Distinguishing Between the Endowment Effect and Buyer's Remorse in a

Dating Scenario

by

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ABSTRACT

Previous research on experiences of the endowment effect and buyer's remorse has often failed to compare the two seemingly related phenomena. The current study attempts to provide a framework in which the two can be compared and to offer a possible suggestion as to when it may be beneficial to experience either the endowment effect or buyer's remorse, namely situations of resource scarcity versus abundance. The current study employed an online dating paradigm in which resource scarcity was operationalized as the sex ratio of users on the site. Two hundred and one participants were exposed to a favorable sex ratio, an unfavorable sex ratio, or a no information control condition and asked to bid on potential dates. Once matched with a potential date, participants were asked how willing they would be to give up their date and the minimum amount of points they would request to do so. These dependent variables served as indicators of experiences of the endowment effect or buyer's remorse. Results indicated that the sex ratio of the online dating site did not influence experiences of the endowment effect versus buyer's remorse. Potential mediators and moderators were also investigated although no significant effects were found. Possible reasons for the null results are discussed as well as future directions.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Distinguishing Between the Endowment Effect and Buyer's Remorse in a Dating

Scenario

Imagine that you just purchased a coffee mug for $10. At the moment, you might

be concerned only with its utility – this mug will allow you to consume your morning

coffee, so it is good. Now imagine that a coworker comes up to you and offers to buy that

very mug from you. How much are you willing to accept for the mug? Depending on

whether you are experiencing the endowment effect or buyer's remorse, one might make

very different predictions about how much you would be willing to accept for the mug.

If you are experiencing the endowment effect, i.e. demanding more to give up an

item than you paid to acquire it (Thaler, 1980), you may be focused on the fact that the

mug is a beautiful red color or that it is microwaveable and dishwasher safe. In this case,

you may demand $12 for the mug. On the other hand, if you are experiencing buyer's

remorse, the feeling of disappointment one has after they bought something when they

think they have made a mistake ("buyer's remorse," 2013), you may be thinking about all

of the other mugs you could have purchased and the fact that this mug holds relatively

little coffee. In this case, you might demand only $8 for the mug.

The previous example highlights the inherent contrast between experiences of the

endowment effect versus buyer's remorse. What it does not provide is an account of

when it may be beneficial to experience one versus the other. According to traditional

economic theory, because the mug has no inherent value outside of what you paid for it,

you should charge exactly what you paid to acquire it (Willing, 1976). Charging any

more or any less would be deemed "irrational." The current study takes a different,

evolutionary perspective and attempts to answer the question of when it might be advantageous to experience either the endowment effect or buyer's remorse.

In linking evolutionary psychology to the endowment effect and buyer's remorse, my claim is that these tendencies are not irrational after all. It is important to note that this idea is not novel (e.g. Jones & Brosnan, 2008) and there is evidence to suggest that the endowment effect especially may have an evolved basis. For one, the endowment effect appears to emerge early in childhood development, in the absence of learning or exposure to marketplaces. Harbaugh, Krause, and Vesterlund (2001) demonstrated that children as young as six years old were reluctant to trade a toy they had been given for one of equal value. If the endowment effect were purely a learned economic phenomenon, we would expect that its development would require an exposure to, and understanding of, economic marketplaces. However, this study seems to suggest that cultural learning and exposure to market places play a relatively small role, if any, in the development of the endowment effect.

Perhaps more convincing evidence for an evolutionary-based notion of the endowment effect comes from research suggesting that both capuchin monkeys and chimpanzees demonstrate the effect in token trading tasks (Brosnan, Jones, Mareno, Richardson, Lambeth, & Schapiro, 2007; Lakshminaryanan, Chen, & Santos, 2008). Research has demonstrated that when given the opportunity to trade fruit discs for another food item of previously established equal value, capuchin monkeys refuse to accept this equal value trade. This effect does not disappear when the capuchins are compensated for the potential cost of engaging in a trade and cannot be explained be the

fact that it is faster to keep and eat the fruit discs once they have been acquired than to trade them (Lakshminaryanan et al., 2008). This suggests that the endowment effect may be, at least to some extent, an evolved tendency. Furthermore, it is interesting to note that while chimpanzees also exhibit the endowment effect for a variety of items, the effect is particularly strong for fitness relevant items, e.g. food (Jones & Brosnan, 2008). This suggests that perhaps if one wants to study the endowment effect in humans it would be useful to study it within the context of fitness relevant items as opposed to how it is usually studied, i.e. with coffee mugs, pens, or other fitness-irrelevant items.

Unfortunately there is little, if any, research examining buyer's remorse from an evolutionary perspective. However, research in evolutionary psychology has posited rational explanations for a number of seemingly irrational cognitive biases (reviewed in Kenrick & Griskevicius, 2013). Therefore, it is reasonable to suggest the possibility that the buyer's remorse phenomenon may also have an evolutionary explanation.

Explanations of The Endowment Effect

In their classic demonstration of the endowment effect, Kahneman, Knetsch, and Thaler (1990) gave half of their participants (the "sellers") a coffee mug and simply showed the mug to the other half (the "buyers"). They next assessed how much the sellers would be willing to accept in order to sell the mug, as well as how much the buyers would be willing to pay in order to acquire the mug. In a clear demonstration of the endowment effect, the minimum value sellers were willing to accept was significantly greater than the maximum value buyers were willing to pay. This effect persisted even when participants were made aware of the true market value of the mug, i.e. the price tag

was left on. A number of explanations have been posed as to why people may experience the endowment effect. Most notable among them is the idea that the endowment effect is an extension of loss aversion (Kahneman, Knetsch, & Thaler, 1991). Kahneman et al. (1991) argue that losses on the part of the seller loom larger than forgone gains on the part of the buyer, and that therefore sellers tend to overestimate the value of an item. In the coffee mug example that began this paper, you are faced with a choice that may result in losing the mug you just purchased. Your co-worker, on the other hand, will lose nothing (except the opportunity to gain the mug). Therefore, because your loss looms larger, you charge $12 for the mug even though you initially paid only $10. However, this explanation lacks depth in that it casts the endowment effect as simply another form of loss aversion. It does not provide an explanation as to why losses loom larger on the part of the seller and foregone gains on the part of the buyer.

A related explanation is based on the idea of cognitive dissonance or the need to justify one's choices as consistent with one's self-image (Festinger, 1962). In this case, a seller's overvaluation of an item can be explained by the fact that in order to justify picking this alternative over other alternatives one must convince oneself that it is of superior value. This has in fact been demonstrated empirically. Brehm (1955) asked participants to rate a series of items and then choose between two items. After making a decision, participants were asked to rate the items again. Results indicated that ratings of the chosen item increased (evidence that the item was valued more) whereas ratings of the rejected item decreased. It is important to note that this explanation of the endowment effect hinges on the individual being able to choose, a feature that is not always

4

consistent in the literature. Furthermore, while it is typical that cognitive dissonance is resolved by placing increased value on one's choice, it can also be resolved by de-valuing one's choice. This alternative will be discussed below in the context of buyer's remorse.

Similarly, researchers have suggested that the endowment effect may arise out of a sense of ownership. This account of the endowment effect alludes to the notions of cognitive dissonance described above and claims that the mere fact of possessing an item creates a link between the object and the self, which increases the perceived value of the item (e.g. Dommer & Swaminathan, 2013; Gawronski, Bodenhausen, & Becker, 2007). This perspective argues that once an individual owns an item a link is created between one's self-concept and the item. In order to maintain a positive self-concept, the owner to then tends to overestimate the value of the item. However, the research on capuchin monkeys and chimpanzees calls into question the validity of this explanation as it is unclear whether capuchin monkeys and chimpanzees are capable of experiencing a sense of ownership yet they clearly demonstrate the endowment effect.

Lastly, others have suggested that the endowment effect may emerge as the result of buyers and sellers holding differential perceptions of the item. Nayakankuppam and Mishra (2005) argue that sellers tend to fixate on, and remember, more positive aspects of an item whereas buyers tend to fixate on, and remember, more negative aspects of an item. Again, referring to the coffee mug above, you, the seller, may fixate on the beautiful color of the mug and its durability. Your co-worker, on the other hand, may fixate on the fact that the mug is relatively heavy. However, this account of the endowment effect also suffers from limitations. Most notably, the authors offer no

theoretically driven explanation as to why sellers would fixate on positive aspects of the item or why buyers would fixate on negative aspects of the item.

Explanations of Buyer's Remorse

Although there is considerably less research on buyer's remorse than on the endowment effect, a number of proximal explanations have been proposed as to why buyer's remorse may occur. But again, these explanations fail to acknowledge the possibility that experiences of buyer's remorse may serve an evolutionarily rational function.

The most compelling explanation of buyer's remorse suggests that the phenomenon is related to the paradox of choice (Schwartz, 2009). Schwartz argues that when one is faced with an increasing number of choices, one will experience psychological distress that may manifest itself as buyer's remorse. As the number of choices increase, it becomes easier to imagine having made a better choice, which will induce regret and a decrease in overall satisfaction with the chosen item. In the coffee mug example above, perhaps you chose your mug from a display containing many other mugs of different colors and sizes. In this case, your buyer's remorse may be due to the fact that you are focusing on positive aspects of the alternative mugs you could have selected.

Another possible explanation for buyer's remorse is based in cognitive dissonance theory (e.g. Sweeney, Hausknecht, & Soutar, 2000). As stated above, cognitive dissonance is typically invoked as an explanation of the endowment effect. However, the cognitive dissonance that arises after having made a purchase could be interpreted as a

6

sign that one regrets making the purchase, and may induce a feeling that one should return the item. Research has demonstrated that purchases with high commitment or involvement, i.e. time, cognitive resources, energy and effort, result in high incidences of buyer's remorse via cognitive dissonance (George & Edward, 2009; Geva & Goldman, 1991).

Lastly, it has been proposed that the experience of buyer's remorse may be related to changes in decision-making processes pre- and post-purchase (Zhang, 2009). Research demonstrates that individuals who rely on affective based pre-decision processing typically switch to deliberative post-decision processing and this switch from affective to deliberative is thought to result in the experience of buyer's remorse (Zhang, 2009). This research also notes that individuals who relied on deliberative processing in both the pre- and post- purchase phases did not experience buyer's remorse. This would suggest that in the coffee mug example above, your buyer's remorse is due to the fact that when purchasing the mug you relied on affective cues such as feeling drawn to it, whereas after having purchased the mug, you switched to considering more objective cues such as the price and utility of the mug. However, a serious limitation of this explanation is that it offers no justification as to why this shift in decision-making processes pre- and post-purchase occurs.

Endowment Effect vs. Buyer's Remorse

While there is research examining both the endowment effect and buyer's remorse, there is considerably less investigating the relationship between the two. Why might an individual experience the endowment effect in some situations but buyer's

remorse in others? Furthermore, as demonstrated above, prior explanations of the

endowment effect and buyer's remorse do not address the deeper question of why these

phenomena occur at all. Are these simply irrational biases, or is there a deeper, rational

explanation for each of them? I argue broadly that it is important to consider the relative

scarcity versus abundance of resources in an environment when making predictions about

the adaptive value of either the endowment effect or buyer's remorse. In the current

study, this will be operationalized as the sex ratio of the current mating environment. By

investigating the endowment effect and buyer's remorse in the context of mating

decisions and sex ratios I hope to generate new ideas about the deeper rationality of these

effects.

Sex Ratios

The sex ratio of a given environment is defined as the ratio of men to women; a

high sex ratio indicates an abundance of males whereas a low sex ratio indicates an

abundance of females (Guttentag & Secord, 1983). In their influential book, Guttentag

and Secord (1983) demonstrate the power of sex ratios to influence broad cultural trends.

For example, the authors document evidence of more promiscuity in female biased

environments, a greater emphasis on family values and female sexual purity in male

biased environments, etc.

Following from this logic, a great deal of research has identified how biased sex

ratios affect specific psychological mechanisms and behaviors. For instance, research has

demonstrated that in a male biased sex ratio, because of the increased intensity of

intrasexual competition, men are less likely to save money for the future and are more

willing to incur debt for immediate expenses (Griskevicius, Tybur, Ackerman, Delton, Robertson, & White, 2011). Furthermore, research has demonstrated that female biased sex ratios lead more women to seek lucrative, high paying careers and to delay reproduction as a result of shifts in the mating market (Durante, Griskevicius, Simpson, Cantu, & Tybur, 2012).

While sex ratios are typically thought of as falling along a continuum from male biased to female biased, they can also be thought of as lying on a continuum from favorable to unfavorable. An environment with a favorable sex ratio is one in which there are a number of potential mating opportunities and relatively few competitors. An environment with an unfavorable sex ratio is one in which there are few potential mating opportunities and many competitors. This distinction between favorable versus unfavorable ties back to the male biased versus female biased distinction in that for women, a male biased environment is a favorable environment whereas a female biased environment is unfavorable. The reverse is true for men.

Favorable versus unfavorable environments alter the relative scarcity versus abundance of potential mates. Therefore, I hypothesize that favorable versus unfavorable sex ratios will be related to experiences of the endowment effect versus buyer's remorse in a dating scenario. For instance, I hypothesize that an unfavorable sex ratio will induce experiences of the endowment effect. This may be due to the fact that an unfavorable sex ratio signals a lack of alternative mating opportunities. In this instance, it may be beneficial to hold tightly to your current partner and value them as opposed to searching for a new partner since you will be unlikely to find one. On the other hand, a favorable

9

sex ratio should induce experiences of buyer's remorse. This may be due to the fact that a favorable sex ratio signals that one has a variety of mating opportunities available to them. In this case, it may not be beneficial to hold tightly to your current partner. In fact, it may be beneficial to get rid of your partner and search for a new, better one.

Current Study

This thesis aims to investigate the effect of a biased sex ratio on experiences of the endowment effect versus buyer's remorse in an online dating context. More specifically, this study was designed to answer the question of whether exposure to a favorable versus unfavorable sex ratio alters experiences of the endowment effect versus buyer's remorse in a dating scenario.

