

Original Article

Young Adults Attempt Exchanges in Reproductively Relevant Currencies

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Abstract: Adults in many species exhibit exchanges in reproductively relevant currencies, where males trade resources for sexual relations with females, and females have sex with males in exchange for provisioning. These exchanges can occur outside of a long-term partnership, which itself could be considered a commitment to the accessibility of reproductive currencies provided by each partner. The current study investigated whether young adults who are not in acute need of resources intentionally attempt reproductive currency exchanges outside of dating relationships or formal committed relationships such as marriage; and whether young adults have awareness of being the target of such attempts made by others. College students ($N = 475$) completed a brief survey assessing their own attempts to exchange reproductively relevant currencies, as well as others' attempts to make these exchanges with them. Men were more likely to report making attempts to trade investment for sex and women were more likely to report attempted trades of sex for investment. Participants' experiences of exchange attempts initiated by other individuals mirrored these patterns. Men were more likely to report another individual trying to trade sex for their investment, and women were more likely to report another individual trying to trade investment for sex with them. The vast majority of these attempted exchanges took place outside of existing relationships, although a small portion did lead to short or long-term relationships.

Keywords: sexual selection, mating, investment, nuptial gifts

Introduction

In recent decades, researchers have generated considerable documentation on the evolutionary psychology of human mating strategies and romantic relationships. Much of this work follows from the features and constraints of hominid (and often mammalian) reproductive biology. Across mammalian species, females are the limiting factor in reproduction because they provide almost all of the physiological resources required for offspring production. Because of the large investment allocated to each offspring, females have much lower potential reproductive capacities than males. Due to these factors, females

are more discriminating in selecting mates and males expend comparatively more effort in securing mates (Trivers, 1972).

Although the parental investment provided by women is typically higher than what is provided by men, male parental investment is still much larger in humans than in other primates (Buss and Schmitt, 1993; Geary and Flinn, 2001). Children in families without a father present suffer higher mortality rates (Hill and Hurtado, 1996) and the level of paternal investment in offspring may enhance the offspring's reproductive success (Geary, 2005). Preferences that men and women express when evaluating potential partners for romantic relationships reflect the differential roles and contributions made by men and women in successful reproduction.

Both women and men share preferences for partner characteristics such as kindness, understanding, and intelligence (Buss, 1989; Kenrick and Simpson, 1997), however male and female preferences also show divergence following reproductively relevant currencies. Men seek women with cues of fecundity, the potential for bearing offspring, whereas women prefer men with cues of ability and willingness to commit to long term relationships and provide substantial paternal investment (Buss, 1989, 1994). Across a wide variety of societies, males with higher social status and greater economic power have higher reproductive success (Hopcroft, 2006).

Partner preferences reflect evaluations of the characteristics related to reproductive value which men and women provide in reproductive relationships. The institution of marriage, especially in monogamous societies, creates a mechanism for the reliable exchange of male and female reproductively relevant currencies. Men are conferred (supposedly) exclusive reproductive access to their wives, but are also expected to support their families through the contribution of resources and often the socialization of children.

Exchanges of reproductive currencies are also demonstrated by other species. In some invertebrate species, males entice females with a nuptial gift, which females consume during fertilization. This form of paternal investment provides substantial nutrition; in some cases these nuptial gifts contain energy in excess of female requirements for daily existence and egg production (Voigt, Michener, and Kunz, 2005). Males in some species offer spermatophores, a mass generated by the male containing both sperm and nourishment.

Males in other invertebrate species, such as scorpionflies, offer captured arthropod prey. Females prefer the males that offer nuptial gifts and actively avoid the males who do not, as males who are unsuccessful in obtaining food gifts may resort to sexual coercion (Thornhill, 1979). Both males and females will attempt to cheat in these exchanges. Females are able to delay insemination for several minutes, and a female will attempt to escape if she has already consumed the nuptial gift in this time. If a male offers a very large gift and the female has not consumed it after 20 minutes, the male will attempt to steal the remainder of the gift back from the female and eat it himself or offer it to another female (McKee, 1992).

Some penguin species use pebbles to build their nests, and females will mate with males in exchange for pebbles (McKee, 1992). The pebbles protect penguin nests from warm spells which could otherwise cause the eggs to sit in hazardous cold water. Adélie penguins will steal pebbles from others' nests, so paired males and females will take turns guarding the nest and searching for pebbles. While on the search, females sometimes mate with extra-pair males who provide them with pebbles. Male purple-throated carib hummingbirds are larger than females and will monopolize areas with the most productive

flowers. Females will mate with males in order to gain access to these rich territories, as it is more advantageous than scavenging in poorer areas (McKee, 1992).

