FRIENDS AND MATES, WHEN DO WE NEED

THEM? INVESTMNET ACROSS

SOCIAL CONTEXTS

By

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Abstract: Friendships are extremely adaptive, but come at great cost. Examining real life friendship choices, may not accurately represent how individuals deal with the tradeoffs involved in having a wide social network, therefore the present studies used a series of budget allocation tasks. In these tasks, participants spent tokens on types of friends and/or mates in varying degrees of budgets. Varying the budgets determined which social relationships were viewed and necessities and which were viewed as luxuries. Furthermore, investment in social relationships may change given the context; therefore, the present studies used different scenarios for each budget. Studies one and two examined friendships only and found that across scenarios close friends were treated as luxuries and necessities. Studies three and four examined friends and mates and found that across scenarios long-term mates were viewed as necessities and close friends were viewed as luxuries. These findings shed light on the adaptive tradeoffs involved in choosing which types of friends and mates to invest in given availability of energy and social context.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Figure
Page

CHAPTER I

INTRODUCTION

Friends and Mates, When Do We Need Them? Investment across Social Contexts

Friendships are extremely adaptive, but come at great cost. Examining real life friendship choices, may not accurately represent how individuals deal with the tradeoffs involved in having a wide social network, therefore the present studies used a series of budget allocation tasks. In these tasks, participants spent tokens on types of friends and/or mates in varying degrees of budgets. Varying the budgets determined which social relationships were viewed and necessities and which were viewed as luxuries. Furthermore, investment in social relationships may change given the context; therefore, the present studies used different scenarios for each budget. Studies one and two examined friendships only and found that across scenarios close friends were treated as luxuries and necessities. Studies three and four examined friends and mates and found that across scenarios long-term mates were viewed as necessities and close friends were viewed as luxuries. These findings shed light on the adaptive tradeoffs involved in choosing which types of friends and mates to invest in given availability of energy and social context.

CHAPTER II

REVIEW OF LITERATURE

Friendships are an essential form of social relationships to humans. We have friends from childhood (see Holder & Coleman, 2015 for review) to late adulthood (see Adams & Taylor, 2015 for review). Friendship can be defined as a relationship in which costly cooperative acts are expected to incur and be reciprocated, and they serve to aid life's fundamental tasks (e.g., survival, reproduction, etc.). One function of friendship is they help individuals aiding in finding potential mates (Jonason, Izzo, & Webster, 2007; Li and Kenrick, 2006). Jonason, Izzo, and Webster (2007) found that across types of relationships (e.g., sister, cousin, friend, acquaintance etc.) individuals were most likely to help friends find both long- and short-term mates. While having friends who helps find short-term mates (Li and Kenrick, 2006) is beneficial to reproductive success, having a friend aid in finding a long-term mate should be preferred, because humans typically raise their young through pair bonds. Jonason, Izzo, and Webster (2007) did find that individuals were more likely to help friends find a long-term mate over a short-term mate.

In addition to aiding in finding a mate, alloparental support is also provided by friends. In Efé mothers of the Democratic Republic of the Congo, unrelated adult female friends spend roughly 40 minutes per day doing alloparental behaviors. This includes behaviors such as watching for predators thereby ensuring adequate shelter is sustained, gathering and preparing

food (Ivey, 2000). Alloparental support from several sources (e.g., friends, sisters, fathers, grandmothers, etc.) increases infant survival rates (Fox, et al., 2010; Kaplan, et al., 2000).

In addition to providing alloparental support, another function on friendships for females is to provide protection and resources to the mother and offspring during times of stress (Taylor et al., 2000). Since mothers provide more parental investment compared to fathers, selection would favor a female stress response that ensures the safety of herself and her offspring. The male-typical response of fight-or-flight would not ensure this safety. The fight response could put the mother or offspring at risk. The flight response could either lead to the offspring being abandoned or would be impossible due to pregnancy. Therefore, the female stress response is to tend-and-befriend (Taylor et al., 2000). The tending response allows the mother to blend into the environment while caring for the offspring. The befriend response is to create affiliative bonds that lead to resources and protection from allies for the female and her offspring during time of stress. Male's ability to provide alloparental support, resources for their offspring, and access to females is through coalition size and alliance formations. Because larger coalitions means more access to females and greater resources, close, affiliative ties between men can be formed at a much lower thresholds compared to females (Geary, & Flinn, 2002).

Humans are not the only species to derive benefits from friendships (Silk, 2002). Examining primates' social worlds can shed light on friendships the importance of friendships. For example, in female baboons, during dry seasons where food is scarce, time spent socializing does not change even though time spent foraging and moving between feeding sights and resting changes (Brockman & Van Schaik, 2005). This suggests that social interactions are functionally important no matter the harshness of the environment. With respect to alloparenting, bonobos are a perfect example of the importance of friendship. Food sharing in bonobos, which is an essential part of alloparenting, occurs with the offspring of their close female allies (Hrdy, 2011). When an

infant is fearful of something, females will band together to get rid of the fearful stimulus (Woods, 2010).

Although friendships provide benefits, investing heavily in friendships appears to counter the theory that provides the most powerful explanation of altruism, Kin Selection. Aiding in our kin's survival we are increasing our indirect fitness, therefore according to kin selection theory (Hamilton, 1964), we expect to find that altruism would be the highest for kin. Although this theory is partially supported with the findings that non-related acquaintances receive less help than kin (i.e., sibling and cousin), non-related friends receive more or equal help than kin in some conditions (Stewart-Williams, 2007).

Stewart-Williams (2007) findings require an explanation for why non-related friends receive more or equal help compared to kin. Reciprocal Altruism Theory (Trivers, 1971) may explain this finding. Reciprocal Altruism Theory states friendships are a series adaptations to keep track of altruistic behavior and may explain how non-related long-term cooperative relationships are maintained. One cost to reciprocal altruism is if an individual acts altruistically towards and individual, but that individual does not reciprocate (i.e., a cheater). Therefore, in order for reciprocal altruism to be maintained, cooperators must be able to detect cheaters and exclude them from any cooperation in the future.

In addition to detecting cheaters, humans keep close track of the give and take in the relationship and adjust their cooperation accordingly. This may lead to the existence of friendships. Once a friendship is established and develops into a close friendship, there is no longer obligatory reciprocation (Clark, & Mills, 1979). For example, if an acquaintance needs $10, you would give them the money with the expectation that they would pay you back as soon as they could, but if a close friend needs $10, you would give them the money because you know they are going through a hard time and would not expect them to pay you back.

12

As described above, friendships provide vast amounts of benefits, but they also come at a cost. The major cost of a friendship is the amount of investment. When acting altruistically towards a friend, the individual incurs a cost in order to deliver benefits to their friend. Because individuals have a finite energy and time budget, by choosing one individual over another to invest in that individual is forgoing other opportunities (Tooby & Cosmides, 1996). Because of the limiting aspects of time and energy, individuals have a restriction on their number of friendships.

Behavioral Economics

The current study is interested in examining the tradeoffs of different types of relationships using an economic framework. The overarching model of microeconomic theory is that the behavior of individual, or actor, is based off the ratio of the maximization of the preferences of the consumer, or utility, to the maximum profit of the firm (Kerps, 1990). Li, Bailey, Kenrick, and Linsenmeier (2002) extended this work by also including another piece of economic principle: necessities verses luxuries. This is the idea that people who are rich buy luxury items (e.g., boats) while people who are poor buy necessities (e.g., food). This is tested by manipulating the allotted budget participants receive and examining which items they perceive as luxuries verses necessities. When participants are given a smaller budget, they will only buy necessities (i.e., food), whereas if they are given a larger budget they can afford to buy necessities and luxury items (i.e., food and boats).

