item scale that measures
984 the overall power distribution in a sexually active relationship. The SRPS is split
985 into the Relationship Control Factor/Subscale (RCF) and the Decision-Making
986 Dominance Factor/Subscale (DMDF). The RCF measures the relationship be-
987 tween the partners on their agreement with statements such as, “If I asked my
988 partner to use a condom, he [they] would get violent.”, and “I feel trapped or stuck
989 in our relationship.” Items from the RCF are scored on a 4-point scale ranging
990 from 1 (“Strongly agree”) to 4 (“Strongly disagree”). Lower scores indicate an
991 imbalance in the relationship where the participant indicates they believe they
992 have less control in the relationship. The DMDF measures the dominance level
993 of sexual and social decisions in the relationship. Example questions include,
994 “Who usually has more say about whether you have sex?”, and “Who usually
995 has more say about when you talk about serious things?” Items on the DMDF
996 are scored on a 3-item scale of 1 (“Your Partner”), 2 (“Both of You Equally”),
997 and 3 (“You”). Higher scores indicate more dominance by the participant in the

998 relationship.

999 `_Scenario Realism Question_`: Following Worley and Samp in their 2014 paper on v
1000

1001 `_Spiteful Vignettes_`: After participants complete the above scales, they are pr
1002 "Casey and Cole have been dating for 6 years. A year ago, they both moved into

1003 For each vignette, the participant is asked to rate each vignette on how
1004 justified they believe the primary individual, Casey in the above, is with their
1005 spiteful reaction. Scoring ranges from 1 ("Not justified at all") to 5 ("Being
1006 very justified"). Higher scores overall indicate higher agreement with spiteful
1007 behaviors. ## Procedure: Participants were recruited on Prolific Academic.
1008 Participants must be 18-years of age or older, restriction by study design and
1009 Prolific Academic's user policy. The published study is titled, "Moral Choice
1010 and Behavior." The study description follows the participant information sheet
1011 including participant compensation. Participants were asked to accept their par-
1012 ticipation in the study. Participants were then automatically sent to the main
1013 survey (Qualtrics, Inc.).

1014 Once participants accessed the main survey, they were presented with the
1015 consent form for which to accept they responded with selecting "Yes.". Partic-
1016 ipants were then asked to provide demographic characteristics such as gender,
1017 ethnicity, and educational attainment. Participants would then complete in or-
1018 der, the spitefulness scale, the sexual relationship power scale, the sexual jealousy
1019 subscale, and sexuality self-esteem subscale. Next, participants were presented
1020 ten vignettes where they were instructed to rate on the level of justification for
1021 the action conducted in the vignette. After each vignette, participants would rate
1022 the realism of the scenario. Upon completion of the survey (median completion
1023 time 17 minutes and 5 seconds), participants were shown a debriefing message
1024 and contact information of the Primary Investigator (Andrew Ithurburn). Par-
1025 ticipants were then compensated at £8/hr. via Prolific Academic.

1026 **2.3.0.3 Data Analysis:** Demographic characteristics were analyzed
1027 using a one-way analysis for continuous variables (age) and Chi-squares tests for
1028 categorical variables (sex, ethnicity, ethnic origin, and educational attainment).
1029 Means and standard deviations were calculated for the surveys along with correla-
1030 tional analyses (e.g., spitefulness, SESS, SRPS, SJS). Bayesian multilevel models
1031 were used to test differences between levels of justifications of vignettes that are
1032 either sexually or non-sexually vindictive in behavior. Model 1 ## Results: Table
1033 # presents the results of the multilevel model of the present study. Ninety-seven
1034 individuals attempted to participate in the study, 15 of these individuals opted

1035 to return the study and discontinue participation. A majority of the partici-
 1036 pants identified as male ($n = 50$) while 30 identified as female and 2 as gender
 1037 non-binary. There was a moderate skewness towards the right in age (1.40). Ta-
 1038 ble # shows the demographic information for study 1. A Spearman correlation
 1039 was conducted on the four psychometric tests along with the age of the partic-
 1040 ipants. The sexual jealousy subscale (SJS) and the sexual relationship power
 1041 scale (SRPS) resulted in the only significant correlation $r = -0.55$, $p < 0.0001$.
 1042 ### Spitefulness: Justification as a function of the four indices was not entirely
 1043 explained by the proposed model. The posterior mode for the fixed effect of Spite
 1044 $\gamma = 0.02$. 95% CI [0.01-0.03], indicating that there was an insignificant difference
 1045 between the levels of spite and justification of vindictive behaviors. When looking
 1046 at percentage change of behavior given the γ , around 2%. The mode of the pos-
 1047 terior distribution for the variance among the random effects for the justification
 1048 of the vignettes was $\alpha^2 = 1.07$, 95% CI [0.98 – 1.09] indicating that there was
 1049 variation amongst the participants in their justification of the vignettes.

1050 **2.4 Discussion:**

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