Market like trading of sexual activity has been observed among other primates. Gumert (2007) reports that male to female grooming in longtailed macaques occurred primarily when females were sexually active, and males groomed for a longer duration when mating or mating related activities were involved. In contrast, female to male grooming was inversely related to sexual activity in the groomed males. Male to female grooming appeared to be influenced by market forces; the duration of grooming was inversely related to the supply of females. Hawkes (1991) describes how male baboons trade food for sexual access with females.

Studies of sex for resource exchanges in other species have lent credibility to its description as “the world’s oldest profession.” Prostitution is nearly ubiquitous throughout human history and culture, although it takes a variety of forms (see Ringdal, 2005). In 1994, 16% of 18 to 59-year-old American men in the National Health and Social Life Survey reported paying for sex (Michael, Gagnon, Laumann, and Kolata, 1994). International sex trafficking, where many women are forced into prostitution against their will and do not receive the economic benefits, is estimated to gross over \$8,000,000,000 annually (May, 2006). This figure does not include domestic prostitution.

Many human societies have a bride price which males pay, usually to a woman’s father, to secure a partner. For marriages in many modern western countries, men offer women diamond rings when making marriage proposals. These arrangements entail a long-term commitment to the monopolization of reproductive currencies by each partner.

Saad and Gill (2003) identified studies showing that males are more likely to use gift giving as a tactical courtship ploy, but noted that none of the researchers used an evolutionary framework to interpret these results. Belk and Coon (1993) revealed that men view gift giving as a way to gain sexual favors from women and that women viewed receiving gifts from men as incurring a sexual debt. Consistent with this theme, Caplow (1982) found that women give holiday gifts equally to women and men, whereas men predominantly give holiday gifts to women. Saad and Gill (2003) propose that gift giving could have evolved as a male courtship strategy. They show that men were more likely than women to have tactical motives for giving holiday gifts, such as to encourage romantic liaisons and to display resources as a signal of social status and investment potential.

A community sample of ethnically and economically diverse women in Los Angeles County found that women who were single and living alone with at least one child were more likely to exchange sex for money than those with other family compositions (Wyatt, Forge, and Guthrie, 1998). In contrast to the multiple clients of professional sex workers, these women usually made the exchanges with the same men. The researchers interpreted this phenomenon as a bartering arrangement common for people who are not financially stable and often need money to pay for living essential such as rent, food, or clothing.

In the Dominican Republic, some women maintain multiple relationships with men simultaneously or over short periods of time, although these men are excluded from the domestic sphere. Women who have multiple relationships are more fecund, have healthier children, and show better psychological adjustment than their peers who are monogamously married (Lancaster, 1989). Because of the low earning potential of men in this area, it is thought that having investment from multiple partners brings greater benefit

than a committed relationship with one partner. In the Ache and Barí societies of South America, women have sex with men who are not their social partners, especially after they become pregnant. These men become secondary fathers who are socially obligated to protect and invest in the woman's children, and their contributions raise the children's survival rate (Beckerman et al., 1998; Hill and Hurtado, 1996).

Thus, exchanges of reproductively relevant currencies between the sexes occur in many animal species including primates. In humans, these exchanges take the forms of long-term committed relationships, services provided by sex workers, male courtship ploys, and provisioning of women who are raising children and would benefit from additional resource support. The current study seeks to identify exchanges of reproductively relevant currencies in a sample of young adults who have not yet reached the typical marriage age for their socio-demographic group, are unlikely to have children, and are not in need of financial support for basic necessities. It tests whether these tendencies are contingent on an acute need for provisioning, whether exchanges are attempted outside of dating relationships, and whether dating or committed relationships are recognized as exchanges.

It is predicted that young men will attempt to solicit sexual acts from young women in exchange for resource provisioning, such as in scorpionflies. Young women are expected to hint at or offer sexual favors in exchange for male investment, as in Adélie penguins. The reverse patterns may also be observed, where men offer sex and women offer investment, although the former pattern is expected to be significantly more common. Women are also expected to be more likely to report someone else soliciting sexual favors from them with an offer of resources. Men are expected to be more likely to report another person attempting to trade sexual favors for their investment. Thus, in both directions of attempts, it is predicted that men will be more likely to attempt to trade investment for sex and women will be more likely to attempt to trade sex for investment.

Materials and Methods

Undergraduate students enrolled in introductory psychology classes at a large Midwestern American university ($N = 475$; 302 females and 173 males) completed an anonymous on-line survey at their convenience. Participants were instructed to complete the survey where they had privacy and would be free from distractions. Participants' mean age was 19 years old ($SD = 1$), with a range from 17 to 26 years old. Participants reported their ancestries as Western European (46%); Eastern European (24%), East Asian or Pacific Islander (8%), African-American (4%), Latino/Latina (3%), South Asian (3%), Native American (2%), Middle Eastern/Arab (1%) and Other (8%). The vast majority (91%) of participants were born in the United States or Canada. Participants described their religious affiliation as Catholic (35%), Protestant Christian (17%), Jewish (13%), Hindu (2%), Orthodox Christian (2%), Muslim (1%), Buddhist (1%), and Other (11%); 19% of participants indicated that they did not have a religious affiliation. Other than these demographic variables, no potentially identifying information was recorded.