Main Hypotheses

I predict that participants in the unfavorable sex ratio condition will experience the endowment effect regardless of gender. More specifically, I predict participants in the unfavorable sex ratio condition to be less willing, relative to the control condition, to give up their potential date and that they will request more points, relative to their initial bids, to do so. Conversely, I predict that participants in the favorable sex ratio condition will experience buyer's remorse regardless of gender. More specifically, I predict that participants in the favorable sex ratio condition will be more willing, relative to control, to give up their potential date and that they will request fewer points, relative to their initial bid, to do so.

Alternative Hypotheses

One alternative hypothesis is a main effect of gender such that women will be more prone to experiencing the endowment effect and men will be more prone to experiencing buyer's remorse. It is possible that women will be less willing, and will request more points, to give up their potential dates and that men will be more willing, and will request fewer points, to give up their potential dates. It has in fact been demonstrated empirically that women are more likely than men to experience the endowment effect in a dating scenario (Nataf & Wallsten, 2013). A finding that was attributed to women being more loss averse than men.

Building from this alternative hypothesis, it is also possible that gender moderates the relationship between sex ratio condition and experiences of the endowment effect versus buyer's remorse. Perhaps women in the unfavorable sex ratio condition will be especially likely to experience the endowment effect and men in the favorable sex ratio condition will be especially likely to experience buyer's remorse.

Method

Participants

Participants were recruited in one of two ways during the fall 2013 semester. First, participants were recruited from the following upper level psychology courses: PSY 350 *Social Psychology* (multiple sections), PSY 451 *Stereotyping, Prejudice, and Discrimination*, and PSY 341 *Developmental Psychology*. Students in these classes were offered extra credit in exchange for their participation. Second, participants were recruited using the PSY 101 pre-screening email list and the Barrett Honors College listserv. Participants recruited via this second avenue had their emails entered into a raffle for a $50 amazon.com gift card. The gift card was raffled off at the end of data collection on December 2, 2013.

Seven hundred and eighteen students completed the survey. Of those, 517 cases had to be excluded. Cases were excluded first if participants indicated their sexual orientation to be other than heterosexual (13.4%) or if participants indicated their relationship status to be other than single (50.7%). Please note sixty-three participants indicated their sexual orientation to be other than heterosexual and their relationship status to be other than single. This left 321 single, heterosexual participants. Of those 321 participants, an additional 120 participants were excluded because they did not follow the instructions. Failures to follow the instructions included not using the rankings correctly, i.e. not using all six rankings (6.9% of the excluded participants), placing an initial bid greater or less than 25 points (16.8%), and placing a final bid greater than 25 points

(19.9%). Again please note some participants made more than one error, i.e. they incorrectly used the rankings and placed an invalid initial bid.

Thus the final sample consisted of 201 participants[1]. Of those 201 participants, 65.2% were female and the remaining 34.8% were male. Participants ranged in age from 18 to 36 years old ($M = 20.39$, $SD = 2.36$). Three participants did not indicate their age.

Design

This study employed a 3 (sex ratio condition: unfavorable, favorable, or no information control) x 2 (gender) between subjects design.

Materials

Appendix A contains a complete listing of the materials used in this study. After consenting to participate in the study, participants read a short paragraph explaining that the psychology department was working on developing an online, campus-wide dating service for ASU students (Li, Cohen, Weeden, & Kenrick, 2010) and that the department was looking for feedback on the site. In order to increase believability, a disclaimer was included absolving ASU of responsibility for any negative experience students have while using the dating site. At this time, participants also received the following instructions on how the site operated "After you create a user profile, you will see a random selection of six photographs. You will be asked to rank each photograph. You

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[1] Given the large number of participants excluded, additional analyses were performed in order to determine whether including them made a significant difference. For those participants who used the bidding incorrectly (bid more than 25 points) their bids were capped at 25 points. Additional analyses reflect the inclusion of these corrected bids and non-single, heterosexual participants. The resulting sample of 571 participants (158 male, 413 female; 299 single, 13 dating several people, 207 in a committed relationship, 11 engaged, 29 married, 11 other, 1 missing) ranged in age from 18 to 38 ($M = 21.0$, $SD = 3.09$).

will also be given 25 bidding points, which you may use to bid on the photographs. You must use all 25 bidding points and you must bid at least 1 point on every photograph. Once all bids have been placed, you will be matched with one of the six photographs."

After reading the instructions, all participants created a "user profile" for the site under the cover story that other users may eventually see their profile. Participants entered information about their age and gender, which served as demographic variables. Participants also had the opportunity to enter information about their year in school, major, hobbies, favorite movie, and other such variables that were irrelevant to the study but helped to bolster the cover story.

Manipulations. All participants were randomly assigned to one of three sex ratio conditions: favorable, unfavorable, or the no information control condition. A favorable sex ratio for women was operationalized as a male biased sex ratio and an unfavorable sex ratio was operationalized as a female biased sex ratio. The reverse was true for men. This is important to keep in mind as the sex ratio conditions were presented to participants as either male biased, female biased, or no information but based on the participants own gender, this then corresponded to favorable, unfavorable, or control.

In the male biased environment, which corresponded to the favorable sex ratio condition for women and the unfavorable sex ratio condition for men, participants were told that 107 people were currently signed into the site, 79 men and 28 women. In order to highlight the sex ratio discrepancy participants were also provided with an image of 107 stick figures, 79 of which were blue and 28 of which were pink. In the female biased environment, which corresponded to the unfavorable sex ratio condition for women and

14

the favorable sex ratio condition for men, participants were told that 107 people were currently signed into the site, 79 women and 28 men and provided the corresponding set of stick figures (79 pink and 28 blue). Participants in the no information control condition were told that 107 people were signed into the site but were not given information as to the gender of these individuals. The image in this condition was simply 107 black stick figures. In order to keep the sex ratio salient, the number of men and women "signed in" to the site appeared in the upper left hand corner of every subsequent page that the participants viewed.

Photographs. All participants viewed six photographs. Male participants viewed photographs of female individuals and female participants viewed photographs of male individuals. All photographs were obtained via Google image searches. All photographs were pretested by four research assistants to determine their attractiveness on a scale from 1 (*not at all attractive*) to 7 (*extremely attractive*). Pre-test results showed that both male photographs ($M = 4.58$, $SD = 0.75$) and female photographs ($M = 5.38$, $SD = 0.98$) were rated as slightly above average attractiveness. Although the mean attractiveness rating for the female photographs was higher than that of the male photographs this difference was not significant, $t(3) = 2.36$, $p = .10$.

Sell back option. After being matched with their potential date, participants read the following instructions: "Another member was interested in this individual and would like to offer you a counterbid! Selecting yes to this option would allow you to go back into the pool of [28 women and 78 men (male biased condition)/ 78 men and 28 women

(female biased condition/ 107 people (control condition)] and start over. You will see

another *randomly selected* 6 photographs and will complete the bidding process again."

Dependent measures. All dependent measures are reproduced in Appendix B.

Participants were asked to rank all six photographs from 1 – 6 in order of their preference

for matching purposes. A rank of 1 indicated top preference while a rank of 6 indicated

lowest preference. Participants were also asked to manually enter an initial bid for each

photograph.

After being matched with their potential date, all participants were asked how

willing they were to give up their match and re-enter the pool on a Likert scale ranging

from 1 (*Not at all willing*) to 6 (*Extremely willing*). Participants were also asked to

indicate the minimum number of points they would be willing to accept in order to give

up their match and re-enter the pool. Difference scores were calculated by subtracting

each participant's initial bid from their final bid. Positive difference scores indicated that

participants requested more to give up their potential date than they initially bid to

acquire them (suggestive of experiencing the endowment effect). Negative difference

scores indicated that participants requested fewer points to give up their potential date

than they initially bid to acquire them (suggestive of experiencing buyer's remorse).

These two dependent measures, willingness to re-enter the dating pool and

participant difference scores, were highly negatively correlated. See Table 2 in Appendix

C for the correlation matrix of all hypothesized and exploratory dependent variables.

Additional exploratory measures. Participants were given a number of additional measures in order to explore other potentially interesting dependent variables, as well as mediating and moderating factors.

Perceived mate value of the target. One potentially interesting, yet exploratory, dependent variable is the perceived mate value of target. Participants were instructed to rate their potential date relative to the average person on 16 characteristics (e.g. intelligence) using a Likert scale ranging from 1 (*Much lower than average*) to 9 (*Much higher than average*) (White, Kenrick, Neel & Neuberg, 2013) ($\alpha = .92$).

Emotional mediators. In order to explore potential mediating factors, participants were asked to rate the extent to which they were satisfied with their match (rated on a Likert scale ranging from 1 = *Not at all satisfied* to 7 = *Extremely satisfied*), how disappointed they were with their match (rated on a Likert scale ranging from 1 = *Not at all disappointed* to 7 = *Extremely disappointed*), how enthusiastic they were to get to know their match (rated on a Likert scale ranging from 1 = *Not at all enthusiastic* to 7 = *Extremely enthusiastic*), and how regretful they were to be matched with this individual (rated on a Likert scale ranging from 1 = *Not at all regretful* to 7 = *Extremely regretful*).

Self-perceived mate value. Self-perceived mate value was assessed using a four-item scale that measures the extent to which participants see themselves as desirable to the opposite sex (Landolt, Lalumière, & Quinsey, 1995). Participants were asked to rate the extent to which they agreed with four statements (e.g. "Members of the opposite sex find me attractive") on a Likert scale ranging from 1 (*Strongly disagree*) to 7 (*Strongly*

17

agree). Final mate value scores were computed by taking the average of all four items (α = .85).

     Shortened big five inventory. The short version of the Big Five Inventory is designed to measure the five dimensions of personality using only 10 items, 2 items per dimension (Rammstedt & John, 2007). Of interest to this study specifically is the Openness to Experience dimension. Participants were asked to rate the extent to which they see themselves as someone who "has few artistic interests" (reverse scored item) and as someone who "has an active imagination" on a 5-point Likert scale ranging from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Scores were computed by averaging these two items (α = .43).

     Sociosexual orientation inventory. The 7-item sociosexual orientation inventory is used to measure the extent to which participants are restricted or unrestricted in their sexual relationships (Simpson & Gangestad, 1991). This scale asks participants to estimate how many sexual partners they have had, how many sexual partners they anticipate having in the next five years, how many sexual partners they have had on only one occasion, and how often they fantasize about having sex with someone other than their current partner. This scale also assesses participants' interest in casual sex (e.g. "I can imagine myself being comfortable and enjoying 'casual sex' with different partners") on a Likert scale ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*). Final SOI scores were computed in accordance with the guidelines provided by Simpson & Gangestad (1991) (α = .75). Higher SOI scores indicate a more unrestricted mating strategy.

Procedure

      The survey was hosted by Qualtrics and administered online. After consenting to participate and reading the instructions participants were randomly assigned to one of the three sex ratio conditions. Participants were then presented with the 6 photographs. Again, male participants were presented with female photographs and female participants were presented with male photographs. After ranking all 6 photographs and placing their initial bid, participants were presented with a blank screen and a spinning wheel. Participants were told that other people were still placing their bids and the program was calculating matches. This message remained on the screen for 5 seconds.

      All participants were then matched with the photograph of the individual they ranked second. After receiving their match, participants answered questions regarding their satisfaction, disappointment, enthusiasm, and regret over being matched with that individual. Participants then rated the perceived characteristics of their potential date. Immediately after rating their potential date, participants were presented with the counterbid offer, asked how willing they would be to give up their match, and asked to indicate the minimum amount they would accept in order to give up their match.

      After answering the primary dependent measures, participants were presented with the remaining exploratory measures in the order listed above. Upon completing the survey, participants were asked what they thought the purpose of the study was. This was done in order to assess suspicion. Participants were then debriefed.

Results

Main Hypotheses Related Analyses

In order to test the main and alternative hypotheses, I ran a series of two-way analyses of variance (ANOVAs). See Appendix C for tables. See Appendix D for graphs and figures.

Willingness to re-enter the dating pool. I hypothesized that regardless of gender participants in the unfavorable sex ratio condition would be less willing, relative to control, to give up their matches and that participants in the favorable sex ratio condition would be more willing, relative to control, to give up their matches. However, results of a two-way ANOVA revealed that sex ratio condition had no effect on participants' willingness to give up their match and re-enter the dating pool, $F(2, 195) = 1.19$, $p = .31$, partial $\eta^2 = .01$. Post hoc tests using Fisher's LSD indicated that participants in the favorable sex ratio condition ($M = 3.26$, $SD = 1.42$) were no more willing that participants in either the unfavorable sex ratio condition ($M = 2.95$, $SD = 1.27$; $p = .21$) or the control condition ($M = 3.17$, $SD = 1.38$; $p = .69$) to give up their match and re-enter the dating pool. The difference between the control condition and the unfavorable sex ratio condition was also not significant ($p = .36$).

There was also no significant effect of gender, $F(1, 195) = 2.37$, $p = .13$, partial $\eta^2 = .01$. Males ($M = 2.94$, $SD = 1.39$) were no more willing than females ($M = 3.24$, $SD = 1.34$) to give up their matches and re-enter the dating pool. Lastly, there was no gender by condition interaction, $F(2, 195) = 0.56$, $p = .56$, partial $\eta^2 = .006$. That is, the effect of sex ratio condition did not depend on participant gender (Figure 1).

Willingness to re-enter the dating pool was also assessed with the inclusion of the additional 370 non-single/corrected bid participants. The addition of these participants did not significantly affect the results. Consistent with the above results, there was no effect of sex ratio condition, $F(2, 536) = 2.66$, $p = .07$, partial $\eta^2 = .01$. Participants in the favorable sex ratio condition ($M = 3.16$, $SD = 1.44$) were no more willing than participants in either the unfavorable sex ratio condition ($M = 2.97$, $SD = 1.33$; $p = .18$) or participants in the control condition ($M = 3.01$, $SD = 1.43$; $p = .28$) to give up their match and re-enter the dating pool. The difference in willingness between the unfavorable sex ratio condition and the control condition was also not significant ($p = .81$).