Given that (i) individuals have limited personal budgets and (ii) different forms of relationships serve different functions, selection would favor mechanisms designed to regulate investment across distinct relationship domains. We would expect to find that individuals will construct the maximum number of social relationships as possible. Since there are a number of these types of relationships, we expect to find close friends will be viewed as necessities.

Additionally, individuals will shift their value on the importance of the other types of relationships according to the adaptive problem they are currently trying to solve (i.e., investment if offspring, increase in social status, etc.).

Li, Bailey, Kenrick, and Linsenmeier (2002) introduced this into evolutionary theory by arguing that previous research on mate preferences did not take into account other factors such as status and resources. The present study extends this argument into the domain for friendship research. Examining social network size or friendship quality solely does not take into account ones social status, availability of resources, or number of possible friends in their social world. For example, if an individual is lower is social status they may not be able to acquire the types of friends they would prefer. Additionally, the current literature that focuses on social network size typically does not take into account different types of friendships and/or relatively investment in each type of friendship (Hoang & Antoncic, 2003; Utz, 2010). If they do, the majority only take into account strong verses weak friendships (Hoang & Antoncic, 2003; Uzzi, 1996, 1997), which is not an accurate description the multiple types of friends that serve different functions (Hays, 1988).

Types of Friendships

The present study will examine four types of friends (i.e., close friends, friends, strategic associates, and acquaintances) in order to assess friendships according to their adaptive purpose. It is likely that the functions of these social relationships evolved over time from weak ties to deep engagement relationships.

Initially, there were section pressures that favored individuals who coexisted. For example, if two individuals begin foraging near each other, when one individual forages more than they need, they can share the excess. In addition to sharing resources, sharing information about which foraging patches is successful or unsuccessful. This leads to both parties becoming

more successful foragers. Eventually, selection will favor motivations to form these sorts of associations wherein individuals pay virtually no costs to deliver benefits to others (and vice versa). This type of relationship is referred to as an acquaintance. The benefit of having an acquaintance is the relationship takes almost not time or energy to maintain. Additionally, having a large number of acquaintances help broaden an individual's social network size. This could develop into becoming or finding other forms of friendships (Davidsen, Ebel, & Bornholdt, 2002). The cost of an acquaintance is that members do not have an invested interest in each other on an emotional or strategic level.

Once these acquaintances are commonplace, this sets the stage for actual social exchange and/or cooperation. Selection favors giving benefits to others that are costly to the self-given a contract of obligatory reciprocation. Therefore, in addition to receiving collateral benefits, individuals are now receiving net benefits through cooperation. This type of relationship is a friend. The unique benefits of a friend are members of a friendship increase each other's social capital through exchange resources (i.e., material and/or emotional resources) and could develop into a close friendship (Bryant & Marmo, 2012; Clark, & Mills, 1979). The cost is members of a friendship are not as invested to extent that close friends are, and would not suffer costs on the other's behalf.

Finally, selection will favor motivations for deep engagement relationships because (i) individuals will become better over time in generating collateral and intentional benefits for one another, (ii) a record of trustworthy reciprocation can be established, and (iii) patterns of credit risk (i.e., fortune and misfortune) varies over long periods of time. These deep engagement relationships are close friendships. Close friends are unique in that unlike other types of friendships, members in close friendship are interested in the other's long-term outcomes and are heavily invested in the other's future to the extent of even evaluating the other's needs as more important their own (Tooby & Cosmides, 1996; Wright, 1984). Close friends serve to aid life's

fundamental tasks including finding their close friend a long-term mate, validating if a potential mate is worth its investment, serving as an alloparent, and aiding in time of extreme need (Ivey, 2000; Jonason, Izzo, and Webster, 2007; Sugiyama, 2004). Since close friendships require extensive time and energy to initiate and maintain, time and energy is major costs of close friendships as well as the circumstances in which individuals put their close friend's needs over their own.

Against this backdrop, there can be a number of coalitional strategic complexities that requires superficial alliances to underpin hierarchy negotiation, mate acquisition, and inter-group conflict strategies. These are strategic alliances. A strategic associate is the type of friend that increases your status (Lin, 1999). The benefit of a strategic associate is member's aid in increasing each other status. The cost of strategic associate is that members do not have an invested interest in each other on a personal level.

Types of Mates

The evolution of mates likely follows the same logic as friendships. Initially there was selection pressures that favored relationships in which two individuals exchange sexual favors but are not committed to each other for long periods of time. These are short-term mates. Additionally, males and females have evolved to use these relationships to pursue different outcomes. Bleske-Rechek and Buss (2001) found that while both sexes used short-term mates as an attempt to establish a long-term relationship, females are using short-term mates to gain protection while males are using them to gain sexual access. One cost of short-term mates is they are not investing in you or your future. Additionally, by devoting time and energy into short-term mate, you may miss out on a potential long-term mate.

Once short-term mares are common place, this allows for establishing deep engagement romantic relationships. These are long-term mates. Long-term mates function to increase the

chance of reproduction and the likelihood of the offspring surviving in addition to the logic

behind close friendships. In the Efé of the Democratic Republic of the Congo fathers spend

almost an hour per day doing alloparental behaviors (Ivey. 2000). One of the main benefits that

these alloparental behaviors lead to is better health outcomes of the infant (Hrdy, 2011; Johnson,

et. al., 2000). The cost is that they take an enormous amount of time and energy to establish and

maintain.

Additionally, social networks change (Belsky & Rovine, 1984; Due, Holstein, Lund,

Modvig, & Avlund, 1999). Therefore, the present study is interested in determining which type of

friendships or relationships individuals invest in and how individuals change their investment

strategies in varying social contexts. The present study will examine social contexts in which

social support is imperative (i.e., social exclusion, illness, injury, parenthood) and when other

motives prevail (i.e., dealing with hostile out-groups, status seeking).

Present Studies

In addition to the likely steps involved in the evolution of full-fledged deep engagement

friendships, there were likely situations our ancestors encountered regularly (i.e., parenthood,

injury, etc.) that would cause a shift in investment strategies given the context on which types on

social relationships would produce the maximum benefit. The present study will determine if

there are evolved mechanisms for strategies of investment in different types of social context.

In order to examine how individuals, allocate their resources in varying social contexts

there are four studies all using a budget allocation paradigm. This budget paradigm will allow the

context to be manipulated in order to change the relative presence of specific adaptive problems

that relate to the cost-benefit tradeoffs that determine the net value of investing in different

relationship domains. It is likely that the majority of undergraduates have yet to experience some

of these adaptive problems (e.g., parenthood). Therefore, changing scenarios in the budget

allocation paradigm will allow the researchers to determine if there is an evolved mechanism that when individuals are cued onto different contexts that our ancestors were likely to encounter, they shift their investment in their social relationships to a strategy that will produce the maximum benefit.

In the first two studies examined friendships solely. It is hypothesized that across social context, close friends will be viewed as necessities, while more distant friends and acquaintances would be treated as luxuries. Furthermore, investments in higher quality friendships (i.e., close friendships and friends) will upregulated in social contexts wherein social support is imperative (i.e., social exclusion, illness, injury, parenthood). When other motives prevail (i.e., dealing with hostile out-groups, status seeking) investments in lower quality relationships (i.e., strategic associate, and acquaintance) will be upregulated.

Studies three and four examined friendships and mates. It is hypothesized that close friendships and long-term mates will be viewed as necessities, while more distant friends, short-term mates, and acquaintances would be treated as luxuries. Furthermore, investments in higher quality relationships (i.e., long-term mates, close friendships, and friends) will upregulated in social contexts wherein social support is imperative (i.e., social exclusion, illness, injury, parenthood). When other motives prevail (i.e., dealing with hostile out-groups, status seeking) investments in lower quality relationships (i.e., short-term mate, strategic associate, and acquaintance) will be upregulated.