The four exchange scenario questions were: Have you ever been in a situation where you are attracted to someone and you hint or promise to do something for them or give them something of substantial value, to increase your chances of having sexual relations with them?; Have you ever been in a situation where you hint or promise to have sexual relations with someone, to increase the chance that they will do something for you

or give you something of substantial value?; Have you ever been in a situation where someone has hinted or promised to do something for you or give you something of substantial value, to increase their chances of having sexual relations with you?; Have you ever been in a situation where someone has hinted or promised to have sexual relations with you, to increase the chances that you would do something for them or give them something of substantial value? The response options were: “No, Never”; “Yes, once or twice”; “Yes, a few times”; and “Yes, this happens quite often.” Data from these items were analyzed with 2 (type of exchange) X 2 (participant sex) ANOVAs for Mixed-Designs, one for exchange attempts made by participants and the other for exchange attempts made by others.

Participants who indicated having experienced these situations were asked additional questions. For the first scenario, items included: Did you just hint that they would get something or did you explicitly promise it?; Did you give them what you hinted at or promised?; Did you have sexual relations with them?; Did you end up having a relationship with them?; Parallel items followed the other three scenarios. Responses to these items were examined for sex differences with independent samples *t*-tests. These later items were exploratory and designed to elaborate on the qualities of participants' experiences.

Results

For participants' attempts to make exchanges with others, the 2 (type of exchange) X 2 (participant sex) ANOVA for Mixed-Design indicated a significant main effect for type of exchange, $F(1,473) = 36.85$, $p < .001$, partial $\eta^2 = .072$, and a significant interaction between participant sex and type of exchange, $F(1,473) = 20.31$, $p < .001$, partial $\eta^2 = .041$. Overall, participants were more likely to report trying to trade investment for sex, although men were more likely to report trying to trade investment for sex and women were more likely to report trying to trade sex for investment.

For others' attempts to make exchanges with participants, the 2 (type of exchange) X 2 (participant sex) ANOVA for Mixed-Design indicated a significant main effect for type of exchange, $F(1,473) = 30.32$, $p < .001$, partial $\eta^2 = .060$, and a significant interaction between participant sex and type of exchange, $F(1,473) = 11.82$, $p < .001$, partial $\eta^2 = .024$. Overall, participants were more likely to report another person trying to trade investment for sex with them. Men were more likely to report another person trying to trade sex for their investment, and women were more likely to report another person trying to trade investment for sex with them.

For exchange attempts made by respondents, 27% of males and 14% of females reported attempts to trade investment for sex, 5% of males and 9% of females reported attempts to trade sex for investment (see Table 1). Of exchange attempts initiated by others, 14% of males and 20% of females reported that someone else attempted to trade investment for sex with them, 8% of males and 5% of females reported that someone else attempted to trade sex for their investment.

Table 1. Frequencies reported for each type of attempted exchange

Type of Exchange	Frequency of occurrence by percentage of respondents							
	Never		Once or Twice		A few times		Quite often	
	M	F	M	F	M	F	M	F
Self-Initiated								
Investment for sex	72.8	86.4	12.7	9.3	12.1	3.3	2.3	1.0
Sex for investment	94.8	91.1	2.9	5.0	1.7	3.3	0.6	0.7
Other-Initiated								
Investment for sex	86.1	80.1	8.7	10.9	4.6	5.3	0.6	3.6
Sex for investment	91.9	97.0	4.0	1.3	2.9	1.3	1.2	0.3

Cohen (1988) describes effect sizes for the behavioral sciences as small, $d = .20$, medium, $d = .50$, and large, $d = .80$. For respondent initiated attempts to trade investment for sex, males were more likely to give the other person what they hinted at or promised, $t(104) = 2.60, p = .011, d = .51$. In these attempted exchanges, male respondents were also more likely to have sexual relations than female respondents, $t(103) = 2.70, p = .008, d = .53$. The trend for males being more likely to explicitly promise, rather than just hint at investment, approached significance, $t(104) = 1.80, p = .075, d = .35$. For situations where other persons had attempted to exchange sexual relations for respondents' investment, male respondents were more likely to report having sexual relations than female respondents, $t(35) = 2.11, p = .042, d = .74$. No other items evidenced significant sex differences in responses.

