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Mutual mate choice drives the desirability of altruism in relationships

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Abstract

Although previous research has found that altruism is an important trait in human mate choice, much of this has concentrated on female preferences only. Subsequently, the current study explored how both men and women desire altruistic partners who varied in physical attractiveness for both short and long term romantic relationships. A sample of 136 women and 53 men viewed profiles of members of the opposite sex of either high or low physical attractiveness, alongside scenarios that described them as either being altruistic or not. Participants then rated each targets' desirability as both a short and long term partner. As hypothesised, altruism was rated more desirable, particularly for long term relationships, by both men and women. However there were inconsistent findings when physical attractiveness was accounted for, which did not support the hypotheses nor directly replicate previous findings. Overall it was concluded that although the study provided strong support for the desirability of altruism being due to mutual mate choice, the additional effects of examining other mate choice traits such as attractiveness shows much is still to be known.

Keywords: *Altruism, gender, attractiveness, relationship length, desirability*

Mutual mate choice drives the desirability of altruism in relationships

The possible role of altruistic behaviours in romantic relationships has been widely investigated recently, mainly based on the premise that such traits signal qualities that are adaptive in mate choice (Miller, 2000, 2007). As such, it has been shown empirically that individuals behave more altruistically in a potential mating scenario (Bhogal, Bartlett, & Farrelly, in press; Bhogal, Galbraith, & Manktelow, 2016, 2017; Farrelly, Lazarus, & Roberts, 2007; Iredale, Vugt, & Dunbar, 2008; Raihani & Smith, 2015; Tognetti, Berticat, Raymond, & Faurie, 2012; Tognetti, Dubois, Faurie, & Willinger, 2016) and also that having an altruistic/prosocial character leads to greater mating success in the real world (Arnocky, Piché, Albert, Ouellette, & Barclay, 2016; Stavrova & Ehlebracht, 2015).

Further evidence of the importance of altruistic behaviour in relationships comes from investigating how we desire such traits in potential partners (Barclay, 2010; Farrelly, 2011, 2013; Margana, Bhogal, Bartlett, & Farrelly, 2019; Moore et al., 2013; Oda, Shibata, Kiyonari, Takeda, & Matsumoto-Oda, 2013; Phillips, Barnard, Ferguson, & Reader, 2008). Importantly, a distinction has been observed in terms of length of relationships, with altruism generally being rated more desirable for longer relationships (Barclay, 2010; Bhogal, Galbraith, & Manktelow, n.d.; Farrelly, 2011, 2013). This suggests that it is more important as a signal of the altruist being a good parent or partner, rather than a signal of their genetic quality from the costs involved in being altruistic (Gintis, Smith, & Bowles, 2001). Recently, Farrelly, Clemson, and Guthrie (2016) investigated this further by also seeing how varying levels of physical attractiveness affected the desirability of altruistic individuals. They found that women desired altruistic men more than physically attractive men, particularly for long term partners, suggesting that the former acts as a valuable indicator of an

individual's quality as a good parent/partner for longer, committed relationships (Farrelly et al., 2016). Subsequently Ehlebracht, Stavrova, Fetchenhauer, and Farrelly (2018) found that possessing both physical attractiveness and an altruistic disposition had a synergistic effect on men's desirability to women as long-term partners, suggesting further still the additional importance of signals of altruistic behaviours in mate choice.

However, what is unclear from the existing literature is how the value of altruism differs (if at all) between men and women. Due to asymmetries in parental investment (Trivers, 1972) whereby women invest more in offspring and therefore are more 'choosy', as Darwin, (1871) noted, research into mate choice has traditionally concentrated more on female choice, and the above research is no exception. This is a limitation, as when both male and female mate choice has been explored, it has found that women also display altruistic behaviours to potential partners (Farrelly et al., 2007) and being altruistic has a positive effect on their mating success (Arnocky et al., 2016; Stavrova & Ehlebracht, 2015). Also, evidence from married and long-term couples suggests that there is assortative matching for altruistic traits in partner (Phillips et al., 2008). As a result, the potential role of mutual mate choice, rather than female choice, on needs examining. Mutual mate choice is the occurrence within a species of both males and females exerting substantial choice over potential mates, and evidence already exists that mutual mate choice exists in humans, such as for height (Stulp et al., 2013). This is unsurprising, due to the high amount of biparental care necessary to raise human offspring meaning that both parents invest heavily in partner choice, and as a result it may also be evident in the role of altruism in human relationships

Therefore the aim of the present study was to explore how both men and women desire altruism in potential romantic relationships. To do so, it replicated the extensive methodology of Farrelly et al., (2016) which looked at the additional factors of both relationship length and physical attractiveness, but with the further addition here of the variable of gender. Based on this, and the similar investigation of Ehlebracht et al., (2018), this study tested the following hypotheses, with gender as a variable included on an exploratory basis:

Hypothesis 1: Altruists will be desired more than non-altruists, particularly for long-term relationships.

Hypothesis 2: Altruists will be preferred over physically attractive individuals, particularly for long term relationships, as found by Farrelly et al., (2016).