However, the main effect of gender became significant, $F(1, 536) = 4.10$, $p = .04$, partial $\eta^2 = .01$ (possibly because of the larger sample size). Women ($M = 3.13$, $SD = 1.40$) were significantly more willing than men ($M = 2.83$, $SD = 1.39$) to give up their match and re-enter the dating pool. This pattern is consistent with the results of the heterosexual, singles only sample discussed above. As above, there was no significant gender by sex ratio condition interaction, $F(2, 536) = 0.46$, $p = .63$, partial $\eta^2 = .002$ suggesting that the effect of sex ratio condition did not depend on gender. Lastly, it is important to note that there was no effect of relationship status on willingness to re-enter the dating pool, $F(5, 536) = 0.35$, $p = .89$, partial $\eta^2 = .003$. Post hoc tests using Fishers LSD revealed no significant differences in willingness to re-enter the dating pool across the six relationship status conditions.

Difference scores. I hypothesized that regardless of gender participants in the unfavorable sex ratio condition would request more, relative to their initial bid, to give up

their match and that participants in the favorable sex ratio condition would request less, relative to their initial bid, to give up their match. This would be indicative of the endowment effect and buyer's remorse respectively.

I first conducted a two-way ANOVA in order to test whether there were any differences in initial bids as a function of condition, gender, or the interaction between the two. Results indicated that there was no effect of sex ratio condition on initial bids, $F(2, 195) = 0.10$, $p = .90$, partial $\eta^2 = .001$. Post hoc tests using Fisher's LSD revealed that initial bids in the favorable sex ratio condition ($M = 5.67$, $SD = 2.19$) did not differ from initial bids in either the control condition ($M = 5.56$, $SD = 1.87$; $p = .76$) or initial bids in the unfavorable sex ratio condition ($M = 5.77$, $SD = 2.07$; $p = .76$). The difference in initial bids between the unfavorable sex ratio condition and the control condition was not significant ($p = .56$). There was also no effect of gender, $F(1, 195) = 2.53$, $p = .11$, partial $\eta^2 = .01$. The initial bids of female participants ($M = 5.82$, $SD = 1.76$) did not differ from those of male participants ($M = 5.36$, $SD = 2.44$). Lastly, there was no interaction between gender and condition, $F(2, 195) = 0.27$, $p = .76$, partial $\eta^2 = .003$ (Figure 2).

Next I conducted a two-way ANOVA in order to investigate whether the minimum amount requested to give up one's potential date (the final bid) differed as a function of either sex ratio condition, gender, or the interaction between the two. Results indicated that there was no effect of sex ratio condition on participants' final bids, $F(2, 195) = 0.08$, $p = .93$, partial $\eta^2 = .001$. Post hoc tests using Fisher's LSD revealed that participants in the unfavorable condition ($M = 11.82$, $SD = 7.05$) did not request

significantly more than participants in either the control condition ($M = 11.77$, $SD = 7.80$; $p = .97$) or the favorable sex ratio condition ($M = 12.27$, $SD = 7.56$; $p = .74$). There was no significant difference in final requests between the control condition and the favorable sex ratio condition ($p = .69$). Furthermore, there was no significant effect of gender on participants' final bids, $F(1, 195) = 0.14$, $p = .71$, partial $\eta^2 = .001$. Men ($M = 12.24$, $SD = 8.03$) and women ($M = 11.79$, $SD = 7.20$) did not differ in the minimum amount requested to give up their potential date and re-enter the dating pool. Lastly, there was no sex ratio condition by gender interaction, $F(2, 195) = 0.01$, $p = .99$, partial $\eta^2 = .000$ (Figure 3).

Difference scores were then calculated by subtracting participants' initial bids from the minimum amount requested to give up their date and re-enter the dating pool (final bids). As stated above, positive difference scores indicated that participants requested more than they initially bid to give up their potential date (indicative of the endowment effect). Negative difference scores indicated that participants requested less to give up their potential date than they initially bid (indicative of buyer's remorse).

Failing to support the main hypothesis, results of a two-way ANOVA revealed that sex ratio condition had no effect on participants' difference scores, $F(2, 195) = 0.06$, $p = .94$, partial $\eta^2 = .001$. Post hoc tests using Fisher's LSD suggested that difference scores for participants in the control condition ($M = 6.21$, $SD = 7.90$) did not differ from those in either the favorable sex ratio condition ($M = 6.61$, $SD = 7.72$; $p = .76$) or the unfavorable sex ratio condition ($M = 6.05$, $SD = 7.09$; $p = .91$). The difference between the favorable sex ratio condition and the unfavorable sex ratio condition was also not

significant ($p = .69$). It appears that participants in all conditions requested more, relative to their initial bids, to give up their match, indicative of the endowment effect.

Again, there was no significant effect of gender, $F(1, 195) = 0.63$, $p = .43$, partial $\eta^2 = .003$. Men's difference scores ($M = 6.89$, $SD = 7.73$) did not differ from women's difference scores ($M = 5.98$, $SD = 7.51$). It appears that both men and women requested more, relative to their initial bids, to give up their match, indicative of the endowment effect. Lastly, there was no significant gender by sex ratio condition interaction, $F(2, 195) = 0.01$, $p = .99$, partial $\eta^2 = .000$. Failing to support the alternative hypothesis, the effect of sex ratio condition on difference scores did not depend on gender (Figure 4).

Difference scores were also assessed including the additional non-single/corrected bid participants. The addition of these participants did not significantly affect the results. Consistent with the above results, there was no effect of sex ratio condition, $F(2, 536) = 1.54$, $p = .22$, partial $\eta^2 = .007$. Difference scores for participants in the unfavorable sex ratio condition ($M = 7.37$, $SD = 8.09$) were not significantly greater than difference scores in either the favorable sex ratio condition ($M = 8.14$, $SD = 8.81$, $p = .40$) or the control condition ($M = 7.04$, $SD = 8.44$, $p = .72$). The difference between the control condition and the favorable sex ratio condition was also not significant ($p = .23$).

However, the main effect of gender became significant, $F(1, 536) = 3.87$, $p = .05$, partial $\eta^2 = .008$ (probably due to the larger sample size). Men ($M = 9.21$, $SD = 8.58$) had significantly greater difference scores than women ($M = 6.87$, $SD = 8.31$) suggesting that men were more likely to experience the endowment effect. This pattern is consistent with the findings from the singles only sample. As above, there was not a significant gender

24

by condition interaction, $F(2, 536) = 0.04$, $p = .96$, partial $\eta^2 = .000$ implying that the effect of sex ratio condition did not depend on gender. Lastly, it is important to note that there was no effect of relationship status on difference scores, $F(5, 536) = 1.32$, $p = .25$, partial $\eta^2 = .014$. Post hoc tests using Fishers LSD revealed no significant differences across the six relationship status conditions.

Exploratory Analyses

      Negative difference scores. As demonstrated above, most participants had positive difference scores, indicative of the endowment effect. However, as noted in Table 1, difference scores did range from negative to positive, suggesting that a small subset of the sample ($n = 40$) did experience buyer's remorse. Independent samples t-tests were run in order to determine whether there were significant differences between participants who experienced buyer's remorse (had negative difference scores) and those who experienced the endowment effect (had positive difference scores). The two groups were compared on the following individual difference measures: extraversion, agreeableness, conscientiousness, neuroticism, openness to experience, SOI, and self-perceived mate value. No significant differences between the two groups were found (Table 3). The same analyses were run including non-single/corrected bid participants. In this larger sample 76 individuals showed negative difference scores. Again no significant differences between groups were found (Table 4).

      Perceived mate value of the target. The 16-item scale measuring the perceived mate value of the target was included for the purposes of exploring whether sex ratio condition influenced how desirable of a mate participants perceived their match to be. It

is possible that participants in the unfavorable sex ratio condition would be more likely to see their match as being of higher mate value and participants in the favorable sex ratio condition would see their match as being of lower mate value. Perhaps changing the availability of other potential mates in the environment alters the perception of one's current mate. This possibility follows from the prediction that participants in the unfavorable sex ratio condition would experience the endowment effect and participants in the favorable sex ratio would experience buyer's remorse.

Research has demonstrated that men and women prioritize different characteristics in potential mates (Buss, 1989), especially short-term potential mates. Men tend to prioritize physical attractiveness and youth whereas women tend to prioritize social status and wealth. However research has demonstrated that everyone, regardless of gender, desires mates that possess certain qualities like trustworthiness and kindness (e.g. Li & Kenrick, 2006).

In order to determine whether these dimensions were represented in the 16-item scale, I subjected the items to principal axis factoring with varimax rotation (Table 5). As expected, three dimensions emerged. This was determined based on an examination of the scree plot as well as Kaiser's rule. Factor one was labeled general mate value due to the high loadings of the following items: intelligence, creativity, kindness, responsibility, trusting, friendly, and funny. Factor two was labeled male mate value due to the high loadings of the following items: social status, physically strong, wealthy, and socially dominant. The third factor was labeled female mate value due to the high loading of the following items: physically attractive and sexually desirable.

26

A total of three items were eliminated because they did not contribute to simple structure as they all had cross loadings of .3 or above (Thurstone, 1954): popularity, physically fit, and a leader. The item "popularity" had loadings above .4 on both factor two and factor three. The item "physically fit" also had loadings above .4 on both factor two and factor three. The item "a leader" had loadings above .5 on both factor one and factor two.

Analysis of the final scale revealed that the three factors accounted for 61.71% of the total variance in scores. After rotation, factor one accounted for 30.49% of the total variance in scores, factor two accounted for 17.58% of the total variance in scores, and factor three accounted for 13.64% of the total variance in scores.

Internal consistencies for the total scale as well as each of the subscales were examined using Cronbach's alpha. The entire scale was highly reliable (α = .92). The three subscales were also highly reliable: general mate value subscale (α = .91), male mate value subscale (α = .82), and female mate value scale (α = .86). Composite scores, which reflected the mean of the items comprising that subscale, were then created for each subscale.

In order to determine whether sex ratio condition influenced the perceived mate value of the target I conducted a two-way ANOVA. Results indicated that there was no effect of condition on perceived mate value of the target, $F(2, 192) = 0.57$, $p = .57$, partial $\eta^2 = .01$. Participants in the unfavorable sex ratio condition ($M = 6.33$, $SD = 1.01$) did not perceive their match to be of higher mate value than participants in either the control condition ($M = 6.40$, $SD = .99$; $p = .68$) or the favorable sex ratio condition ($M = 6.23$, SD

= .87; p = .55). The difference between the favorable sex ratio condition and the control

condition was also not significant (p = .28). There was a main effect of gender, $F(1, 192)$

= 4.34, p = .04, partial η^2 = .02. Women (M = 6.42, SD = .99) perceived their match to be

of higher mate value than men (M = 6.15, SD = .87) did. However, there was no

significant gender by sex ratio condition interaction, $F(2, 192)$ = 1.00, p = .37, partial η^2 =

.01 suggesting that the effect of sex ratio condition on perceived mate value of the target

did not depend on gender.

In order to better understand the significant main effect of gender, perceived mate

value of the target as operationalized by the male and female mate value subscales was

examined. For men, sex ratio condition did not influence the perceived mate value of

their female match (as operationalized by the female mate value subscale), $F(1, 67)$ =

0.44, p = .65, partial η^2 = .013. Men in the unfavorable sex ratio condition (M = 7.10, SD

= 1.31) were no more likely than men in either the control condition (M = 7.42, SD =

0.97; p = .36) or the favorable sex ratio condition (M = 7.33, SD = 0.07; p = .51) to see

their match as being of higher mate value. The difference in ratings between the control

condition and the favorable sex ratio condition was not significant (p = .79) (Figure 5).

For women there was also no significant effect of sex ratio condition on the

perceived mate value of their male match (as operationalized by the male mate value

subscale) $F(2, 126)$ = 0.47, p = .62, partial η^2 = .007. Women in the unfavorable sex ratio

condition (M = 6.26, SD = 1.11) were no more likely than women in either the control

condition (M = 6.47, SD = 1.13; p = .40) or the favorable sex ratio condition (M = 6.28,

SD = 1.07; p = .95) to see their match as being of higher mate value. The difference in

ratings between the control condition and the favorable sex ratio condition was not significant ($p = .42$) (Figure 6).

In order to determine whether the perceived mate value of the target influenced experiences of the endowment effect versus buyer's remorse (as operationalized by the difference scores) and whether this was moderated by experimental condition, I regressed the difference score measure onto sex ratio condition (dummy coded such that D1 represented the comparison of the favorable sex ratio condition to the control condition and D2 represented the comparison of the unfavorable sex ratio condition to the control condition), perceived mate value of the target (centered), and the interaction between sex ratio condition and perceived mate value of the target. Results indicated that there was a significant effect of the perceived mate value of the target on difference scores. Participants who perceived their match to be of higher mate value had greater difference scores (indicative of the endowment effect). There was no significant sex ratio condition by perceived mate value of the target interaction suggesting that this effect was not moderated by experimental condition (Table 6).

The above analyses were also conducted including the non-single/corrected bid participants. Again, results indicated that there was no effect of sex ratio condition, $F(2, 549) = 0.82$, $p = .44$, partial $\eta^2 = .003$. Participants in the unfavorable sex ratio condition ($M = 6.16$, $SD = .97$) were no more likely to see their match as being of higher mate value than participants in either the control condition ($M = 6.30$, $SD = .99$; $p = .16$) or the favorable sex ratio condition ($M = 6.15$, $SD = .93$; $p = .91$). The difference between the control condition and the favorable sex ratio condition was not significant ($p = .14$). As

29

discussed above, when considering only single participants there was a significant main effect of gender, however including the non-single/correct bid participants renders marginal the previously significant main effect $F(1, 549) = 2.88$, $p = .09$, partial $\eta^2 = .01$. Men ($M = 6.09$, $SD = .89$) and women ($M = 6.25$, $SD = .99$) perceived their match to be of equal mate value. As above, there was no gender by sex ratio condition interaction, $F(2, 549) = 1.03$, $p = .36$, partial $\eta^2 = .004$ indicating that the effect of sex ratio condition did not depend on gender.