CHAPTER III

METHODOLOGY

Study One

Participants. Four hundred and eighty-three undergraduates from Oklahoma State University (OSU) voluntarily participated in this study. A list wise deletion was conducted if participants did not follow the budget instructions (e.g., spent more money than the budget allowed, did not complete a budget, etc.) for any of the scenarios (e.g., outgroup threat, parenthood, etc.). The final number of participants was 310 (221 women and 86 men) ranging in age from 18 to 36 years old with a mean age of 19.9 (SD = 2.05). Participants were compensated with extra credit through the OSU SONA system. Informed consent was obtained from all participants and procedures were approved by OSU's IRB.

Materials and Procedures. A budget allocation task based on Li, Kenrick, and Linsenmeier (2002)'s design was used to assess friendship choices. In the task participants were asked to follow a scenario modeled on those of Delton, Cosmides, Guemo, Robertson, and Tooby (2012).

To establish a scenario in which participants would not take into considerations their current friendship, participants learn about a fictitious group of 200 people, including themselves

who were traveling on a plane. The plane crashed on a deserted island, thereby stranding the passengers. Participants were given seven scenarios. The first scenario was the control scenario in which participants were described the scenario above. The second scenario was the out group threat scenario in which participants were told "As the group begins exploring the island, a large group of native, hostile people is discovered. They have made it clear they do not want you on the island." The third scenario was the status seeking scenario in which participants was be told "Some members of the group are making poor decisions. Because of this, you want to become more influential within the group." The fourth scenario was the parenthood scenario in which participants were told "You were traveling on the plane with your newborn child. Remember you do not know anyone; therefore you have no significant other to help in raising this child." The fifth scenario was the social exclusion scenario in which participants were told "At a group gathering, the group has decided there is not enough food or shelter to sustain the entire group. They begin calling out names of individuals who are no longer welcome in the group, you are one of the names called out." The sixth scenario was the illness scenario in which participants were told "Other members of the group have been developing extreme flu-like symptoms. In some cases, people have even died." The seventh scenario was the injury scenario in which participants were told "While out gathering food, you fell into ditch and ended up gashing your leg open. You are in extreme pain and are unable to walk. At this point, it seems you will be injured for multiple weeks, therefore unable to help the group in collecting food, water, or building shelter."

In order to establish which friends are being treated as necessities verses luxuries, each scenario had three budgets. In the low budget, which assessed types of friends were treated as necessities; participants were limited to spending 10 friend dollars. In the medium budget participants were limited to spending 50 friend dollars. In the high budget, which assessed which types of friends were treated as luxuries, participants were not limited by an amount, and were allowed to choose from the 200 strangers.

The participants were then given definitions of types of friends (i.e., close friend, friend, strategic associate, and acquaintance). Following the definitions the participants were then given a price list that explains the cost of each type of friend (i.e., close friend = $10, friend = $5, strategic associate = $5, and acquaintance = $1). Each cost is based off of the welfare tradeoff ratio in regards to the amount of cost and benefit each type of friend is likely to provide (Tooby & Cosmides, 1990, 1996).

Following the scenario, budget, definition, and price list participants were asked to select asked to select the number of each type of friend they would like. In order to ensure they are following the budgets and the cost of each friend they were also asked to enter in the amount it costed them (e.g., 2 friends x $5 = $10). Then they were asked to total the amount of each type of friend and the total costs (see Figure 1.)

Study Two

Participants. Two hundred and fifty participants from Amazon's Mechanical Turk (MTurk) voluntarily participated in this study. A list wise deletion was conducted if participants did not follow the budget instructions (e.g., spent more money than the budget allowed, did not complete a budget, etc.) for any of the budgets (e.g., high budget, parenthood budget). The final number of participants was 206 (113 women and 91 men) ranging in age from 19 to 71 years old with a mean age of 35.7 (SD = 11.7). Participants were compensated with $1 through the MTurk system. Informed consent was obtained from all participants and procedures were approved by OSU's IRB.

Materials and Procedures. Methods and procedures followed the same format as study one.

Study Three

Participants. Two hundred and eighty-three undergraduates from OSU voluntarily participated in this study. A list wise deletion was conducted if participants did not follow the budget instructions (e.g., spent more money than the budget allowed, did not complete a budget, etc.) for any of the budgets (e.g., high budget, parenthood budget). The final number of participants was 228 (166 women and 57 men) ranging in age from 18 to 29 years old with a mean age of 19.6 (SD = 1.5). Participants were compensated with extra credit through the OSU SONA system. Informed consent was obtained from all participants and procedures were approved by OSU's IRB.

Materials and Procedures. Methods and procedures followed a modified version of study one. The scenarios of the budget allocation task did not differ, but mates (i.e., long-term and short-term mates) were included in the budgets and the low budget changed from 10 dollars to 15 dollars. Following the same reasoning as studies one and two, in studies three and four participants were given definitions of types of friends and mates (i.e., long-term romantic partner, close friend, friend, strategic associate, short-term mate, and acquaintance). Following the definitions the participants were given a price list that explained the cost of each type of relationship (i.e., long-term romantic partner = $15, close friend = $10, friend = $5, strategic associate = $5, short-term mate = $5, and acquaintance = $1).

Study Four

Participants. Two hundred and fifty participants from MTurk voluntarily participated in this study. A list wise deletion was conducted if participants did not follow the budget instructions (e.g., spent more money than the budget allowed, did not complete a budget, etc.) for any of the budgets (e.g., high budget, parenthood budget). The final number of participants was 188 (108 women and 79 men) ranging in age from 19 to 88 years old with a mean age of 35.5

(SD = 12.2). Participants were compensated with $1 through the MTurk system. Informed

consent was obtained from all participants and procedures were approved by OSU's IRB.

Materials and Procedures. Methods and procedures followed the same format as study

three.

CHAPTER IV

FINDINGS

For all four studies using Microsoft excel, I converted the values in the unlimited condition to dollars in order to keep the amount the same across conditions. For example, if they choose 6 close friends in unlimited condition I multiplied it by 10— close friends are worth 10 friendship dollars—and entered 60 into the unlimited dollars column. I did this for all of the scenarios and friendship types. In order to compare investment across the conditions the following Repeated Measures ANOVA used the dollar amount spent. This is because 1 close friend does not equal 1 acquaintance in terms of investment; 1 close friend is 10X the investment of 1 acquaintance (see Table 1 for all conversions).

Study One.

Necessities. To determine if close friends were treated as necessities across social contexts a 7 X 4 Repeated Measures ANOVA (i.e., Scenario X Friend Type) was conducted using the low budget. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated, $\chi^2(170) = 2302.17$, $p < .001$, therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\varepsilon = .62$). There was not a significant main effect of scenario, $F(4.34, 1339.77) = .61$, $p = .665$. There was a significant main effect of friend type, $F(1.71, 527.57) = 570.80$, $p < .001$. There was a significant interaction effect between scenario and friend type, $F(11.17, 3450.86) = 25.86$, $p < .001$. In the control, out-group threat, status

seeking, parenthood, social exclusion, illness, and injury conditions participants invested significantly more in close friends compared to friends, strategic associates and acquaintances (see **Table 2** and **Figure 2**) across scenarios. These results support the hypothesis that close friends are treated as necessities.

