NEPOTISTIC NOSINESS:
INCLUSIVE FITNESS AND VIGILANCE OF KIN'S ROMANTIC RELATIONSHIPS

by

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Abstract

People often express concern over their kin’s romantic relationship outcomes. Evolutionary psychological reasoning, informed by inclusive fitness logic, implies several testable predictions about the conditions under which people will devote greater vigilance to their kin’s romantic relationships. Four studies presented in this dissertation tested these novel predictions.

Results of all four studies revealed that, as predicted, people are more vigilant of their genetically closer kin. Additional findings that emerged from one of these studies suggested that this effect is mediated by the perception of characteristics in kin that, at a heuristic level, connote genetic relatedness. Results of these studies provided evidence partially supporting predicted sex differences in relationship vigilance. Three studies indicated that women are more vigilant of their kin’s relationships than men. Three studies also indicated that people are more vigilant of their female kin’s relationships, compared to their male kin’s relationships, but only under conditions for which greater inclusive fitness consequences are likely at stake. One study also tested and provided support for the prediction that people are relatively more vigilant of their kin’s long-term, committed romantic relationships.

Two additional studies tested predictions derived from inclusive fitness logic about the preferences that people hold for their kin’s romantic partners. Both studies provided some evidence suggesting that, as predicted, people hold different preferences for their male and female kin’s partners. One of these studies also tested and supported the prediction that people hold their kin’s long-term romantic partners to relatively higher standards.
These findings suggest that people's concerns about their kin's romantic relationships are the product of several factors not considered in previous research. These findings also imply that a subtle form of nepotism is reflected in the vigilance that people hold over their kin's relationships.
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Co-Authorship Statement

Jason Faulkner was the sole author of this thesis, and played a primary role in identifying and designing the research, conducting the research, analyzing the data, and preparing the manuscript. The research presented in this thesis is described in a published journal article also titled “Nepotistic Nosiness: Inclusive Fitness and Vigilance of Kin’s Romantic Relationships.” Jason Faulkner was the primary author of this article. Mark Schaller, the secondary author of this article, played a secondary role in preparing the article for publication.
Chapter 1. Introduction

“No relationship is an island. Instead the participants in any one relationship are simultaneously participants in other relationships and in turn these relationships combine to form still larger social patterns that ultimately create a social context, without which no one individual or relationship can be fully understood.” (Parks & Eggert, 1991, p. 26)

People are drawn to stories about kin meddling in each other’s romantic affairs. One especially popular story is Shakespeare’s Romeo and Juliet. In this play, two feuding families, the Montagues and Capulets, both oppose a romantic relationship that develops between Romeo, a Montague, and Juliet, a Capulet. In addition to classic stories like Romeo and Juliet, people are also drawn to more contemporary forms of entertainment that reflect a similar theme. For example, Parental Control is a television show that allows parents who disapprove of a child’s boyfriend or girlfriend to choose for that child a new dating partner.

In reality, people also meddle in their kin’s romantic affairs. Research indicates that people often attempt influence over their kin’s dating relationships (e.g., Leslie, Huston, & Johnston, 1986), and that this sort of influence has lasting consequences on kin’s relationship outcomes (Johnson & Milardo, 1984). Other research indicates that people often exert a relatively extreme form of influence over their kin’s romantic relationships; in many cultures, people choose marriage partners for their kin (Apostolou, in press; Blood, 1967; Fox, 1975; Mandelbaum, 1970;
Talbani & Hasanali, 2000). (Research examining influence over kin's dating relationships and marriages is more fully discussed below.)

Existing research documents that people exert substantial influence over their kin's romantic relationships, however few investigations have attempted to account for why people do so. One early investigation suggested that Freudian motives underlie a tendency to exert influence over kin's romantic relationships (Bates, 1942). While this is an interesting possibility, it does not clearly lead to testable psychological predictions. The present investigation instead introduces an evolutionary psychological perspective to account for this phenomenon. The value of this perspective is that it generates novel psychological predictions about how people might attend to their kin's romantic relationships.

It is surprising that evolutionary psychological reasoning is yet to be applied to this topic. Research inspired by this reasoning indicates that people are concerned about kinship; in particular, they care about the wellbeing of their genetically closest kin (e.g., Burnstein, Crandall, & Kitayama, 1994). People are also concerned about mating, and evolutionary psychological reasoning helps to account for people's specific mate preferences (e.g., Buss, 1989). This perspective might then prove especially useful in examining people's influence over their kin's romantic relationships, given that this phenomenon involves both matters of kinship and mating.