Again, in order to determine whether the perceived mate value of the target had an effect on difference scores and whether this was moderated by experimental condition with this larger sample, I regressed the difference score measure onto condition (dummy coded in the same way described above), perceived mate value of the target, and the interaction between experimental condition and perceived mate value of the target. Results were consistent with the findings from the singles only sample. Again there was a significant effect of the perceived mate value of the target on difference scores such that participants who perceived their match to be of higher mate value had greater difference scores (indicative of the endowment effect). Again there was no significant sex ratio condition by perceived mate value of the target interaction suggesting that this effect was not moderated by experimental condition (Table 7).

Satisfaction as a mediator. The satisfaction item was included in order to investigate the possibility that it may mediate the relationship between sex ratio condition and experiences of the endowment effect as operationalized by participants' difference scores. Despite the fact that there was no significant effect of sex ratio condition on

difference scores and therefore no direct path, mediation can still exist (MacKinnon, Fairchild, & Fritz, 2007).

I first conducted a one-way ANOVA in order to test whether satisfaction with one's match varied as a function of sex ratio condition. Results indicated that there was no effect of experimental condition on satisfaction, $F(2, 195) = 0.20$, $p = .82$, partial $\eta^2 = .002$. Participants in the unfavorable sex ratio condition ($M = 5.35$, $SD = .90$) were no more satisfied with their match than participants in either the control condition ($M = 5.19$, $SD = 1.16$; $p = .40$) or participants in the favorable sex ratio condition ($M = 5.20$, $SD = 1.15$; $p = .43$). The difference between participants in the control condition and the favorable sex ratio condition was not significant ($p = .98$).

In order to examine whether satisfaction mediated the relationship between sex ratio condition and difference scores I ran a series of regression analyses using a mediation macro for SPSS (Hayes & Preacher, 2013). First, I regressed satisfaction onto sex ratio condition (dummy coded). Consistent with the results of the one-way ANOVA, there was no significant effect of experimental condition on satisfaction (Table 8). Next, I regressed the difference score measure onto satisfaction controlling for sex ratio condition. Results indicated that while there was no significant effect of condition, there was a significant effect of satisfaction on difference scores, $p = .003$. The more satisfied participants were with their match, the greater their difference scores, indicative of the endowment effect (Table 9).

In order to test the significance of the indirect effects I calculated asymmetric, bootstrapped confidence intervals for the product of the a and b paths. The analysis

revealed that neither sex ratio condition (relative to control) indirectly influenced

difference scores through satisfaction (favorable sex ratio 95% CI = -.55 to .71;

unfavorable sex ratio 95% CI = -.23 to .96), because both confidence internals contained

zero. This suggests that satisfaction does not mediate the relationship between sex ratio

condition and difference scores (Figure 7).

It is also possible that experimental condition may moderate the relationship

between satisfaction and difference scores. In order to explore this possibility I regressed

difference scores onto experimental condition (dummy coded), satisfaction (centered),

and the interaction between sex ratio condition and satisfaction. Replicating the findings

discussed above, there was a significant effect of satisfaction on difference scores.

However, there was no significant interaction between sex ratio condition and satisfaction

suggesting that the effect of satisfaction was not moderated by experimental condition

(Table 10).

The above analyses were repeated including non-single/corrected bid participants.

The results were consistent with the findings from the singles only sample. Satisfaction

was positively related to difference scores but did not mediate the relationship between

sex ratio condition and difference scores (Table 11). Furthermore, sex ratio condition did

not moderate the relationship between satisfaction and difference scores (Table 12).

Enthusiasm as a mediator. The enthusiasm item was also included in order to

investigate whether it mediated the relationship between sex ratio condition and

experiences of the endowment effect versus buyer's remorse, as operationalized by the

difference score measure. Again, despite the fact that there was no significant effect of

condition on difference scores and therefore no direct path, mediation can still exist (MacKinnon et al., 2007).

I first ran a one-way ANOVA in order to test whether enthusiasm varied as a function of sex ratio condition. Results indicated that there was no effect of experimental condition on enthusiasm, $F(2, 195) = 0.30$, $p = .74$, partial $\eta^2 = .003$. Participants in the unfavorable sex ratio condition ($M = 5.00$, $SD = 1.15$) were no more enthusiastic about getting to know their match than participants in either the control condition ($M = 4.72$, $SD = 1.40$; $p = .20$) or the favorable sex ratio condition ($M = 4.76$, $SD = 1.27$; $p = .29$). The difference in enthusiasm between participants in the control condition and favorable sex ratio condition was not significant ($p = .85$).

In order to examine whether enthusiasm mediated the relationship between sex ratio condition and difference scores I ran a series of regression analyses. First I regressed the enthusiasm measure onto sex ratio condition (dummy coded). Consistent with the results of the one-way ANOVA, there was no significant effect of experimental condition on enthusiasm (Table 13). Next I regressed the difference score measure onto enthusiasm controlling for sex ratio condition. Results indicated that while the overall model was not significant, there was a significant effect of enthusiasm on difference scores, $p = .04$ (Table 8). The more enthusiastic participants were, the greater their difference scores, indicative of the endowment effect (Table 14).

In order to test the significance of the indirect effects, I calculated asymmetric, bootstrapped confidence intervals for the mediation effect. The analysis revealed that neither sex ratio condition (relative to control) indirectly influenced difference scores

33

through enthusiasm (favorable sex ratio 95% CI -.36 to .57; unfavorable sex ratio 95% CI = -.07 to .02). This suggests that enthusiasm did not mediate the relationship between sex ratio condition and difference scores (Figure 8).

It is also possible that experimental condition may moderate the relationship between enthusiasm and difference scores. In order to explore this possibility I regressed the difference score measure onto experimental condition (dummy coded), enthusiasm (centered), and the interaction between condition and enthusiasm. Replicating the findings discussed above, there was a significant effect of enthusiasm on difference scores. However, there was no significant interaction between sex ratio condition and enthusiasm suggesting that the effect of enthusiasm on difference scores was not moderated by experimental condition (Table 15).

The above analyses were repeated including non-single/corrected bid participants. The results were consistent with the findings from the singles only sample. Enthusiasm was positively related to difference scores but did not mediate the relationship between sex ratio condition and difference scores (Table 16). Furthermore, sex ratio condition did not moderate the relationship between enthusiasm and difference scores (Table 17).

Disappointment as a mediator. The disappointment item was included in order to investigate the possibility that it may mediate the relationship between condition and experiences of buyer's remorse as operationalized by participants' difference scores. Again, despite the fact that there was no significant effect of condition on difference scores and therefore no direct path, mediation can still exist (MacKinnon et al., 2007).

I first ran a one-way ANOVA in order to test whether disappointment varied as a function of sex ratio condition. Results indicated that there was no effect of experimental condition on disappointment, $F(2, 193) = 0.65$, $p = .52$, partial $\eta^2 = .007$. Participants in the favorable sex ratio condition ($M = 2.23$, $SD = 1.21$) were no more disappointed with their match than participants in either the control condition ($M = 2.00$, $SD = 1.13$; $p = .22$) or the unfavorable sex ratio condition ($M = 2.16$, $SD = 1.06$; $p = .73$). The difference in disappointment between the control condition and unfavorable sex ratio condition was not significant ($p = .42$).

In order to examine whether disappointment mediated the relationship between sex ratio condition and difference scores I ran a series of regression analyses. First, I regressed the disappointment measure onto experimental condition (dummy coded). Consistent with the results of the one-way ANOVA, results indicated that there was no significant effect of sex ratio condition on disappointment (Table 18). Next, I regressed the difference score measure onto disappointment controlling for experimental condition. Results indicated that the overall model was not significant and there was a no significant effect of disappointment on difference scores, $p = .18$ (Table 19).

In order to test the significance of the indirect effects, I calculated asymmetric, bootstrapped confidence intervals for the mediated effect. The analysis revealed that neither sex ratio condition (relative to control) indirectly influenced difference scores through disappointment (favorable sex ratio 95% CI -.77 to .07; unfavorable sex ratio 95% CI = -.65 to .10). This suggests that disappointment did not mediate the relationship between sex ratio condition and difference scores (Figure 9).

35

It is also possible that experimental condition may moderate the relationship between disappointment and difference scores. In order to explore this possibility I regressed the difference score measure onto experimental condition (dummy coded), disappointment (centered), and the interaction between sex ratio condition and disappointment. There was a significant effect of disappointment on difference scores. The more disappointed participants were with their match, the lower their difference score. However, there was no significant interaction between sex ratio condition and disappointment suggesting that the effect of disappointment on difference scores did not depend on experimental condition (Table 20).

The above analyses were repeated including non-single/corrected bid participants. The results were consistent with the findings from the singles only sample. Disappointment was significantly, negatively related to difference scores but again did not mediate the relationship between sex ratio condition and difference scores (Table 21). Furthermore, sex ratio condition did not moderate the relationship between disappointment and difference scores (Table 22).

Regret as a mediator. The regret item was also included in order to investigate the possibility that it may mediate the relationship between sex ratio condition and experiences of buyer's remorse as operationalized by participants' difference scores. Again, despite the fact that there was no significant effect of condition on difference scores and therefore no direct path, mediation can still exist (MacKinnon et al., 2007).

I first ran a one-way ANOVA in order to test whether regret varied as a function of sex ratio condition. Results indicated that there was no effect of sex ratio condition on

36

regret, $F(2, 195) = 0.04$, $p = .96$, partial $\eta^2 = .001$. Participants in the favorable sex ratio condition ($M = 1.86$, $SD = 1.21$) were no more regretful about being matched with their potential date than participants in either the control condition ($M = 1.92$, $SD = 1.15$; $p = .76$) or the unfavorable sex ratio condition ($M = 1.84$, $SD = 1.18$; $p = .92$). The difference in regret between the control condition and the unfavorable sex ratio condition was not significant ($p = .69$).

In order to examine whether regret mediated the relationship between sex ratio condition and difference scores I ran a series of regression analyses. First, I regressed the regret measure onto sex ratio condition (dummy coded). Consistent with the results of the one-way ANOVA, there was no significant effect of sex ratio condition on regret (Table 23). Next, I regressed the difference score measure onto regret controlling for sex ratio condition. Results indicated that the overall model was not significant and there was a no significant effect of regret on difference scores, $p = .32$ (Table 24).

In order to test the significance of the indirect effects, I calculated asymmetric, bootstrapped confidence intervals for the mediated effect. The analysis revealed that neither sex ratio condition (relative to control) indirectly influenced difference scores through regret (favorable sex ratio 95% CI -.17 to .50; unfavorable sex ratio 95% CI = -.13 to .61). This suggests that regret did not mediate the relationship between sex ratio condition and difference scores (Figure 10).

It is also possible that experimental condition may moderate the relationship between regret and difference scores. In order to explore this possibility I regressed difference scores onto experimental condition (dummy coded), regret (centered), and the

37

interaction between sex ratio condition and regret. There was no significant effect of regret on difference scores and no significant interaction between sex ratio condition and regret suggesting that the effect of regret on difference scores did not depend on experimental condition (Table 25).

The above analyses were repeated including non-single/corrected bid participants. The results were consistent with the findings from the singles only sample. However, with this larger sample regret was negatively related to difference scores but again did not mediate the relationship between sex ratio condition and difference scores (Table 26). Furthermore, sex ratio condition did not moderate the relationship between regret and difference scores (Table 27).

Self-perceived mate value as a moderator. Self-perceived mate value was included in order to explore whether this moderated the relationship between sex ratio condition and experiences of the endowment effect versus buyer's remorse as operationalized by the difference score measure. It is possible that participants with higher mate value would be more likely to experience buyer's remorse, as they may be more successful in obtaining a better match later on. The opposite may be true of participants with low mate value. Perhaps low mate value participants would be more likely to experience the endowment effect, as they are less likely to obtain a better match later on. Furthermore, it is possible that the effect of mate value may interact with sex ratio condition such that participants with high mate value in the favorable sex ratio condition would be especially likely to experience buyer's remorse whereas low mate

value participants in the unfavorable sex ratio would be especially likely to experience the endowment effect.

In order to explore this possibility I regressed the difference score measure onto sex ratio condition (dummy coded), self-perceived mate value (centered), and the interaction between condition and self-perceived mate value. Results indicated that the overall model was not significant. Furthermore, there was no effect of sex ratio condition, no effect of self-perceived mate value, and no interaction between sex ratio condition and self-perceived mate value (Table 28 and Figure 11). This suggests that self-perceived mate value did not moderate the relationship between sex ratio condition and experiences of the endowment effect versus buyer's remorse. The above analyses were repeated including non-single/corrected bid participants. The results were consistent with the findings from the singles only sample (Table 29).

Openness to experience as moderator. The shortened Big 5 inventory was included for the purpose of testing whether openness to experience moderated the relationship between sex ratio condition and experiences of the endowment effect versus buyer's remorse, as operationalized by difference scores. It is possible that individuals higher on openness to experience would be more prone to experiencing buyer's remorse, as this would facilitate the gaining and cycling through of new potential matches. On the other hand, individuals lower on openness to experience may tend to experience the endowment effect, as they may prefer to stick with the match they are already familiar with as opposed to searching for new potential matches. It is also possible that openness to experience may interact with sex ratio condition such that participants high on

39

openness to experience in the favorable sex ratio condition would be especially likely to experience buyer's remorse and participants low in openness to experience in the unfavorable sex ratio condition would be especially likely to experience the endowment effect.