Hypothesis 3: There will be a synergistic effect of altruism and physical attractiveness on desirability, particularly for long term relationships, as found by Ehlebracht et al., (2018).

Methods

Participants

One hundred and eighty-nine heterosexual participants were recruited online via opportunity sampling in a mid-sized university in the UK. This consisted of 53 men (Mean/SD age = 26.43/9.07) and 136 women (Mean/SD age = 25.15/9.64) after four women and nine men were eliminated from the initial dataset for not completing the full online survey. This research was approved by the university's ethics committee.

Materials

A selection of both male and female neutral-faced 2D colour images were obtained from The Chicago Faces Database (Ma, Correll, & Wittenbrink, 2015). Based on available physical attractiveness ratings, the twelve highest and twelve lowest rated male and female images were selected for inclusion in the experiment.

As with Farrelly et al. (2016), images of one high and one low attractive opposite sex individual were presented to participants with neutral labels (e.g. “Person A” and “Person B”) in pairs, with a scenario that described how each person had behaved, eight of which described events where altruistic behaviours could occur, and four were neutral. All scenarios were taken from Farrelly et al. (2016), and for the eight altruistic scenarios one person of the pair behaved altruistically (e.g. Person A bought food for a homeless person) whereas the other did not (e.g. Person B walked passed the homeless person)¹.

Under each scenario, again like Farrelly et al., (2016) participants were asked to rate the desirability of each person in the pair on a 5-point Likert scale (1 = “Very undesirable and 5 = “Very desirable) separately for both a long term (defined as being a committed romantic relationship) and a short term (defined as being a brief affair or a one-night stand) relationship.

Procedure

Participants first clicked on one of two links (created using www.esurveycreeator.co.uk) based on their gender to take them to the relevant condition (i.e. male participants viewed female images and vice versa). After being presented with details of the experiment as well as definitions of both short and long term relationships, participants then viewed all twelve scenarios (eight altruistic, four

¹ All study materials are available on request via email to the corresponding author.

neutral) consecutively in a randomised order. Images were randomly allocated to each scenario, and for the eight altruistic scenarios half had the high attractive person behaving altruistic and the low attractive person not behaving altruistic, and vice versa for the other half.

Results

All descriptive statistics are included in Table 1.

Hypothesis 1: Altruists will be desired more than non-altruists, particularly for long-term relationships

A 2 X 2 X 2 mixed factors ANOVA was conducted with altruism level (high, low) and relationship length (short, long) as within subjects independent variables, and gender (men, women) as a between subjects independent variable on ratings of desirability as the dependent variable. There was a significant main effect of altruism level, $F_{(1,187)} = 196.13, p < .001, \eta^2 = .51$, with altruists being desired more than non-altruists, however there was no significant interaction between altruism level and gender, $F_{(1,187)} = 0.06, p = .81, \eta^2 < .001$. Furthermore there was a significant interaction between altruism level and relationship length, $F_{(1,187)} = 26.58, p < .001, \eta^2 = .12$. To interpret this result further, the proportional increase in desirability of altruists (over non-altruists) was found to be significantly higher for LT than ST relationships, $t_{187} = 6.48, p < .001, d = .47$. Again, this interaction was not further influenced by gender, $F_{(1,187)} = 1.05, p = .31, \eta^2 = .005$.

Hypothesis 2: Altruists will be preferred over physically attractive individuals, particularly for long term relationships

A further 2 X 2 X 2 mixed factors ANOVA was conducted with traits displayed (altruism, physical attractiveness) and relationship length (short, long) as within subjects independent variables, and gender (men, women) as a between subjects independent variable on ratings of desirability as the dependent variable. There was a significant interaction between trait displayed and gender, $F_{(1,187)} = 5.54, p = .03, \eta^2 = .03$, and further pairwise comparisons revealed that men rated the

desirability of physically attractive women greater than altruistic women, $t_{52} = 2.77$, $p = .008$, $d = .38$, but there was no such difference for women, $t_{135} = .81$, $p = .42$, $d = .07$. There also was a further significant interaction between trait displayed and relationship length, $F_{(1,187)} = 37.7$, $p < .001$, $\eta^2 = .17$, and further pairwise analysis found that attractiveness was desired more than altruism for ST relationships, $t_{188} = 4.8$, $p < .001$, $d = .35$, but there was no difference between the two traits for LT relationships, $t_{188} = .96$, $p = .34$, $d = .07$. Finally, there was no significant interaction between trait displayed, relationship length and gender, $F_{(1,187)} = .02$, $p = .9$, $\eta^2 < .001$.