 Luxuries. To determine if close friends were treated as luxuries across social context 7 X 4 Repeated Measures ANOVA (i.e., Scenario X Friend Type) was conducted using the unlimited budget. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated, $\chi^2(170) = 4949.80$, $p < .001$, therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\varepsilon = .36$). There was a significant main effect of scenario, $F(5.07, 1566.59) = 26.39$, $p < .001$. There was a significant main effect of friend type, $F(1.37, 424.18) = 77.53$, $p < .001$. There was a significant interaction effect between scenario and friend type, $F(6.44, 1988.51) = 18.41$, $p < .001$. In the out-group threat, status seeking, parenthood, social exclusion, and injury conditions participants invested significantly more in close friends compared to friends, strategic associates and acquaintances (see **Table 3** and **Figure 3**) across scenarios. These results do not support the hypothesis that lower quality friends are treated as luxuries.

 Change in Investment. To determine whether investments in higher quality friendships (i.e., close friendships and friends) was upregulated in social contexts wherein social support is imperative (i.e., parenthood, social exclusion, illness, injury) verses when other motives prevail (i.e., dealing with hostile out-groups, status seeking) for necessities a 7 X 4 Repeated Measures ANOVA (i.e., Scenario X Friend Type) was conducted using the low budget (see Study One Necessities). Participants increased their investment in close friends in the parenthood and injury conditions. Participants did not increase their investment in friends in any of the conditions. Participants increased their investment in strategic associates in the out-group threat, status seeking, and illness conditions. Participants increased their investment in acquaintances in the out-group threat, status seeking, social exclusion, illness, and injury conditions (see **Table 2** and

Figure 2). These results fully supports the hypotheses of the out-group threat condition, partially supports the hypotheses of the status seeking, parenthood, and injury conditions, and does not support the hypotheses of the social exclusion and illness conditions.

Study Two.

      Necessities. To determine if close friends were treated as necessities across social context 7 X 4 Repeated Measures ANOVA (i.e., Scenario X Friend Type) was conducted using the low budget. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated, $\chi^2(170) = 1430.52$, $p < .001$, therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\varepsilon = .61$). There was not a significant main effect of scenario, $F(1.82, 358.97) = 1.30$, $p = .274$. There was a significant main effect of friend type, $F(1.77, 349.33) = 290.77$, $p < .001$. There was a significant interaction effect between scenario and friend type, $F(10.95, 2156.46) = 29.16$, $p < .001$. In the control, out-group threat, parenthood, social exclusion, illness, and injury conditions participants invested significantly more in close friends compared to friends, strategic associates and acquaintances (see **Table 4** and **Figure 4**) across scenarios. These results support the hypothesis that close friends are treated as necessities in all conditions besides status seeking.

      Luxuries. To determine if close friends were treated as necessities across social contexts, a 7 X 4 Repeated Measures ANOVA (i.e., Scenario X Friend Type) was conducted using the unlimited budget. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated, $\chi^2(170) = 3165.70$, $p < .001$, therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\varepsilon = .38$). There was a significant main effect of scenario, $F(5.02, 979.45) = 14.93$, $p < .001$. There was a significant main effect of friend type, $F(1.21, 236.54) = 75.32$, $p < .001$. There was a significant interaction effect between scenario and friend type, $F(6.79, 1324.62) = 16.10$, $p < .001$. In the all conditions participants invested significantly more in close friends compared to friends, strategic associates and acquaintances

(see **Table 5** and **Figure 5**) across scenarios. These results do not support the hypothesis that lower quality friends are treated as luxuries.

Change in Investment. To determine whether investments in higher quality friendships (i.e., close friendships and friends) was upregulated in social contexts wherein social support is imperative (i.e., social exclusion, illness, injury, parenthood) verses when other motives prevail (i.e., dealing with hostile out-groups, status seeking) for necessities a 7 X 4 Repeated Measures ANOVA (i.e., Scenario X Friend Type) was conducted using the low budget (see Study Two Necessities). Participants increased their investment in close friends in the status seeking, parenthood, social exclusion, illness, and injury conditions. Participants did not increase their investment in friends in any of the conditions. Participants increased their investment in strategic associates in the out-group threat, status seeking, social exclusion, and illness conditions. Participants increased their investment in acquaintances in the out-group threat, status seeking, and illness conditions (see **Table 4** and **Figure 4**). These results fully support the hypothesis of the status seeking condition and partially support the hypotheses of the out-group threat, parenthood, social exclusion, illness, and injury conditions.

Study Three.

Necessities. To determine if long-term mates and close friends were treated as necessities across social contexts 7 X 6 Repeated Measures ANOVA (i.e., Scenario X Relationship Type) was conducted using the low budget. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated, $\chi^2(464) = 5364.57$, $p < .001$, therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\varepsilon = .40$). There was a significant main effect of scenario, $F(3.11, 677.09) = 17.22$, $p < .001$. There was a significant main effect of relationship type, $F(1.69, 367.98) = 236.23$, $p < .001$. There was a significant interaction effect between scenario and relationship type, $F(11.88, 2589.73) = 10.40$, $p < .001$. In the control, out-group threat, status seeking, parenthood, social exclusion, illness, and injury conditions participants invested significantly more in long-term mates and close friends compared to friends,

27

short-term mates, strategic associates and acquaintances (see **Table 6** and **Figure 6**) across scenarios. These results support the hypothesis that long-term mates and close friends are treated as necessities.

Luxuries. To determine if higher quality relationships (i.e., long-term mates, close friends, and friends) were treated as necessities across social context 7 X 6 Repeated Measures ANOVA (i.e., Scenario X Relationship Type) was conducted using the unlimited budget. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated, $\chi^2(464) = 7192.89$, $p < .001$, therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\varepsilon = .38$). There was a significant main effect of scenario, $F(5.46, 1190.11) = 12.40$, $p < .001$. There was a significant main effect of relationship type, $F(2.18, 475.67) = 61.41$, $p < .001$. There was a significant interaction effect between scenario and relationship type, $F(11.36, 2475.82) = 7.12$, $p < .001$. In the out-group threat, status seeking, parenthood, social exclusion, and injury conditions participants invested more in close friends, friends (except social exclusion), and strategic associates compared to long-term mates, short-term mates, strategic associates, and acquaintances (see **Table 7** and **Figure 7**) across scenarios. These results partially support the hypothesis that lower quality relationships are treated as luxuries.

Change in Investment. To determine whether investments in higher quality relationships (i.e., long-term mates, close friendships, and friends) was upregulated in social contexts wherein social support is imperative (i.e., social exclusion, illness, injury, parenthood) verses when other motives prevail (i.e., dealing with hostile out-groups, status seeking) for necessities a 7 X 6 Repeated Measures ANOVA (i.e., Scenario X Relationship Type) was conducted using the low budget (see Study Three Necessities). Participants increased their investment in long-term mates in the parenthood and injury conditions. Participants increased their investment in close friends in the social exclusion condition. Participants increased their investment in friends in parenthood, social exclusion, illness, and injury conditions. Participants did not increase their investment in

any of the conditions. Participants increased their investment in strategic associates in the out-group threat, status seeking, parenthood, social exclusion, illness, and injury conditions. Participants increased their investment in acquaintances in the out-group threat, status seeking, parenthood, social exclusion, and illness conditions (see **Table 6** and **Figure 6**). These results partially support the hypotheses of all of conditions.

Study Four.

    Necessities. To determine if long-term mates and close friends were treated as necessities across social contexts 7 X 6 Repeated Measures ANOVA (i.e., Scenario X Relationship Type) was conducted using the low budget. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated, $\chi^2(464) = 4916.79$, $p < .001$, therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\varepsilon = .40$). There was a significant main effect of scenario, $F(3.15, 566.70) = 4.90$, $p = .002$. There was a significant main effect of relationship type, $F(1.69, 304.07) = 196.90$, $p < .001$. There was a significant interaction effect between scenario and relationship type, $F(12.05, 2168.74) = 12.84$, $p < .001$. In all of the conditions participants invested significantly more in long-term mates compared to close friends, friends, short-term mates, strategic associates, and acquaintances (see **Table 8** and **Figure 8**). These results partially support the hypothesis that high-quality relationships are treated as necessities.