In order to explore this possibility, I regressed the difference score measure onto sex ratio condition (dummy coded), openness to experience (centered), and the interaction between condition and openness to experience. Results indicated that there was no effect of sex ratio condition, no effect of openness to experience, and no interaction between openness to experience and experimental condition (Table 30 and Figure 12). This suggests that openness to experience did not moderate the relationship between sex ratio condition and experiences of the endowment effect versus buyer's remorse.

The above analyses were repeated including non-single/corrected bid participants. Results from this larger sample indicated that there was a significant effect of openness to experience on difference scores. The more open participants reported being, the lower their difference scores (indicative of buyer's remorse). This main effect was qualified however by a significant sex ratio condition by openness to experience interaction. For participants in both the favorable and unfavorable sex ratio conditions, as openness to experience increased there was a slight increase in difference scores (indicative of the endowment effect). However, for participants in the control condition, as openness to experience increased, difference scores significantly decreased (Table 31 and Figure 13).

40

Sociosexual orientation inventory as a moderator. SOI was assessed in order to determine whether this moderated the relationship between sex ratio condition and experiences of the endowment effect versus buyer's remorse as operationalized by the difference score measure. It is possible that unrestricted participants (higher SOI scores) would be more likely to experience buyer's remorse, as unrestricted individuals tend to prefer having multiple partners, and that restricted participants would be more likely to experience the endowment effect, as restricted participants tend to prefer having fewer partners in whom they invest more (Simpson & Gangestad, 1991). Furthermore, it is possible that SOI would interact with sex ratio condition such that unrestricted participants in the favorable sex ratio condition would be especially likely to experience buyer's remorse and restricted participants in the unfavorable condition would be especially likely to experience the endowment effect.

In order to explore this possibility, I regressed the difference score measure onto sex ratio condition (dummy coded), SOI (centered), and the interaction between condition and SOI. Results indicated that there was no effect of sex ratio condition, no effect of SOI, and no interaction between condition and SOI (Table 32 and Figure 14). This suggests that SOI did not moderate the relationship between sex ratio condition and experiences of the endowment effect versus buyer's remorse. The above analyses were repeated including non-single/corrected bid participants. The results were consistent with the findings from the singles only sample (Table 33).

Discussion

The results of this study did not provide evidence for differential experiences of the endowment effect versus buyer's remorse as a function of the sex ratio in a dating environment. Participants in the unfavorable sex ratio condition were no more likely to experience the endowment effect and participants in the favorable sex ratio condition were no more likely to experience buyer's remorse. If anything, most participants, regardless of sex ratio condition, experienced the endowment effect as evidenced by their positive difference scores. A small subset of participants did experience buyer's remorse (had negative difference scores) but no differences in personality traits, SOI, or self-perceived mate value where found between individuals who experienced the endowment effect and those who experienced buyer's remorse.

Furthermore, failing to support the alternative hypotheses regarding gender, this study found no evidence for differential experiences of the endowment effect versus buyer's remorse as a function of participant gender in the singles only sample. Women were no more likely than men to experience the endowment effect and men were no more likely than women to experience buyer's remorse. Again, if anything, the data indicate that perhaps men were more likely to experience the endowment effect as they were less willing to give up their matches and re-enter the dating pool and their difference scores tended to be greater than women's. However, it is important to note that this was simply a trend and was not statistically significant in the singles only sample. In the larger sample including non-single/corrected bid participants this effect did become statistically significant.

42

This study also explored whether the perceived mate value of the target varied as a function of the sex ratio condition of the online dating website. The perceived mate value of the target was assessed using the total mate value scale score as well as the corresponding gender subscale scores. When using the total mate value score in the singles only sample, no evidence was found to suggest that experimental condition had any effect on the perceived mate value of the target (results in the larger sample including non-single/corrected bid participants were consistent with this finding). There was however a significant main effect such that women perceived their match to be of higher mate value than men did (this effect became non-significant with the inclusion of the non-single/corrected bid participants). When considering the gender specific mate value subscales, no evidence was found to suggest that experimental condition had any effect on the perceived mate value of the target.

The perceived mate value of the target did significantly influence difference scores. The more desirable the target was perceived to be, the greater the difference score, indicative of the endowment effect. However, it did not appear that sex ratio condition moderated the relationship between perceived mate value of the target and experiences of the endowment effect versus buyer's remorse.

Four emotional states (satisfaction, enthusiasm, disappointment, and regret) were investigated as potential mediators of the relationship between sex ratio condition and experiences of the endowment effect versus buyer's remorse. While the results indicated that none of these four emotional states acted as mediators, there was an effect of both satisfaction and enthusiasm on participants' difference scores. The more satisfied and

enthusiastic participants were with their matches, the greater their difference scores, indicative of the endowment effect. There was a significant relationship between disappointment and experiences of buyer's remorse. The more disappointed participants were with their match, the lower their difference scores, indicative of buyer's remorse. There was no relationship between regret and difference scores. It also did not appear that sex ratio condition moderated the relationships between these emotional states and experienced of the endowment effect versus buyer's remorse.

Lastly, participant self-perceived mate value, openness to experience, and SOI were explored as potential moderators of the relationship between sex ratio condition and experiences of the endowment effect versus buyer's remorse. Results from the singles-only sample indicated that none of these three variables acted as moderators. Results from the larger sample suggested that openness to experience did moderate the relationship between sex ratio condition and experiences of the endowment effect versus buyer's remorse. For participants in both the favorable and unfavorable sex ratio conditions as openness to experience increased so did difference scores (indicative of experiencing the endowment effect). It appears that for participants in the control condition as openness to experience increased difference scores decreased (indicative of experiencing buyer's remorse). This pattern of findings is actually opposite the predicted findings. Participants in the control condition behaved as expected. More specifically, as openness to experience increased, difference scores decreased (indicative of experiencing buyer's remorse). However in both sex ratio conditions there appeared to be a slight

44

increase in difference scores as openness to experience increased though this increase was not significant.

In summary, this study did not find evidence in support of the main hypothesis regarding the effect of sex ratio condition on experiences of the endowment effect versus buyer's remorse. Whether the analyses were performed with the singles only sample or the larger sample including non-single/corrected bid participants, sex ratio condition did not influence experiences of the endowment effect versus buyer's remorse.

The findings regarding gender tell a slightly different story. When considering the singles only sample there was a trend toward men experiencing the endowment effect more strongly than women but it was not statistically significant. However, this trend did become statistically significant when non-single/corrected bid participants were included. This finding is opposite of the alternative hypothesis. Perhaps men regardless of condition thought they could not do better with another match and therefore requested more to keep their current match. No consistent evidence of potential mediators or moderators of the relationship between sex ratio condition and experiences of the endowment effect versus buyer's remorse was discovered.

Before we conclude that it is futile to study the endowment effect versus buyer's remorse in a dating scenario, it is important to note that this study did suffer from a number of limitations. For one, this study did not include a manipulation check. Therefore, it is not possible to conclude whether the null findings were due to a weak sex ratio manipulation or to the fact that there is really no difference in the population. Furthermore, a number of participants had to be excluded from the analysis. This

suggests that perhaps the directions or instructions were overly complicated and confusing. However including non-single/corrected bid participants in the analysis did not significantly alter the results. This suggests that the null findings in the singles only sample cannot be explained simply as a function of the exclusion criteria. Lastly, it is possible that the tendency for most participants, regardless of sex ratio condition, to experience the endowment effect may be explained by the fact that the photographs chosen were potentially too attractive. Future studies could resolve this issue by including a broader range of photographs that vary in their level of attractiveness.

The majority of participants in this study experienced the endowment effect regardless of sex ratio manipulation. This finding is consistent with previous research on experiences of the endowment effect in a short term dating scenario (Nataf & Wallsten, 2013). It is possible that experiences of buyer's remorse may not emerge in short term dating situations, irrespective of the sex ratio. Research on buyer's remorse does indicate that it is more common with purchases involving high commitment or investment (George & Edward, 2009; Geva & Goldman, 1991). Perhaps a short-term online dating paradigm is simply not a powerful enough situation to elicit buyer's remorse. Maybe the costs of meeting a short-term potential date online are not that great and therefore it would not be beneficial to experience buyer's remorse. Buyer's remorse may be more likely in long-term, committed relationships (marriage) that require greater investment.

The results of this study suggest a number of potentially fruitful areas for future research. Perhaps the methodology used in the current study, bidding and counterbidding on an online dating website, is not ecologically valid. Perhaps participants did not

46

realistically buy into the premise of using online points to bid for unknown target individuals contact information. Future studies could address this limitation by using archival and/or census data to examine the relationship between local sex ratios and marital satisfaction/divorce rates. It is possible that in cities with a male biased sex ratio, recently married females would be more likely to experience dissatisfaction with their husbands and lower marital satisfaction in general, indicative of buyers remorse. Conversely, their husbands may experience relatively higher levels of marital satisfaction, indicative of the endowment effect. Perhaps in this environment, the number of divorces initiated by women would be significantly greater than the number of divorces initiated by men. As such, I would expect that in cities with a female biased sex ratio this effect would reverse such that recently married husbands would experience buyer's remorse and lower marital satisfaction whereas their wives would experience the endowment effect and higher marital satisfaction. In this environment perhaps the number of divorces initiated by men would be significantly greater than the number of divorces initiated by women.

Future studies might also consider comparing the endowment effect to buyer's remorse in a traditional marketplace setting. The current study attempted to explore this relationship in a non-traditional dating marketplace however future studies may benefit from a more traditional paradigm. This could be accomplished by conducting the same study using coffee mugs and manipulations of resource scarcity versus abundance in a traditional marketplace setting. Perhaps this method would allow for a more straightforward comparison of the endowment effect versus buyer's remorse. While this

study would more closely replicate the traditional context in which both the endowment effect and buyer's remorse are studied, it is a bit further removed from the psychology of interest here – namely the effect of biased sex ratios on the mating psychology of men and women.

In conclusion, while the results of this study did not support the initial hypotheses, there is still good reason to believe that comparing experiences of the endowment effect to buyer's remorse and investigating the circumstances under which it is beneficial to experience one versus the other is a useful endeavor. Gaps in the literature on the endowment effect and buyer's remorse still remain and the future directions discussed above could help to resolve some of the limitations of this current study in addressing those gaps.

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APPENDIX A

STUDY MATERIALS

Directions: (All conditions)

The Psychology department is working on setting up an online dating service for ASU students. We are currently in the process of designing and pre-testing the site. At this time we are inviting your participation and feedback.

After you create a user profile, you will see a random selection of six photographs. You will be asked to rank each photograph. You will also be given 25 bidding points, which you may use to bid on the photographs. You must use all 25 bidding points and you must bid at least 1 point on every photograph.

Once all bids have been placed, you will be matched with one of the six photographs. At this point you will have the opportunity to get to know your match better. This may include viewing their user profile and emailing them through the site. For privacy reasons, we cannot give out user emails. At the end of the study you will have the opportunity to email your match through the secure website. You are only allowed to email one person!

Disclaimer: The purpose of this dating site is to put ASU students in contact with each other. The psychology department at ASU does not guarantee that individual dates or relationships will ensue. The psychology department at ASU is not responsible for any date or relationship that may ensue and cannot be held responsible for anything that occurs after the completion of the study.

Sex Ratio Manipulations:

Female Biased Sex Ratio

There are currently 107 people signed into the site: 79 women and 28 men.

Male Biased Sex Ratio

There are currently 107 people signed into the site: 79 men and 28 women.

Control

There are currently 107 people signed into the site.

Photographs:

Female Photographs

Male Photographs

APPENDIX B

STUDY MEASURES

Willingness Measure:

How wiling are you to give up your match and go back into the pool?

1	*2*	*3*	*4*	*5*	*6*
Not at all willing					*Extremely willing*

Satisfaction Measure:

How satisfied are you with this match?

1	*2*	*3*	*4*	*5*	*6*	*7*
Not at all satisfied						*Extremely satisfied*

Enthusiasm Measure:

How enthusiastic are you to get to know this person better?

1	*2*	*3*	*4*	*5*	*6*	*7*
Not at all enthusiastic						*Extremely enthusiastic*

Disappointment Measure:

How disappointed are you with this match?

1	*2*	*3*	*4*	*5*	*6*	*7*
Not at all disappointed						*Extremely disappointed*

Regret Measure:

How regretful are you to be matched with this person?

1	*2*	*3*	*4*	*5*	*6*	*7*
Not at all regretful						*Extremely regretful*

Perceived Characteristics of the Target Measure:

Relative to the average person of their gender, how would you rate this person on the

following characteristics:

1	2	3	4	5	6	7	8	9
Much				*About*				*Much*
lower				*average*				*higher*
than								*than*
average								*average*

1. intelligence

2. creativity

3. physically attractive

4. social status

5. kindness

6. responsibility

7. trusting

8. popularity

9. physically strong

10. friendly

11. funny

12. physically fit

13. wealthy

14. sexually desirable

15. socially dominant

16. a leader

Mate Value:

Please rate your agreement with the following statements:

1	2	3	4	5	6	7
Strongly disagree						*Strongly agree*

1. Members of the opposite sex that I like, tend to like me back.

2. Members of the opposite sex notice me.

3. I receive many compliments from members of the opposite sex.

4. I can have as many sexual partners as I choose.

Shortened Big Five Inventory:

How well do to the following statements describe your personality?

1	2	3	4	5
Strongly disagree	*Disagree a little*	*Neither agree nor disagree*	*Agree a little*	*Strongly agree*

I see myself as someone who…

1. Is reserved

2. Is generally trusting

3. Tends to be lazy

4. Is relaxed, handles stress well

5. Has few artistic interests

6. Is outgoing, sociable

7. Tends to find fault with others

8. Does a thorough job

9. Gets nervous easily

10. Has an active imagination

Sociosexual Orientation Inventory:

Please answer all of the following questions honestly.