In this dissertation, several novel predictions are derived from evolutionary psychological reasoning about how people might attend to their kin's romantic relationships. Before discussing these predictions, as well as the studies designed to
test these predictions, it is useful to first review past research that has already examined this topic.

1.1. Previous Research on Relationship Influence

There are two existing bodies of research that focus on the influence that people hold over their kin’s romantic relationships. One of these is descriptive research that identifies and compares marriage arrangement practices across many cultures. This research reveals that such practices are cross-culturally common: In several non-western cultures, marriages are arranged for kin (Buunk, Park, & Dubbs, 2007; Goode, 1959). Marriages are also arranged for kin within non-western immigrant groups located in western nations (Bhopal, 1997; Menon, 1994; Rockman, 1994; Talbani & Hasanali, 2000). Additional evidence suggests that these practices may have been pre-historically common as well: Marriages are arranged for kin within hunter-gatherer groups such as the !Kung of South Africa and the Yanomamö of Venezuela, whose social environments are likely similar to those of ancestral humans (Chagnon, 1992; Shostak, 1983). In fact, results of one study indicate that marriages are arranged by parents in nearly 70 percent of modern hunter-gatherer societies (Apostolou, in press).

In some cultures practicing marriage arrangement, marriages are formally arranged by a matchmaker. In East Asian cultures, the matchmaker, known as a go-between, exchanges information between families about potential partners, and also arranges initial meetings with potential partners. Parents typically contact a go-between when they feel a child is ready to be married, and along with the
matchmaker, make decisions about the suitability of potential partners (Blood, 1967; Kim, 1974; Croll, 1981; Vogel, 1961; Xiaohe & Whyte, 1990). In Jewish communities, parents also use matchmakers to help find desirable marriage partners for their children (Rockman, 1994). In India, Turkey, and Tunisia, parents and other close kin members carry out duties that are often performed by non-kin matchmakers (Mandelbaum, 1970; Fox, 1975; Camilleri, 1967). These descriptions reveal that, across many cultures, people's close kin play an important role in selecting marriage partners.

A large body of research has also examined influence held over dating relationships. Some of this research reveals that people often attempt to influence their kin's dating relationships. For example, results of one study indicated that about two-thirds of people involved in a dating relationship were introduced to their partner by a close kin member or a close friend (Parks & Eggert, 1991). In another study, the majority of participants involved in dating relationships reported parental influence over their relationship decisions; influence ranged from offering advice to "extreme attempts at domination," although most attempts were categorized as relatively moderate forms of influence (Bates, 1942).

Several other studies of dating relationships have examined the impact that this sort of influence has on relationship outcomes. One prediction that has received attention is that discouragement or disapproval of kin's relationships actually has a positive effect on relationship outcomes, much like Romeo and Juliet's attraction and commitment to one another intensified in the face of parental disapproval. Evidence supporting this prediction has rarely been found (Driscoll, Davis, & Lipetz, 1972).
Instead, results of most studies suggest that kin members’ support, acceptance, and encouragement of relationships predicts positive relationship outcomes. Dating partners who receive such support from kin are more attracted and committed to one another, spend more time together, and are less likely to break up (Johnson & Milardo, 1984; Lewis, 1973; Parks & Eggert, 1991; Sprecher & Felmlee, 1992).

One study of dating relationships has also documented the various behavioral strategies that people enact to encourage or discourage their kin’s relationships (Leslie, Huston, & Johnston, 1986). Some of the popular forms of relationship encouragement involve performing a simple favor, such as relaying a phone message from a kin member’s partner or lending one’s kin member a car for a date. People also frequently encourage kin’s relationships by including kin and their dating partners in their own plans, and by acting pleasantly around kin’s dating partners. Some of the popular forms of discouragement include acting unpleasantly around a kin member’s dating partner, giving a kin member’s dating partner an unusual nickname, or suggesting other potential dating partners for one’s kin.

Considered together, these findings reveal that people employ several strategies in attempting to influence their kin’s romantic relationships, and that these attempts at influence have predictable effects on relationship outcomes: Relationships that are encouraged by kin are more likely to succeed than are relationships that are discouraged by kin.
1.2. Psychological Aspects of Relationship Influence

Before deriving psychological predictions about how people attend to their kin’s romantic relationships, it is important to identify some of the psychological processes common to all behavioral attempts at relationship influence. The present investigation focuses on two psychological processes that likely precede these influence attempts. One process refers to actively maintaining vigilance over kin members’ romantic relationships. Prior to attempting relationship influence, people likely devote effort to maintaining awareness and concern for their kin’s romantic relationships.