    Luxuries. To determine if higher quality relationships (i.e., long-term mates, close friends, and friends) were treated as necessities across social context 7 X 6 Repeated Measures ANOVA (i.e., Scenario X Relationship Type) was conducted using the unlimited budget. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated, $\chi^2(464) = 6520.54$, $p < .001$, therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\varepsilon = .33$). There was a significant main effect of scenario, $F(4.98, 896.35) = 17.24$, $p < .001$. There was a significant main effect of relationship type, $F(2.36, 424.69) = 44.43$, $p < .001$. There was a significant interaction effect between scenario and

29

relationship type, $F(9.78, 1761.12) = 5.08$, $p < .001$. In all of the conditions participants invested more in long-term mates, friends, strategic associates, and especially close friends compared to short-term mates and acquaintances (see **Table 9** and **Figure 9**) across scenarios. These results partially support the hypothesis that lower quality relationships are treated as luxuries.

        Change in Investment. To determine whether investments in higher quality relationships (i.e., long-term mates, close friendships, and friends) was upregulated in social contexts wherein social support is imperative (i.e., social exclusion, illness, injury, parenthood) verses when other motives prevail (i.e., dealing with hostile out-groups, status seeking) for necessities a 7 X 6 Repeated Measures ANOVA (i.e., Scenario X Relationship Type) was conducted using the low budget (see Study Four Necessities). Participants increased their investment in long-term mates in parenthood and injury conditions. Participants increased their investment in close friends in the social exclusion and injury conditions. Participants increased their investment in friends in the out-group threat, status seeking, and social exclusion conditions. Participants did not increase their investment in short-term mates in any of the conditions. Participants increased their investment in strategic associates in the out-group threat and status seeking conditions. Participants increased their investment in acquaintances in the out-group threat and status seeking conditions (see **Table 8 and Figure 8**). These results partially support the hypotheses of all of the conditions.

CHAPTER V

CONCLUSION

Previous research has determined the functional use of friendships are finding mates, alloparental support, protection, and to increase social status (Bleske-Rechek and Buss, 2001; Hrdy, 2011; Ivey, 2000; Lin, 1999; Li and Kenrick, 2006; Stewart-Williams, 2007). The present studies used behavioral economic principles to assess how an individual determines the best outcome given the maximum profit (Kerps, 1990). Behavioral economic principles allow researchers to examine necessities versus luxuries by changing amount participants can spend (Li, Bailey, Kenrick, & Linsenmeier, 2002). Psychologists have used the necessities versus luxuries paradigm previously to assess mate preferences (Li, Bailey, Kenrick, & Linsenmeier, 2002), but this is the first time to my knowledge this paradigm has been used to examine relative investment across several social relationships.

There were likely situations our ancestors encountered regularly (i.e., parenthood, injury, etc.) that cause a shift in investment strategies given the context on which types on social relationships would produce the maximum benefit. The present study determined that there are evolved mechanisms for strategies of investment given the social context. This was tested via manipulating the context in order to change the relative presence of specific adaptive problems that relate to the cost-benefit tradeoffs that determine the net value of investing in different

relationship domains. The present study is the first to date to examine how individuals change their investment of these types of relationships across several social contexts.

Necessities.

It was hypothesized that long-term mates, close friends, and friends were viewed as necessities. In studies one and two, participants were only allowed to buy friends and as predicted, close friends were viewed as necessities, but friends were not. This may be because close friends provide enormous benefit compared to friends (Bleske-Rechek and Buss, 2001; Hrdy, 2011; Ivey, 2000; Lin, 1999; Li and Kenrick, 2006; Stewart-Williams, 2007). In studies three and four, participants were allowed to buy friends and mates and as predicted, long-term mates were viewed as necessities, but close friends and friends were not. This may be because in addition to providing the possibility of reproduction, long-term mates also provide the benefits as close friends (e.g., intimacy, alloparental support, etc.; Dandeneau & Johnson, 1994; Harper, Schaalje, & Sandberg, 2000; Pillsworth & Haselton, 2006; Quinlan & Quinlan, 2008).

Luxuries.

It was hypothesized that short-term mates, strategic associates, and acquaintances were viewed as luxuries. In studies one and two participants were only allowed to buy friends. As predicted strategic associates were viewed as luxuries, but contrary to the hypothesis close friends and friends were viewed as luxuries while acquaintances were not. This may be because close friends and friends provide benefits such as mate acquiring, alloparental support, an increases ones' social status (Bleske-Rechek and Buss, 2001; Hrdy, 2011; Lin, 1999). In studies three and four participants were allowed to buy friends and mates. Contrary to the hypothesis, only close friends were viewed as luxuries. Again, this may be because close friends provide enormous benefits outlined above.

Out-group Threat.

In the out-group threat condition, it was hypothesized that compared to the control condition investment in long-term mates, close friends, and friends would decrease whereas investment in short-term mates, strategic associates and acquaintances would increase. As predicted, in studies one and two investment in close friends (in study one only) and friends decreased whereas investment in strategic associates and acquaintances increased. As predicted, in studies three and four investment in long-term mates and close friends (in study four only) decreased whereas investment in strategic associates and acquaintances increased. Contrary to the hypothesis, investment in friends increased whereas investment in short-term mates decreased. This may be because we examined only the low budget which looks at necessities not luxuries for change in investment strategies.

Status Seeking.

In the status seeking condition, it was hypothesized that compared to the control condition investment in long-term mates, close friends, and friends would decrease whereas investment in short-term mates, strategic associates and acquaintances would increase. As predicted, in studies one and two, investment in close friends (in study two only) and friends decreased whereas investment in strategic associates and acquaintances increased. As predicted, in studies three and four investment in long-term mates and close friends (in study four only) decreased whereas investment in strategic associates and acquaintances increased. Contrary to the hypothesis, investment in friends increased whereas investment in short-term mates decreased. This may be because we examined only the low budget which looks at necessities not luxuries for change in investment strategies.

Parenthood.

In the parenthood condition, it was hypothesized that, compared to the control condition, investment in long-term mates, close friends, and friends would increase whereas investment in

short-term mates, strategic associates and acquaintances would decrease. As predicted, in studies one and two, investment in close friends increased whereas investment in strategic associates and acquaintances decreased. Contrary to the hypothesis, investment in friends decreased; this may be because parenthood is time intensive, therefore individuals only have time to invest in the highest quality of relationships.

As predicted, in study three, investment in long-term mates and friends increased and investment in short term mates decreased. Contrary to the hypothesis, investment in close friends decreased whereas investment in strategic associates and acquaintances increased. As predicted, in study four only, investment in long-term mates increased and investment in short term mates, strategic associates, and acquaintances decreased. Contrary to the hypothesis, investment in close friends and friends decreased. These differences between samples may be due to being able to adequately imagine the magnitude of time investment of having an infant. Study three was comprised of college aged participants and 95.9% of them had zero kids whereas study four was comprised of MTurkers and 51.5% had one or more kids.

Social Exclusion.