1. With how many different partners have you had sex (sexual intercourse) within the past year? _____

2. How many different partners do you foresee yourself having sex with during the next five years? (Please give a *specific, realistic* estimate). _____

3. With how many different partners have you had sex on *one and only one* occasion? ____

4. How often do you fantasize about having sex with someone other than your current dating partner?

   - never

   - once every two or three months

   - once a month

   - once every two weeks

   - once a week

   - a few times each week

   - nearly everyday

   - at least once a day

1	*2*	*3*	*4*	*5*	*6*	*7*
Strongly disagree						*Strongly agree*

5. Sex without love is okay

6. I can imagine myself being comfortable and enjoying "casual" sex with many

    different partners.

7. I would have to be closely attached to someone (both emotionally and

    psychologically) before I could feel comfortable and fully enjoy having sex with

    him or her.

Demographic Questions:

Age: _____

Gender:
   _____Male
   _____Female

Relationship Status:

   _____ Single
   _____ Dating several people
   _____ In a committed relationship
   _____ Engaged
   _____ Married
   _____ Other

APPENDIX C

TABLES

Table 1

Descriptives (single participants only)

Measure	α	Range	Mean (SD)
Initial bid	--	1 – 11	5.66 (2.03)
Final bid	--	0 – 25	11.95 (7.48)
Willingness	--	1 – 6	3.13 (1.36)
Difference score	--	-7 – 24	6.29 (7.58)
Satisfaction	--	1 – 7	5.24 (1.09)
Enthusiasm	--	1 – 7	4.81 (1.29)
Disappointment	--	1 – 6	2.12 (1.14)
Regret	--	1 – 7	1.88 (1.17)
Perceived mate value of target	.92	3.3 – 9	6.42 (0.99)
General mate value subscale	.91	3.7 – 9	6.33 (1.15)
Male mate value subscale	.82	2.5 – 9	6.35 (1.10)
Female mate value subscale	.86	3.5 – 9	6.91 (1.12)
Self-perceived mate value	.85	1 – 7	4.26 (1.42)
Openness to experience	.43	1.5 – 5	3.71 (0.87)
SOI	.75	21 – 288	77.88 (40.75)

Table 2

Correlation matrix (single participants only)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Initial bid	-														
2. Final bid	.09	-													
3. Difference score	-.18**	.96**	-												
4. Willingness	-.15*	-.22**	-.17*	-											
5. Satisfaction	.19**	.26**	.21**	-.49**	-										
6. Enthusiasm	.13	.18*	.14*	-.42**	.16**	-									
7. Disappointment	-.24**	-.16*	-.09	.47**	-.67**	-.42**	-								
8. Regret	-.11	-.10	-.07	.35**	-.50**	-.35**	.55**	-							
9. Openness	-.12	.10	.13	-.05	.05	.03	-.07	-.12	-						
10. Mate value of target	.24**	.21**	.14*	-.20**	.38**	.42**	-.29**	-.18*	.02	-					
11. General mate value	.23**	.20**	.14	-.16*	.33**	.39**	-.21**	-.11	.01	.93**	-				
12. Male mate value	.17*	.16*	.11	-.12	.24**	.20**	-.21**	-.12	.04	.83**	.60**	-			
13. Female mate value	.19**	.14	.09	-.28**	.48**	.53**	-.44**	-.38**	.01	.70**	.51**	.54**	-		
14. Self-perceived mate value	.15*	.10	.06	.02	.02	.06	-.05	-.02	-.02	.18**	.18*	.16*	.07	-	
15. SOI	-.02	-.06	-.06	-.04	.13	.14*	-.07	-.10	.02	-.02	-.03	-.09	.14	.32**	-

*p <.05   **p <.01

Table 3

Independent samples t-test results comparing participants who experienced buyer's

remorse to participants who experienced the endowment effect (single participants only)

Variables	Negative Difference Score		Positive Difference Score				
	Mean	SD	Mean	SD	t	df	Sig.
Extraversion	3.36	.89	3.30	1.05	-0.38	199	.71
Agreeableness	3.81	.92	3.83	.84	0.11	199	.91
Conscientiousness	3.73	.76	3.77	.81	0.34	199	.73
Neuroticism	5.55	2.14	5.62	1.96	0.20	199	.84
Openness to Experience	3.69	.87	3.71	.87	0.14	198	.89
SOI	83.68	43.53	76.43	40.04	-1.01	198	.32
Mate Value	4.55	1.55	4.18	1.38	-1.46	199	.15

Table 4

Independent samples t-test results comparing participants who experienced buyer's

remorse to participants who experienced the endowment effect (including non-single,

corrected bid participants)

Variables	Negative Difference Score		Positive Difference Score				
	Mean	SD	Mean	SD	t	df	Sig.
Extraversion	3.36	.87	3.28	1.01	-0.68	566	.50
Agreeableness	3.77	.85	3.75	.82	-0.22	566	.82
Conscientiousness	3.82	.77	3.81	.81	-0.02	568	.98
Neuroticism	5.66	2.14	5.73	1.99	0.30	568	.76
Openness to Experience	3.77	.88	3.63	.87	-1.30	567	.20
SOI	69.47	39.04	68.08	40.52	-0.28	566	.78
Mate Value	4.67	1.43	4.47	1.32	-1.25	567	.21

Table 5

Factor analysis table for perceived mate value of the target measure (single participants only)

	Rotated Loadings			
	Factor 1: General mate value	Factor 2: Male mate value	Factor 3: Female mate value	Extraction Communality
Intelligence	**.68**	.27	.11	.54
Creativity	**.58**	.37	.20	.53
Kindness	**.77**	.14	.23	.68
Responsibility	**.74**	.19	.17	.62
Trusting	**.82**	.18	.16	.73
Friendly	**.73**	.24	.22	.63
Funny	**.61**	.37	.18	.54
Social status	.25	**.61**	.39	.58
Physically strong	.23	**.64**	.16	.49
Wealthy	.41	**.50**	.27	.49
Socially dominant	.20	**.80**	.15	.70
Physically attractive	.30	.22	**.79**	.77
Sexually desirable	.20	.29	**.79**	.74
Eigenvalue	6.60	1.46	1.00	
% of total variance	30.49	17.58	13.64	
Total variance			61.71	

Table 6

Multiple regression results: Perceived mate value of the target and sex ratio condition moderation (single participants only)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	ANOVA F	Sig.
Difference Score	Constant	6.06	.00	.03	.006	1.23	.30
	D1	0.68	.59				
	D2	0.20	.88				
	Perceived mate value of target	1.84	.04				
	D1*target mate value	-0.51	.71				
	D2*target mate value	-1.84	.17				

Table 7

Multiple regression results: Perceived mate value of the target and sex ratio condition moderation (including non-single, corrected bid participants)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	ANOVA F	Sig.
Difference Score	Constant	6.78	.00	.02	.004	1.42	.21
	D1	1.32	.16				
	D2	0.60	.52				
	Perceived mate value of target	1.48	.03				
	D1*target mate value	-0.90	.37				
	D2*target mate value	-1.44	.13				

Table 8

Mediation regression results: Regressing satisfaction onto sex ratio condition (single

participants only)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Satisfaction	Constant	5.19	.00	.004	-.006	0.42	.66
	D1	0.01	.98				
	D2	0.16	.41				

Table 9

Mediation regression results: Regressing difference score onto satisfaction and sex ratio

condition (single participants only)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Difference	Constant	-1.36	.61	.04	.03	3.05	.03
	D1	0.39	.75				
	D2	-0.38	.77				
	Satisfaction	1.46	.003				

Table 10

Multiple regression results: Satisfaction and sex ratio condition moderation (single

participants only)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Difference	Constant	6.31	.00	.06	.03	2.29	.05
	D1	0.33	.79				
	D2	-0.35	.79				
	Satisfaction	2.29	.002				
	D1*Satisfaction	-1.50	.17				
	D2*Satisfaction	-1.46	.27				

Table 11

Mediation regression results: Regressing difference score onto satisfaction and sex ratio condition (including non-single, corrected bid participants)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Difference	Constant	1.22	.46	.03	.03	5.03	.001
	D1	1.20	.19				
	D2	0.23	.80				
	Satisfaction	1.14	.0002				

Table 12

Multiple regression results: Satisfaction and sex ratio condition moderation (including non-single, corrected bid participants)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Difference	Constant	7.01	.00	.04	.03	3.60	.003
	D1	1.20	.19				
	D2	.28	.76				
	Satisfaction	1.68	.001				
	D1*Satisfaction	-0.74	.32				
	D2*Satisfaction	-1.00	.17				

Table 13

Mediation regression results: Regressing enthusiasm onto sex ratio condition (single participants only)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Enthusiasm	Constant	4.72	.00	.009	-.001	0.88	.42
	D1	0.04	.85				
	D2	0.28	.21				

Table 14

Mediation regression results: Regressing difference score onto enthusiasm and sex ratio condition (single participants only)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Difference	Constant	2.14	.32	.02	.007	1.48	.22
	D1	0.37	.77				
	D2	-0.40	.77				
	Enthusiasm	0.86	.04				

Table 15

Multiple regression results: Enthusiasm and sex ratio condition moderation (single participants only)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Difference	Constant	6.33	.00	.03	.003	1.10	.36
	D1	0.31	.81				
	D2	-0.33	.81				
	Enthusiasm	1.32	.03				
	D1*Enthusiasm	-0.70	.47				
	D2*Enthusiasm	-1.05	.33				

Table 16

Mediation regression results: Regressing difference score onto enthusiasm and sex ratio condition (including non-single, corrected bid participants)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Difference	Constant	3.58	.01	.02	.01	3.14	.03
	D1	1.24	.18				
	D2	0.39	.67				
	Enthusiasm	0.73	.01				

Table 17

Multiple regression results: Enthusiasm and sex ratio condition moderation (including

non-single, corrected bid participants)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	ANOVA F	Sig.
Difference	Constant	6.90	.00	.03	.02	2.50	.03
	D1	1.31	.16				
	D2	0.46	.62				
	Enthusiasm	1.23	.01				
	D1*Enthusiasm	-0.36	.57				
	D2*Enthusiasm	-1.10	.09				

Table 18

Mediation regression results: Regressing disappointment onto sex ratio condition (single

participants only)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	ANOVA F	Sig.
Disappointment	Constant	2.00	.00	.008	-.002	0.78	.46
	D1	0.23	.23				
	D2	0.16	.42				

Table 19

Mediation regression results: Regressing difference score onto disappointment and sex

ratio condition (single participants only)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	ANOVA F	Sig.
Difference	Constant	7.50	.00	.01	-.005	0.68	.57
	D1	0.62	.63				
	D2	-0.03	.98				
	Disappointment	-0.65	.18				

Table 20

Multiple regression results: Disappointment and sex ratio condition moderation (single

participants only)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	ANOVA F	Sig.
Difference	Constant	6.02	.00	.02	-.004	0.83	.53
	D1	0.66	.61				
	D2	0.55	.97				
	Disappointment	-1.52	.05				
	D1*Disappointment	1.47	.19				
	D2*Disappointment	1.36	.27				

Table 21

Mediation regression results: Regressing difference score onto disappointment and sex

ratio condition (including non-single, corrected bid participants)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	ANOVA F	Sig.
Difference	Constant	8.50	.00	.01	.01	2.30	.08
	D1	1.23	.19				
	D2	0.31	.74				
	Disappointment	-0.66	.02				

Table 22

Multiple regression results: Disappointment and sex ratio condition moderation

(including non-single, corrected bid participants)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	ANOVA F	Sig.
Difference	Constant	7.00	.00	.02	.01	1.48	.19
	D1	1.22	.19				
	D2	0.33	.72				
	Disappointment	-0.95	.06				
	D1*Disappointment	0.47	.51				
	D2*Disappointment	0.40	.57				

Table 23

Mediation regression results: Regressing regret onto sex ratio condition (single participants only)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Regret	Constant	1.92	.00	.00	-.009	0.09	.92
	D1	-0.06	.76				
	D2	-0.08	.69				

Table 24

Mediation regression results: Regressing difference score onto regret and sex ratio condition (single participants only)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Difference	Constant	7.08	.00	.006	-.009	0.39	.76
	D1	0.37	.77				
	D2	-0.19	.89				
	Regret	-0.45	.32				

Table 25

Multiple regression results: Regret and sex ratio condition moderation (single participants only)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Difference	Constant	6.23	.00	.02	-.01	0.79	.56
	D1	0.36	.78				
	D2	-0.23	.86				
	Regret	-1.18	.12				
	D1*Regret	1.75	.11				
	D2*Regret	0.41	.72				

Table 26

Mediation regression results: Regressing difference score onto regret and sex ratio

condition (including non-single, corrected bid participants)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Difference	Constant	8.58	.00	.02	.01	2.82	.04
	D1	1.17	.21				
	D2	0.31	.73				
	Regret	-0.80	.01				

Table 27

Multiple regression results: Regret and sex ratio condition moderation (including non-

single, corrected bid participants)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Difference	Constant	7.02	.00	.03	.02	2.57	.03
	D1	1.11	.23				
	D2	0.31	.73				
	Regret	-1.31	.02				
	D1*Regret	1.45	.07				
	D2*Regret	0.16	.83				

Table 28

Multiple regression results: Mate value moderation (single participants only)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Difference	Constant	6.39	.00	.009	-.02	0.35	.88
	D1	0.18	.89				
	D2	-0.24	.86				
	Mate Value	0.61	.29				
	D1*mate value	-0.88	.35				
	D2*mate value	-0.24	.80				

Table 29

Multiple regression results: Mate value moderation (including non-single, corrected bid

participants)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	ANOVA F	Sig.
Difference	Constant	7.03	.00	.007	-.003	0.66	.66
	D1	1.10	.24				
	D2	0.29	.75				
	Mate Value	-0.03	.95				
	D1*mate value	-0.42	.54				
	D2*mate value	0.54	.43				

Table 30

Multiple regression results: Openness to experience moderation (single participants

only)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	ANOVA F	Sig.
Difference	Constant	6.31	.00	.032	.01	1.30	.27
	D1	0.04	.98				
	D2	-0.18	.89				
	Openness	0.11	.92				
	D1*openness	2.64	.08				
	D2*openness	0.70	.63				