For respondent initiated attempts to trade investment for sex, 62% of cases did not involve or lead to a lasting relationship, 10% lead to a relationship of less than two months, 17% lead to a relationship of more than two months, and 10% took place in the context of an existing relationship. For respondent initiated attempts to trade sex for investment, 65% of cases did not involve or lead to a lasting relationship, 8% lead to a relationship of less than two months, 8% lead to a relationship of more than two months, and 18% took place in the context of an existing relationship.

For attempts to trade investment for sex initiated by others, 72% of cases did not involve or lead to a lasting relationship, 10% lead to a relationship of less than two months, 6% lead to a relationship of more than two months, and 12% took place in the context of an existing relationship. For attempts to trade sex for investment initiated by others, 84% of cases did not involve or lead to a lasting relationship, 3% lead to a relationship of less than two months, 8% lead to a relationship of more than two months, and 5% took place in the context of an existing relationship.

Discussion

The results of this study supported the hypotheses that young adults consciously attempt exchanges in reproductively relevant currencies, and that tendencies to make each type of attempt diverge following the roles of each sex in successful reproduction. Men

were more likely to report attempted trades of investment for sex and women were more likely to report attempted trades of sex for investment. Participants also reported awareness of being the target of such attempts made by others and their experiences of exchange attempts initiated by other individuals mirrored the patterns described above. Men were more likely to report another individual trying to trade sex for their investment, and women were more likely to report another individual trying to trade investment for sex with them.

Men were more likely to attempt exchanges of investment for sex than women were to attempt exchanges of sex for investment. This is consistent with the level of mating effort being relatively higher in men than in women. Also, it is highly unlikely that female participants would need to rely on males for resource provisioning. All participants were students at a highly selective university, in a modern post-industrial society. Few, if any, female participants were likely to be supporting children, and were likely to be financially self-sufficient or receiving necessary resources from their families and/or government grants and/or loans. Socio-economic indicators were not collected for this study. However, in another study of students ($N = 807$) sampled from the same participant pool, 73% of respondents' fathers and 66% of respondents' mothers had earned at least a Bachelor's Degree, and 87% of respondents estimated that their family's wealth was at or above the national average.

Short-term female exchanges of sexual favors for male provisioning are likely to be much more important in foraging societies and in resource-poor groups in modern countries than for young students attending highly selective universities. Few individuals in the demographic groups represented by participants are likely to make exchanges for survival and basic needs. The young age, restricted socio-economic range, and relatively low level of variation in life history strategies of participants lessen the likelihood that they would report reproductive currency exchange attempts or experiences. A sample of older individuals, especially one that is more representative of the general population, would likely report higher frequencies of experiences.

Given the factors described above, it is remarkable that the predicted patterns were found. Because of the small number of respondents reporting certain types of experiences, statistical power was quite low for some comparisons. For example, only nine women and 14 men reported that others had attempted to exchange sexual relations for respondents' investment. Only the strong sex difference in the likelihood of having sexual relations was statistically significant. Other trends, which demonstrated effect sizes in-between small and medium, only approached statistical significance. It is possible that additional relationships would be uncovered with a much larger and/or older and more diverse sample of participants.

The vast majority of attempted exchanges did not take place in the context of existing relationships. This indicates that participants did not view committed relationships, where sexual relations and resource provisioning are likely to take place, as explicit exchanges. A small proportion of exchanges did lead to relationships, especially among respondent initiated attempts to trade investment for sex (27% of these cases). The fact that some participants reported exchange attempts within existing relationships invites future research on individuals' tendencies to see romantic relationships as being commitments (perhaps facilitated by affective mechanisms) versus explicit exchanges.

It is possible that the lack of recognition of long-term romantic relationships as exchanges of reproductive currencies is part of our evolved cognitive architecture. This

would parallel conclusions from studies of cooperation, which indicate that tracking benefits given and received is indicative of more superficial relationships. Friends who are instructed to monitor exchanges experience degradation in the quality of their friendship (see Silk, 2003). Perhaps the “romance” in romantic relationships facilitates stability by avoiding the recognition of exchanges.

The low success rate of exchange attempts may indicate that such explicit offers are not usually an effective strategy. On average respondents reported initiating more exchange attempts than receiving offers of exchanges. Although the sample does not represent a closed population, this finding suggests that respondents were less aware of others’ exchange attempts than they were aware of their own. It is also possible that females receive so many male solicitations on a continual basis that many incidents are easily forgettable.

This study complements the considerable literature on the evolutionary psychology of mating partner preferences, as well as the literature on nuptial gifts in non-human species. The promising results of this initial investigation signal the potential for future projects. Further studies could examine the relationship between reproductive exchanges and individual life history, as well as socio-ecological context. The confirmation of hypothetical predictions regarding these exchanges once again demonstrates the power of an evolutionary framework for understanding human psychology and behavior.

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