In the social exclusion condition, it was hypothesized that compared to the control condition investment in long-term mates, close friends, and friends would increase whereas investment in short-term mates, strategic associates and acquaintances would decrease. As predicted, in studies one and two investment in close friends (study two only) increased and investment in acquaintances decreased (study two only). Contrary to the hypothesis, investment in friends decreased whereas investment in strategic associates increased. As predicted, in studies three and four investment in friends (study three only) increased and investment in short term mates decreased. Contrary to the hypothesis, investment in long-term mates and close friends decreased whereas investment in strategic associates and acquaintances increased. This may be

because social exclusion is contagious; therefore individuals do not want to infect their allies (Kurzban & Leary, 2001). This decreases investment in the higher quality relationships in order to protect their potential allies from being socially excluded themselves.

Illness.

In the illness condition, it was hypothesized that compared to the control condition investment in long-term mates, close friends, and friends would increase whereas investment in short-term mates, strategic associates and acquaintances would decrease. As predicted, in studies one and two, investment in close friends (study two only) increased. Contrary to the hypothesis, investment in friends decreased whereas investment in strategic associates and acquaintances increased. As predicted, in studies three and four, investment in friends (study three only) increased and investment in short term mates decreased. Contrary to the hypothesis, investment in long-term mates and close friends decreased whereas investment in strategic associates and acquaintances increased. This may be because illness is contagious; therefore individuals do not want to infect their allies. This decreases investment in the higher quality relationships in order to protect their potential allies from getting sick.

Injury.

In the injury condition, it was hypothesized that compared to the control condition investment in long-term mates, close friends, and friends would increase whereas investment in short-term mates, strategic associates and acquaintances would decrease As predicted, in studies one and two, investment in close friends and increased whereas investment in strategic associates and acquaintances (study two only) decreased. Contrary to the hypothesis, investment in friends decreased. As predicted, in studies three and four investment in long-term mates, close friends (study four only), and friends (study three only) increased whereas investment in short-term

mates and acquaintances (study three only) decreased. Contrary to the hypothesis, investment in strategic associates increased.

Overall.

As expected across social context, close friends were viewed as necessities, while more distant friends and acquaintances would be treated as luxuries. Furthermore, investments in higher quality friendships (i.e., close friendships) were typically upregulated in social contexts wherein social support is imperative (i.e., injury and parenthood). This is because close friends provide enormous benefit compared to friends (Bleske-Rechek and Buss, 2001; Hrdy, 2011; Ivey, 2000; Lin, 1999; Li and Kenrick, 2006; Stewart-Williams, 2007). Although social support is imperative in the social exclusion and illness conditions, there is a level of contagion that may explain why investment in higher quality did not increase. When other motives prevail (i.e., dealing with hostile out-groups, status seeking) investments in lower quality relationships (i.e., strategic associate, and acquaintance) were upregulated.

When examining friends and mates, it was found that close friendships and long-term mates were viewed as necessities, especially long-term mates while more distant friends, short-term mates, and acquaintances were treated as luxuries. Furthermore, investments in higher quality relationships (i.e., long-term mates and sometimes close friendships) were upregulated in social contexts wherein social support is imperative (i.e., injury and parenthood). This is because in addition to providing the possibility of reproduction, long-term mates also provide the benefits as close friends (e.g., intimacy, alloparental support, etc.; Dandeneau & Johnson, 1994; Harper, Schaalje, & Sandberg, 2000; Pillsworth & Haselton, 2006; Quinlan & Quinlan, 2008). Although social support is imperative in the social exclusion and illness conditions, there is a level of contagion that may explain why investment in higher quality did not increase. When other

motives prevail (i.e., dealing with hostile out-groups, status seeking) investments in lower quality relationships (i.e., short-term mate, strategic associate, and acquaintance) was upregulated.

Limitations and Future Directions.

The present studies used behavioral economic principles to assess how an individual determines the best outcome given the situations our ancestors likely encountered regularly (i.e., parenthood, injury, etc.). This is the first time to my knowledge this paradigm has been used to (i) examine investment in different types of friendship, (ii) examine investment in different types of mates, and (iii) examine investment across several scenarios that are salient to our ancestral environment. The present studies determined that there are different strategies of investment in different types of social relationships given the situation.

Although the present studies shed light on important mechanism that regulate investment in social relationships, no study is without limitations. One limitation is that investment strategy was based off of a paradigm and did not examine real-world investment strategies under different situations. A future direction would be to examine individual's real-world friendship networks across the lifespan during different periods of their life (e.g., during parenthood, when they become seriously ill or injured, etc.).

Another limitation is that they survey itself was long with a total of 21 paradigms participants completed, therefore future directions would be to have a between-subjects design to decrease fatigue. Additionally, several of participants were dropped because they could not do the math properly (e.g., one close friend equals ten dollars therefore 1 X 10 = 10). Future directions should include having a system that does the calculation form them.

The majority of the sample was from Western society which may not accurately reflect how investment strategies change give the context in other cultures. Therefore, future directions should include gathering data from a non-western culture. Although there is still much work to be

done, the present studies begin to shed light on the dynamics of choosing which types of social

relationships to invest in by providing strong evidence that there are evolved mechanisms that

produce different strategies in investment across social relationships given the social context.

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APPENDICES

Table 1.

Statistical conversions

Relationship	Amount multiplied by
Long-term mate	15
Close Friend	10
Friend	5
Short-term mate	5
Strategic associate	5
Acquaintance	1

Table 2.

Means and Standard Deviations on the Amount of Friendship Dollars Spent on Friendship Type for Low Budget Study One

Scenario		Amount Spent							
		Close Friend		Friend		Strategic Associate		Acquaintance	
	n	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Control	310	6.95	4.6	1.68	2.97	0.95	1.97	0.16	0.97
Out-group	310	5.49	4.98	1.34	2.99	2.06	3.70	0.77	2.55
Status	310	4.12	4.94	1.95	3.36	2.10	3.55	1.46	3.12
Parenthood	310	8.26	3.80	0.90	2.64	0.48	1.82	0.08	0.75
Exclusion	310	6.68	4.72	1.23	3.03	1.12	2.90	0.57	2.22
Illness	310	6.19	4.85	1.35	3.13	1.56	3.33	0.58	2.27
Injury	310	8.02	3.98	0.85	2.61	0.61	2.15	0.21	1.35

Table 3.

Means and Standard Deviations on the Amount of Friendship Dollars Spent on Friendship Type for Unlimited Budget Study One

Scenario	n	Close Friend		Friend		Strategic Associate		Acquaintance	
		M	SD	M	SD	M	SD	M	SD
Control	310	158.61	339.86	138.97	159.54	153.03	172.09	40.78	45.03
Out-group	310	297.45	527.70	129.21	159.95	194.63	219.00	35.89	47.23
Status	310	268.77	491.98	168.95	197.79	166.95	197.79	41.49	48.30
Parenthood	310	316.71	546.46	141.92	179.07	131.77	164.10	28.15	41.12
Exclusion	310	436.19	655.81	137.85	195.27	144.82	186.00	25.87	41.96
Illness	310	194.35	419.79	102.71	160.34	165.42	248.06	30.47	48.53
Injury	310	402.48	626.97	128.63	161.41	134.66	166.60	26.36	39.29

Table 4.

Means and Standard Deviations on the Amount of Friendship Dollars Spent on Friendship Type for Low Budget Study Two

Scenario		Amount Spent							
		Close Friend		Friend		Strategic Associate		Acquaintance	
	n	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Control	198	5.66	4.97	2.27	3.13	1.62	2.65	0.43	1.40
Out-group	198	5.91	4.93	1.04	2.72	1.74	3.61	1.31	3.27
Status	198	3.54	4.79	1.74	3.36	3.66	4.52	1.06	2.78
Parenthood	198	8.48	3.59	0.91	2.65	0.38	1.59	0.23	1.36
Exclusion	198	6.72	4.71	1.16	2.97	1.69	3.57	0.40	1.91
Illness	198	6.67	4.73	1.04	2.82	1.69	3.60	0.54	2.10
Injury	198	8.71	3.34	0.73	2.38	0.40	1.77	0.15	1.12

Table 5.