Table 31

Multiple regression results: Openness to experience moderation (including non-single,

corrected bid participants)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Difference	Constant	7.12	.00	.02	.01	1.83	.11
	D1	0.98	.29				
	D2	0.21	.82				
	Openness	-1.67	.02				
	D1*openness	2.73	.01				
	D2*openness	2.16	.04				

Table 32

Multiple regression results: SOI moderation (single participants only)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Difference	Constant	6.20	.00	.005	-.02	.21	.96
	D1	0.46	.72				
	D2	-0.18	.89				
	SOI	-0.003	.90				
	D1*SOI	-0.01	.67				
	D2*SOI	-0.01	.72				

Table 33

Multiple regression results: SOI moderation (including non-single, corrected bid

participants)

Dependent Variable	Predictor Variables	B	Sig.	R^2	R^2_{adj}	F	ANOVA Sig.
Difference	Constant	7.00	.00	.005	-.01	.49	.79
	D1	1.10	.24				
	D2	0.35	.71				
	SOI	0.01	.43				
	D1*SOI	-0.02	.37				
	D2*SOI	-0.01	.75				

APPENDIX C

FIGURES
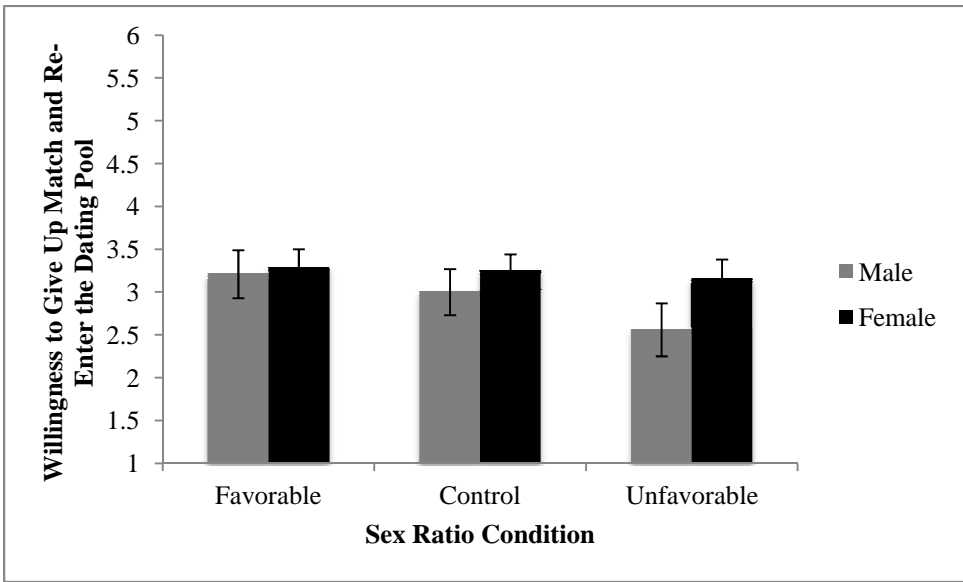
Figure 1. The effects of sex ratio condition and gender on participants' willingness to

give up their match and re-enter the dating pool. Error bars represent ± 1 SEM (single
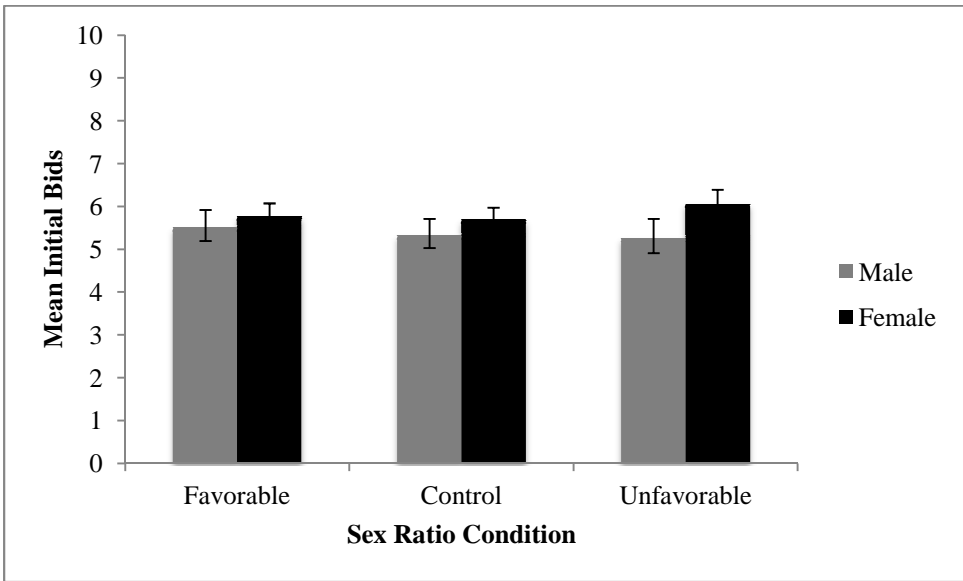
participants only).

Figure 2. The effects of sex ratio condition and gender on participants' initial bids. Error

bars represent ± 1 SEM (single participants only).
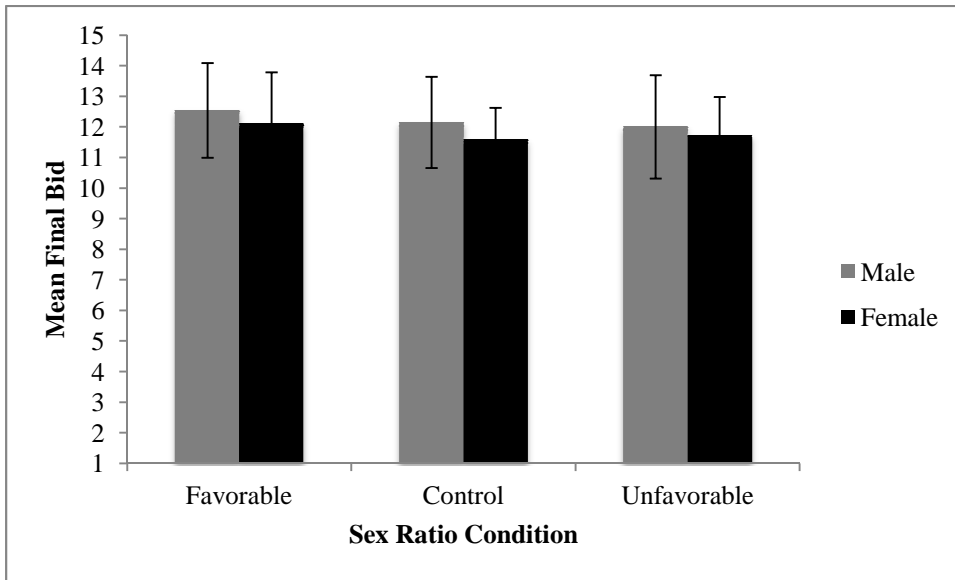
Figure 3. The effects of sex ratio condition and gender on mean final bids. There was no

effect of condition or gender on mean final bids. Error bars represent ± 1 SEM (single
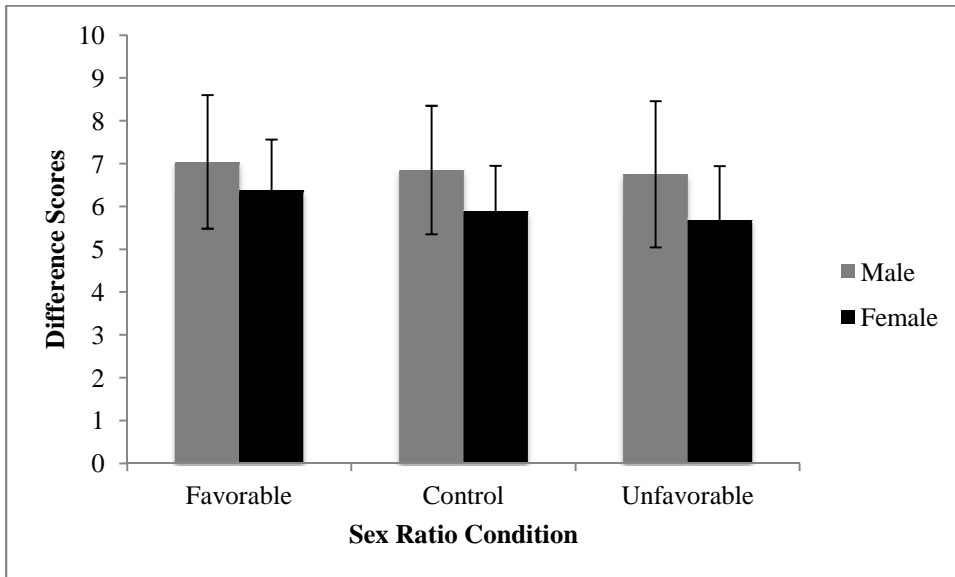
participants only).

Figure 4. The effects of sex ratio condition and gender on mean difference scores. Error

bars represent ± 1 SEM (single participants only).
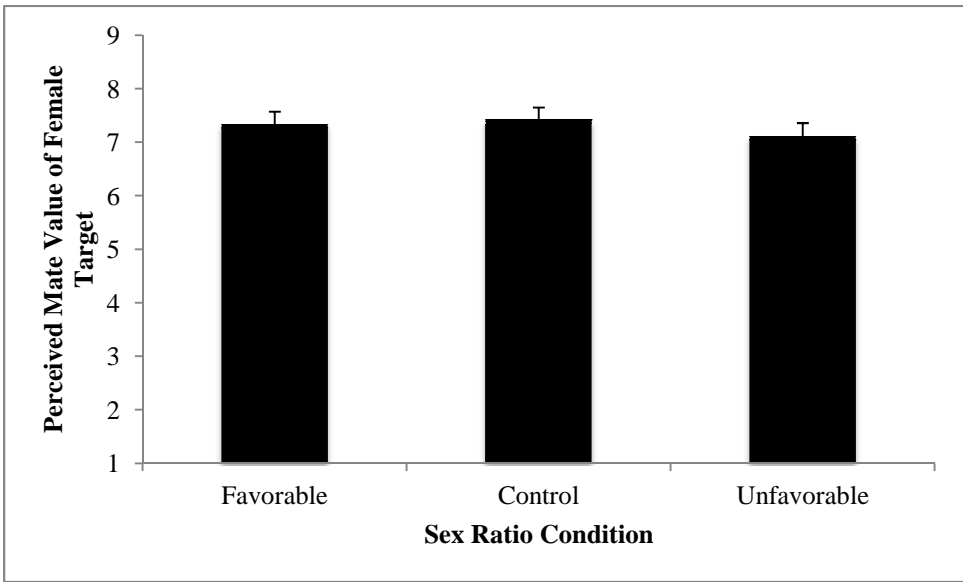
Figure 5. Male participants' perception of the mate value of their female match (as operationalized by the female mate value subscale of the perceived mate value of the target scale). Error bars represent ± 1 SEM (single participants only).
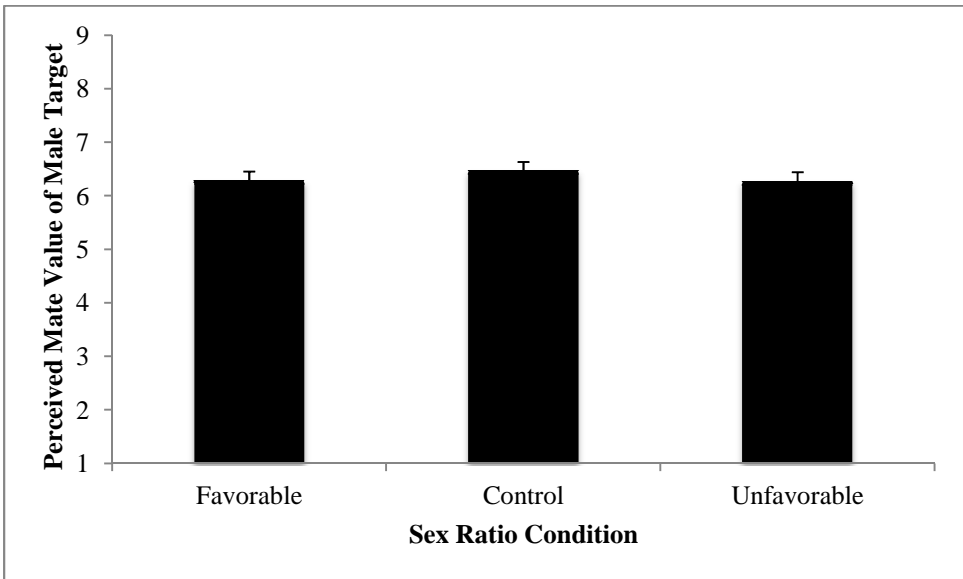
Figure 6. Female participants' perception of the mate value of their male match (as operationalized by the male mate value subscale of the perceived mate value of the target scale). Error bars represent ± 1 SEM (single participants only).