Hypothesis 3: There will be a synergistic effect of altruism and physical attractiveness on desirability, particularly for long term relationships

A 2 X 2 X 2 X 2 mixed factors ANOVA was conducted with altruism level (high, low), physical attractiveness level (high, low) and relationship length (short, long) as within subjects independent variables, and gender (men, women) as a between subjects independent variable on ratings of desirability as the dependent variable. Although there was no significant interaction between altruism and physical attractiveness levels, $F_{(1,187)} = 1.73$, $p = .19$, $\eta^2 = .009$, there was with the addition of gender, $F_{(1,187)} = 7.58$, $p = .006$, $\eta^2 = .04$. To better understand this interaction, the data was analysed separately for men and women, and it was found that there was a significant interaction between altruism and physical attractiveness levels for men only, $F_{(1,52)} = 5.7$, $p = .02$, $\eta^2 = .1$. To see if this represented a synergistic effect, further pairwise comparisons were conducted on the proportional increase in desirability of high attractive individuals (compared to low attractive individuals) when they displayed high or low altruism, however this was not significant, $t_{52} = .08$, $p = .94$, $d = .01$.

Finally, there was a significant interaction between altruism, physical attractiveness and relationship length, $F_{(1,187)} = 29.92, p < .001, \eta^2 = .14$. To see if this indicated a synergistic effect of physical attractiveness and altruism for LT relationships only (as with Ehlebracht et al., 2018), the proportional change in desirability ratings from low to high altruism were calculated for differing levels of physical attractiveness and relationship length. A further repeated measures 2 x 2 ANOVA on this data revealed a significant interaction, $F_{(1,188)} = 11.51, p < .001, \eta^2 = .06$, and subsequent pairwise comparisons revealed that there was a greater proportional change in desirability from low to high altruism for low attractive individuals for both ST, $t_{188} = 6.64, p < .001, d = .48$, and LT relationships, $t_{188} = 3.2, p = .002, d = .23$. It was also found that these proportional changes were greater for LT than ST relationships for both high, $t_{188} = 6.87, p < .001, d = .5$, and low physically attractive individuals, $t_{188} = 3.85, p < .001, d = .28$.

Discussion

These results provide partial support for the hypotheses. Altruism was indeed considered more desirable, and this was greater for LT than ST relationships (Hypothesis 1). Furthermore, this was found to be the case for both men and women, therefore it is consistent with previous research that has explored the desirability of altruistic behaviour to both men and women (e.g. Farrelly, 2013; Moore et al., 2013) thus suggesting it is the result of mutual mate choice. However there was no support for altruism being more important than physical attractiveness (Hypothesis 2), and the only effect of relationship length suggests that physical attractiveness was more important for ST relationships. Furthermore it was interesting to note that here the opposite was true for men, who rated physical attractiveness more desirable overall.

This is perhaps unsurprising, given the wealth of both empirical and theoretical research that shows cues of physical attractiveness are more important for men's mate choice (e.g. Buss, 1989; Shackelford, Schmitt, & Buss, 2005). Finally, although a synergistic effect of being both altruistic and physically attractive was found to be greater for desirability as a LT partner for men and women (Hypothesis 3), overall the effect of being altruistic had a greater effect on the desirability of low attractive men and women.

Despite these extensive findings, there are limitations of the current research that should be noted. Firstly, unlike Ehlebracht et al., (2018) this study used hypothetical rather than actual altruistic behaviour. However, the behaviours included in vignettes here reflect such behaviours as observed in everyday life (e.g. helping others in need) as opposed to the more artificial conditions of economic games used by Ehlebracht et al., (2018). Secondly the relatively low sample size of male participants suggests caution perhaps when interpreting these findings. However, the sample of men here (53) is very similar to that of other recent research that has explored altruism in male mate choice (Bhagal, Bartlett, & Farrelly, in press; Ehlebracht et al., 2018). Also, power analysis (Faul, Erdfelder, Lang, & Buchner, 2007) revealed that this sample was quite adequately powered (75%) to detect Cohen's d effect sizes of .37 that previous research has found (Bhagal et al., in press).

These findings therefore provide two important insights to this growing area of research. Firstly, it shows that, under particular circumstances, desire for altruistic partners is the result of mutual mate choice, but secondly that when additional characteristics are examined (i.e. physical attractiveness) much is still inconclusive and still to be known. Further investigations in this area can help our understanding of how the various effects of mate choice, including altruistic behaviour, can work in

tandem (Conroy-Beam, Buss, Pham, & Shackelford, 2015), and additional methodologies such as how altruism is used to attract potential partners in both experimental and naturalistic settings can build on what we know about ratings of desirability. To conclude, this study offers both further evidence of the importance of being altruistic to both men and women in romantic relationships, and in attempting to replicate two key recent findings (Ehlebracht et al., 2018; Farrelly et al., 2016) improves the rigour of this body of research and strengthens the conclusions we can draw from it.

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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Table 1. *Mean (SD) desirability by attractiveness, altruism level, relationship length and target gender.*

Attractiveness	Altruism Level	Relationship Length	Target Gender	Mean	SD
high	high	short	men	3.69	0.93
			women	3.08	0.92
		long	men	3.61	0.96
			women	3.22	0.93
	low	short	men	3.01	0.89
			women	2.54	0.69
		long	men	2.53	0.78
			women	2.2	0.6
low	high	short	men	2.31	0.93
			women	2.24	0.96
		long	men	2.33	0.96
			women	2.38	0.96
	low	short	men	1.66	0.6
			women	1.51	0.54
		long	men	1.6	0.54
			women	1.41	0.45