Means and Standard Deviations on the Amount of Friendship Dollars Spent on Friendship Type for Unlimited Budget Study Two

Scenario		Amount Spent								
		Close Friend		Friend		Strategic Associate		Acquaintance	
	n	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Control	196	283.06	490.16	144.59	175.12	145.38	175.97	38.04	46.41
Out-group	196	422.91	614.44	169.29	227.91	162.24	201.93	38.93	55.52
Status	196	416.12	614.32	185.71	241.68	185.41	228.75	33.78	49.05
Parenthood	196	449.80	629.10	173.32	222.20	125.23	145.15	28.80	42.22
Exclusion	196	636.68	751.51	152.19	214.08	26.21	34.69	22.31	39.55
Illness	196	352.96	597.61	111.28	178.18	130.13	181.79	31.93	52.55
Injury	196	470.66	630.46	149.21	183.60	143.60	179.66	28.86	44.66

Table 6.

Means and Standard Deviations on the Amount of Friendship Dollars Spent on Relationship Type for Necessities for Study Three

Scenario		Long-Term Mate		Close Friend		Friend		Short-Term Mate		Strategic Associate		Acquaintance	
	n	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Control	219	9.27	7.27	2.97	4.58	1.03	2.70	0.64	1.87	0.75	2.03	0.02	.34
Out-group	219	7.23	7.50	2.98	4.61	1.28	3.02	0.25	1.53	2.49	4.65	0.64	2.76
Status	219	5.44	7.21	3.05	4.60	1.70	3.53	0.18	1.16	3.15	5.10	1.44	3.96
Parenthood	219	9.62	7.19	2.95	4.60	1.10	2.57	0.12	0.75	1.08	2.89	0.46	0.78
Exclusion	219	6.99	7.47	3.71	4.83	1.24	3.01	0.19	1.16	1.33	3.66	0.46	2.30
Illness	219	8.62	7.41	2.76	4.47	1.06	2.80	0.12	0.76	1.72	3.60	0.53	2.50
Injury	219	9.38	7.27	2.83	4.59	1.11	2.78	0.15	0.92	1.32	3.36	0.17	1.47

Table 7.

Means and Standard Deviations on the Amount of Friendship Dollars Spent on Relationship Type for Unlimited for Study Three

	Amount Spent																	
Scenario	Long-Term Mate			Close Friend		Friend		Short-Term Mate		Strategic Associate		Acquaintance	
	n	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Control	219	42.81	161.95	193.88	340.14	143.81	162.65	10.80	37.98	130.34	147.62	32.41	37.09
Out-group	219	54.73	266.16	268.26	413.89	134.27	168.62	7.69	26.25	167.88	195.04	26.40	39.58
Status	219	76.71	368.84	245.16	396.98	135.50	158.93	9.59	35.10	174.57	199.22	32.41	40.99
Parenthood	219	75.82	349.00	274.93	439.25	124.70	150.02	6.60	24.43	129.22	156.83	23.52	31.79
Exclusion	219	68.56	333.00	296.39	482.49	8.79	31.45	8.79	31.45	133.95	172.65	22.90	35.85
Illness	219	58.42	239.83	169.18	317.04	99.27	148.18	9.50	38.00	137.37	204.61	23.43	41.78
Injury	219	84.52	354.68	304.98	462.56	119.91	144.63	5.37	18.46	126.35	156.56	25.61	38.30

Table 8.

Means and Standard Deviations on the Amount of Friendship Dollars Spent on Relationship Type for Low Budget for Study Four

		Amount Spent											
		Long-Term Mate		Close Friend		Friend		Short-Term Mate		Strategic Associate		Acquaintance	
Scenario	n	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Control	181	9.56	7.19	2.57	4.40	1.11	2.67	0.39	1.34	1.02	2.62	0.08	0.64
Out-group	181	8.29	7.48	2.23	4.27	1.13	3.20	0.06	.052	2.13	4.72	1.05	3.65
Status	181	5.64	7.28	2.27	4.30	1.97	4.17	0.08	0.64	3.37	5.84	0.97	2.79
Parenthood	181	11.02	6.64	2.24	4.23	0.69	1.96	0.11	1.17	0.83	2.81	0.03	0.38
Exclusion	181	8.20	7.43	2.79	4.54	1.33	3.44	0.14	0.98	1.77	4.21	0.17	1.28
Illness	181	9.34	7.27	2.02	4.01	1.11	3.23	0.22	1.65	2.02	4.47	0.17	1.57
Injury	181	9.92	7.10	2.65	4.46	1.05	2.93	0.08	0.64	1.08	3.09	0.12	1.18

Table 9.

Means and Standard Deviations on the Amount of Friendship Dollars Spent on Relationship Type for Unlimited Budget for Study Four

		Amount Spent											
Scenario		Long-Term Mate		Close Friend		Friend		Short-Term Mate		Strategic Associate		Acquaintance	
	n	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Control	181	94.81	391.62	301.16	525.94	144.59	188.90	27.54	100.41	139.75	187.49	29.69	37.69
Out-group	181	114.28	444.34	411.11	596.99	136.02	187.81	15.03	53.28	210.99	257.84	34.71	53.80
Status	181	129.86	472.15	369.89	560.73	134.67	178.47	15.50	43.72	213.23	258.92	35.47	50.35
Parenthood	181	163.76	602.43	406.85	591.20	142.40	198.73	14.28	55.80	153.51	220.09	26.40	40.23
Exclusion	181	154.72	554.68	467.79	630.63	140.44	189.65	14.86	45.13	186.69	253.53	25.50	43.17
Illness	181	118.01	417.28	324.97	532.42	99.56	152.32	16.44	54.94	146.22	227.94	22.64	44.01
Injury	181	115.03	420.29	521.71	667.28	127.32	158.72	12.10	43.21	141.44	195.02	21.13	35.18

Figure 1.

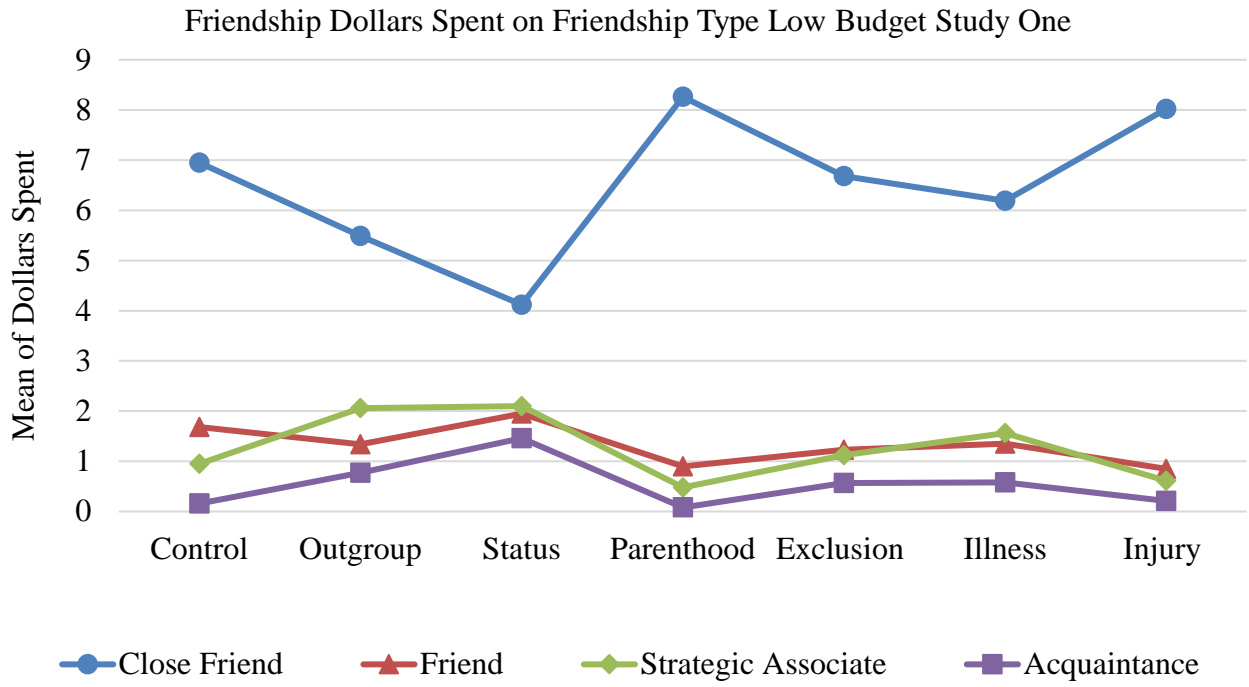|	How many of each do you want?	Amount spent on each type of relationship (the bottom total box must = $10 or less)
How many close friends ($10) would you like?		
How many friends ($5) would you like?		
How many strategic associates ($5) would you like?		
How many acquaintances ($1) would you like?		
Total		