Dummy Coding

	Control	Favorable	Unfavorable
D1	0	1	0
D2	0	0	1

Satisfaction

$a_1 = .005, p = .98$

$b = 1.46, p = .003$

D1

$c'_1 = .39, p = .75$

$a_2 = .16, p = .41$

D2

$c'_2 = -.38, p = .77$
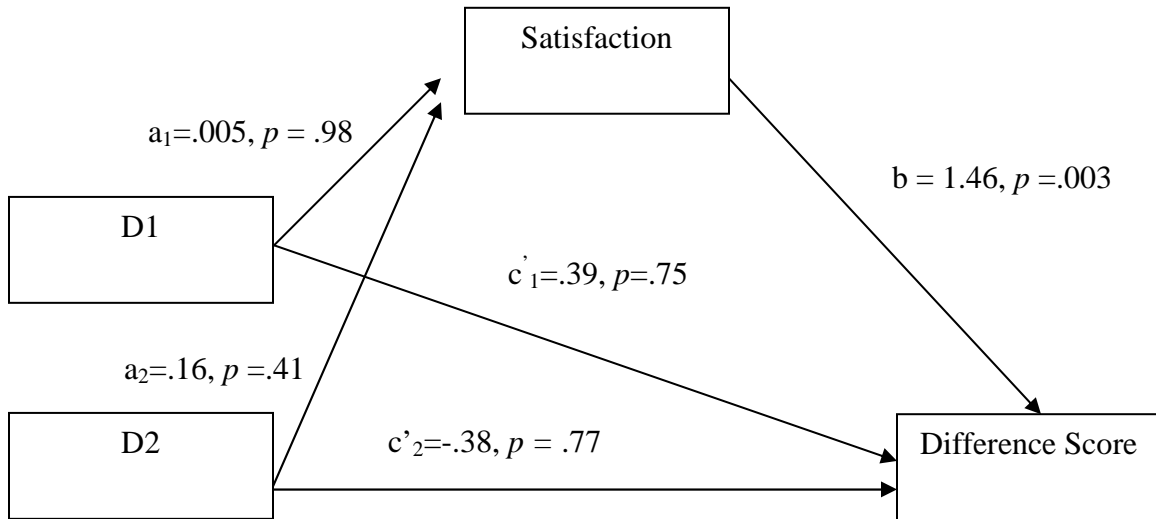
Difference Score

Figure 7. Mediation analysis testing whether satisfaction mediated the relationship between sex ratio condition and difference scores (single participants only).
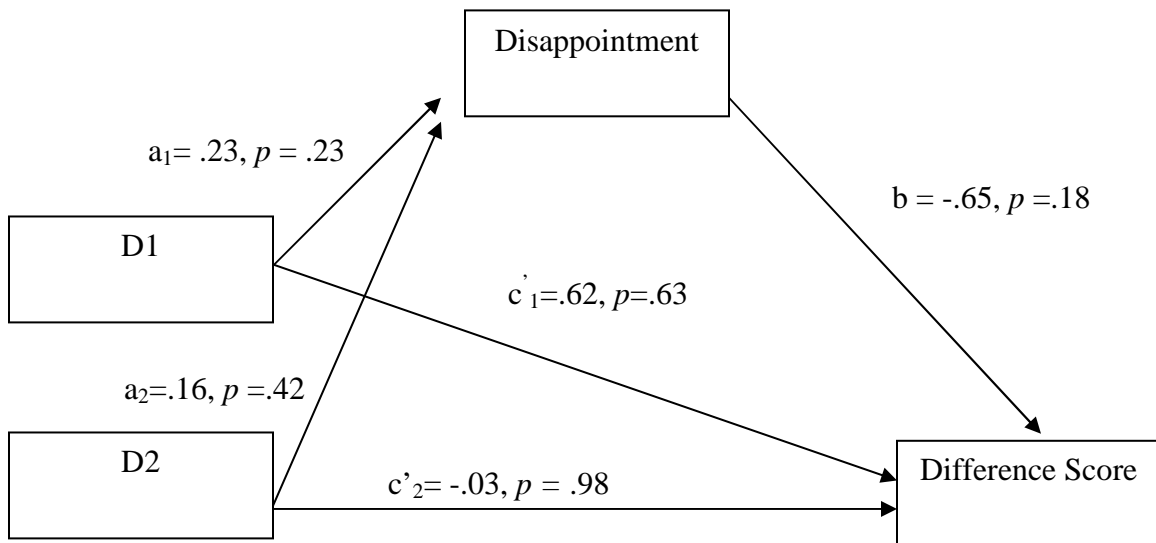
Enthusiasm

$a_1 = .04, p = .85$

$b = .86, p = .04$

D1

$c'_1 = .37, p = .77$

$a_2 = .28, p = .21$

D2

$c'_2 = -.40, p = .77$
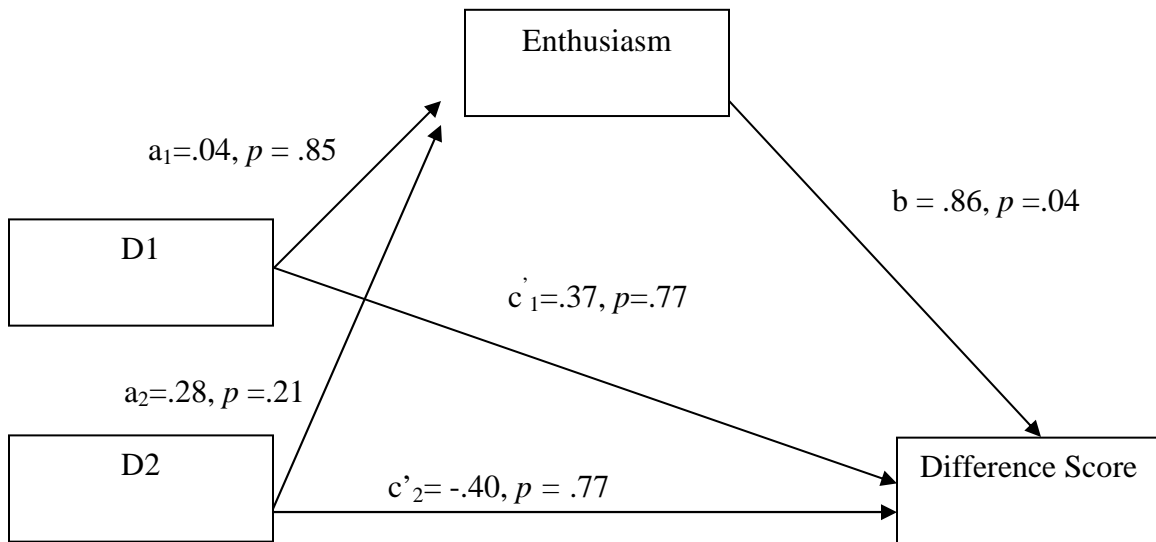
Difference Score

Figure 8. Mediation analysis testing whether enthusiasm mediated the relationship between sex ratio condition and difference scores (single participants only).

Figure 9. Mediation analysis testing whether disappointment mediated the relationship between sex ratio condition and difference scores (single participants only).
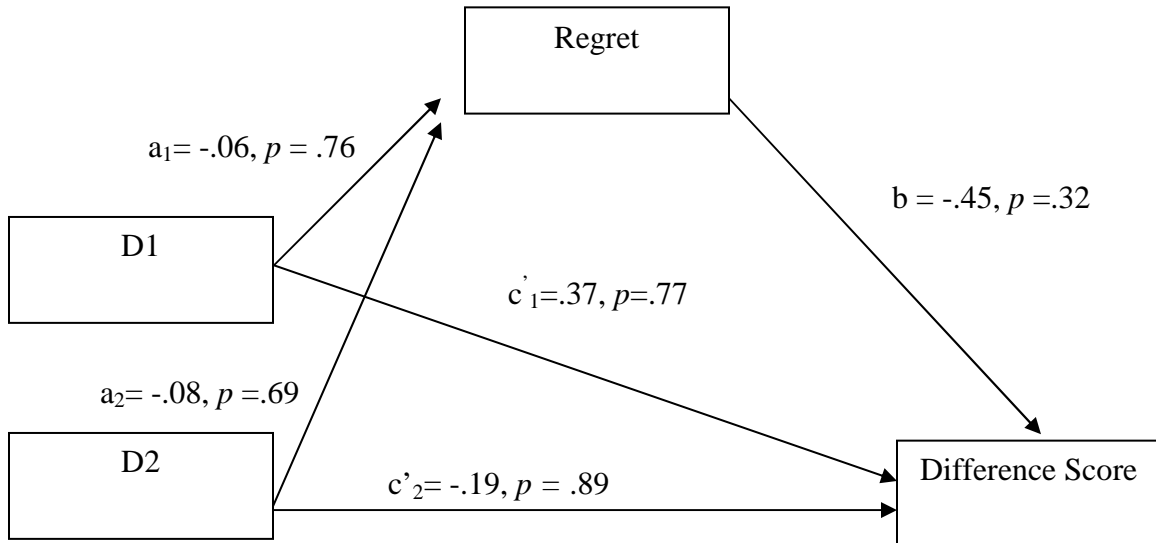

Figure 10. Mediation analysis testing whether regret mediated the relationship between sex ratio condition and difference scores (single participants only).
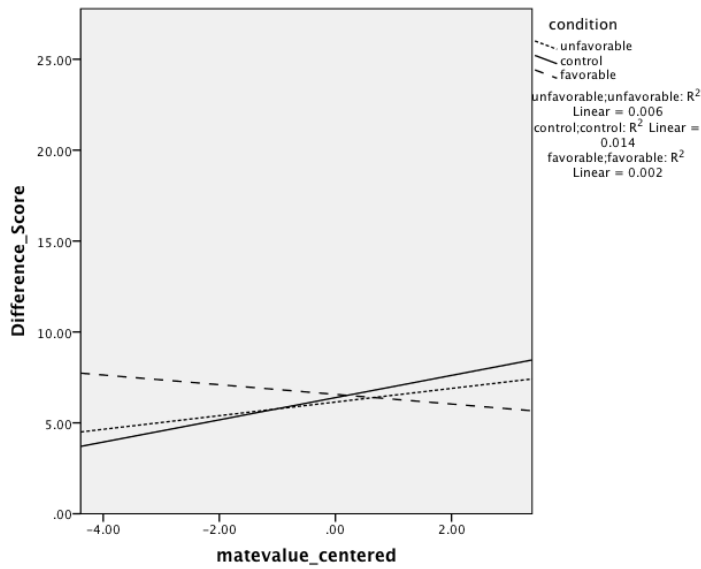
Figure 11. Moderation analysis testing whether self-perceived mate value moderated the

relationship between sex ratio condition and difference scores (single participants only).
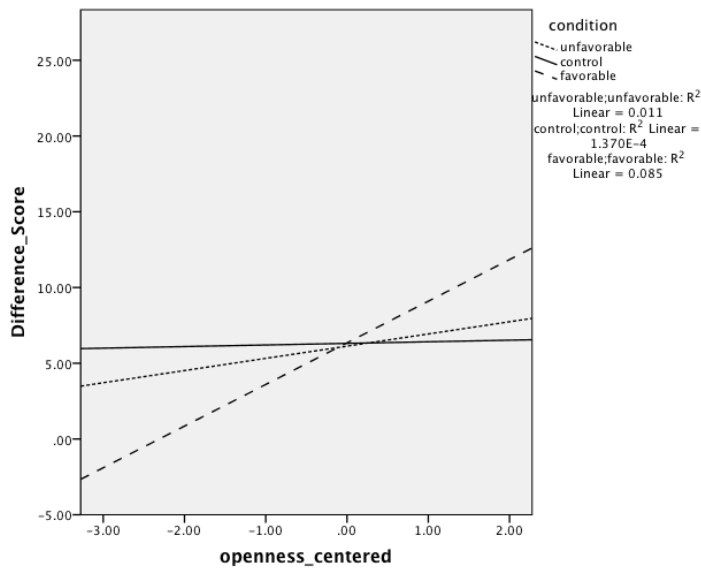

Figure 12. Moderation analysis testing whether openness to experience moderated the

relationship between sex ratio condition and difference scores (single participants only).
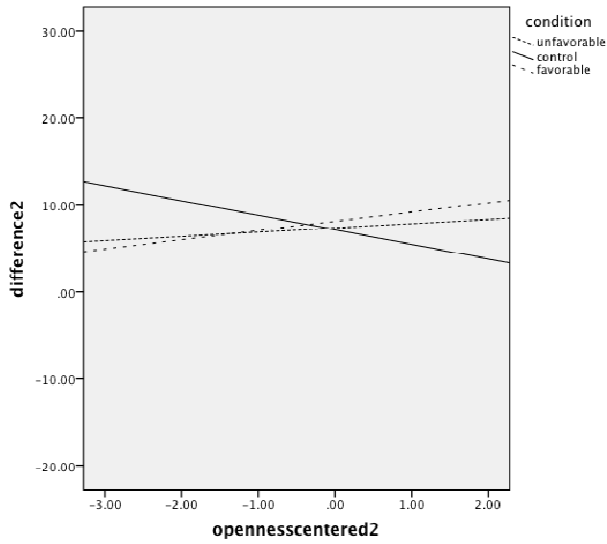
Figure 13. Moderation analysis testing whether openness to experience moderated the relationship between sex ratio condition and difference scores (including non-single/corrected bid participants).
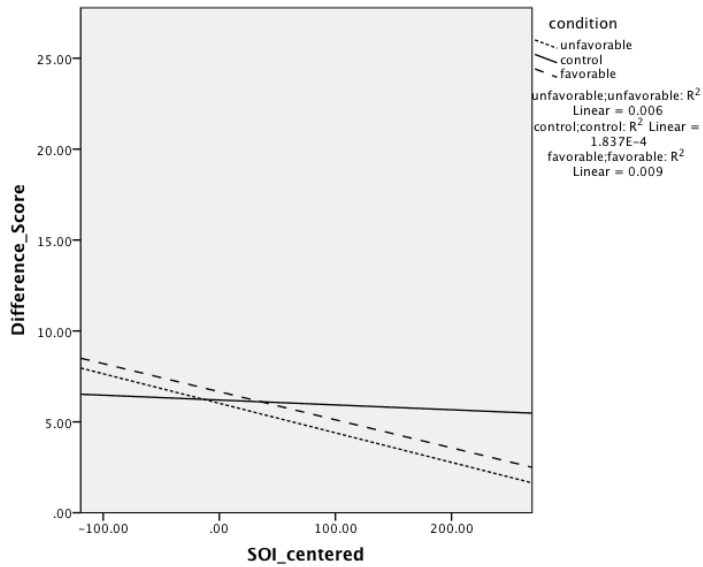

Figure 14. Moderation analysis testing whether SOI moderated the relationship between sex ratio condition and difference scores (single participants only).