Figure 2.

Friendship Dollars Spent on Friendship Type Low Budget Study One

Figure 3.

Friendship Dollars Spent on Friendship Type Unlimited Budget Study One

Figure 4.

Friendship Dollars Spent on Friendship Type Low Budget Study Two

Figure 5.

Friendship Dollars Spent on Friendship Type Unlimited Budget Study Two

Figure 6.

Relationship Dollars Spent on Relationship Type Low Budget for Study Three

Figure 7.

Relationship Dollars Spent on Relationship Type Unlimited Budget Study Three

Figure 8.

Relationship Dollars Spent on Relationship Type Low Budget for Study Four

Figure 9.

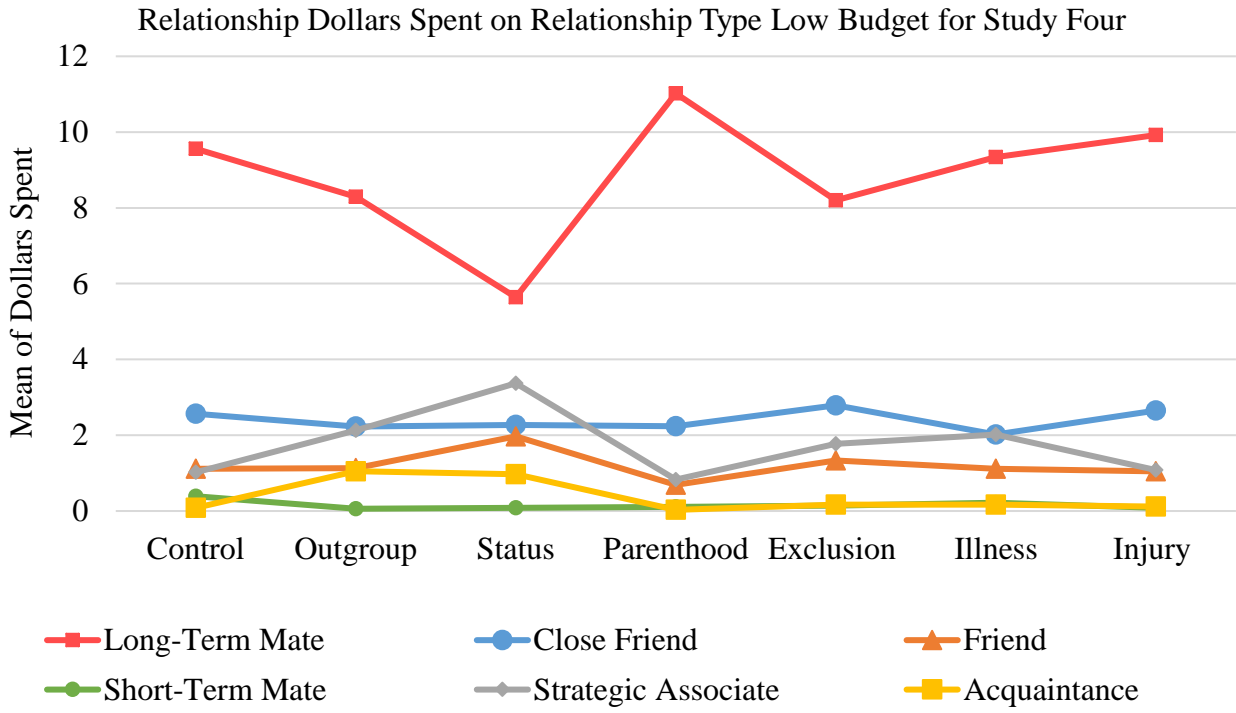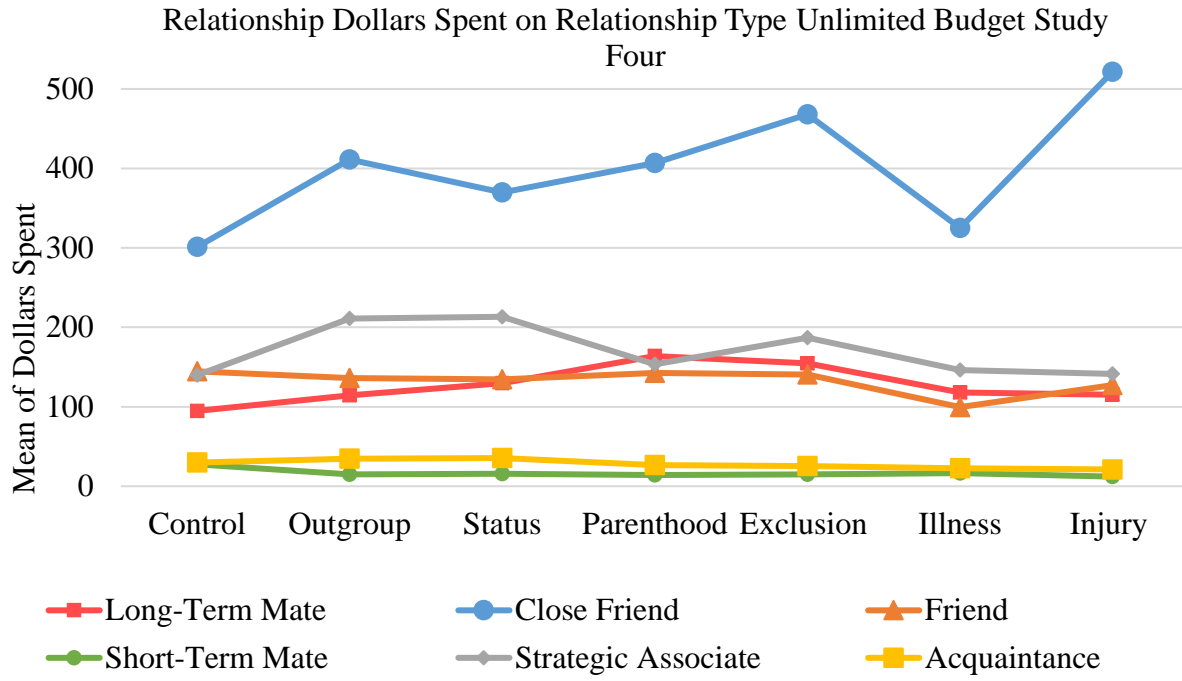Relationship Dollars Spent on Relationship Type Unlimited Budget Study Four

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