In maintaining relationship vigilance, people likely seek out various kinds of information about their kin’s relationships and romantic partners. They might try to find out whether their kin are currently involved in romantic relationships, and if so, how serious those relationships are. This sort of relationship vigilance might be thought of as “nosiness” in kin’s romantic affairs. As specific examples of nosiness, I might ask my brother whether he has slept with his current dating partner yet, or my parents might ask to meet my date before we go out for the evening.

Another psychological process that likely precedes attempts at relationship influence refers to maintaining standards, or preferences, to be met by kin members’ romantic partners. Just as people hold certain preferences for their own romantic partners, people probably also prefer that kin members’ potential romantic partners possess certain desirable characteristics. As a specific example, my parents might prefer that I date a partner who has a good job. People likely encourage their kin’s relationships when a romantic partner meets or exceeds their desired standards, and
instead discourage their kin’s relationships when a romantic partner fails to meet their standards. However, it requires effortful vigilance to assess whether kin’s partners meet these standards. This again suggests that relationship vigilance and partner preferences both precede actual attempts at relationship influence.

The present investigation examines both of these psychological aspects of relationship influence: vigilance of kin’s romantic relationships and preferences for their romantic partners. An evolutionary psychological perspective, informed by the logic of inclusive fitness, is used as a rigorous, principled means of deducing predictions about these psychological phenomena. The empirical studies designed to test these predictions focus exclusively on psychological phenomena operating at an individual level of analysis; they do not examine phenomena operating at a population level of analysis. For this reason, the empirical results that may emerge from these studies do not directly reflect the evolutionary processes which are presumed to lie at the base of the psychological phenomena considered here.

Nonetheless, there is substantial practical value to applying evolutionary psychological reasoning in examining vigilance of kin’s relationships and preferences for their romantic partners: This reasoning generates multiple novel predictions about these phenomena. Moreover, it provides a coherent explanatory framework to account for a variety of phenomena, which at a superficial level, may seem qualitatively very different (Schaller, 2002). The usefulness of an evolutionary psychological perspective is more fully considered in the final chapter of this dissertation. A purpose of the present chapter is instead to outline the various predictions implied by
an evolutionary psychological perspective. Prior to deriving these predictions, some basic principles of inclusive fitness theory are reviewed next.

1.3. Inclusive Fitness and Nepotism

In general, people behave in ways that increase their probability of surviving and reproducing; that is, they behave in ways that enhance their fitness, or likelihood of passing copies of their genes onto future generations. However, under some circumstances, people are altruistic, and instead behave in ways that reduce their own fitness, but have positive fitness consequences for others. Hamilton (1964) reasoned that fitness benefits may be gained by behaving altruistically if the recipient of an altruistic act is genetically related to its provider. Genetic relatives share some exact copies of their genes, and so behaving in ways that increase a genetic relative’s fitness is a means of better ensuring that copies of one’s own genes are passed onto future generations.

Hamilton’s theory of inclusive fitness further specified the conditions under which kin-directed altruism could evolve. He introduced the term ‘inclusive fitness’ to denote that the effect of any act on one’s overall level of fitness is the sum of its effect on one’s individual level of fitness (i.e., its direct fitness effect) as well as its effect on one’s kin member’s level of fitness (i.e., its indirect fitness effect; Brown, 1975). Hamilton reasoned that kin-directed altruism is likely to evolve only under conditions for which the provider of an altruistic act gains an indirect fitness benefit that is greater than the associated direct fitness cost. This reasoning implies predictions about the conditions under which kin-directed altruism is especially likely
to occur. One emerging prediction is that genetically closer kin will be favored as recipients of altruistic acts, since a greater indirect fitness benefit is to be gained from helping these kin. In other words, inclusive fitness logic suggests that people will behave nepotistically. (Following Daly, Salmon, and Wilson (1997), in the present investigation, nepotism refers only to favoritism based on genetic relatedness, without implying, as common usage sometimes does, that such favoritism is morally wrong.)

Consistent with the logic of inclusive fitness, nepotism is reflected in the behavior of various animal species. For example, in one species of ground squirrel, individuals sound calls that warn of a nearby predator. These calls are self-sacrificing, in that they put a caller at greater risk of predation. They are also nepotistic, in that calls are sounded more often when close genetic relatives are nearby (Sherman, 1977). As another example, among Japanese macaques (an old-world monkey), individuals sometimes risk their own physical safety to defend others from physical attack. Individuals are especially likely to defend close genetic relatives from attack; moreover, attacks are most often directed toward non-relatives (Kurland, 1977). As yet another example of nepotism, among several animal species, individuals are more likely to share food with their closer genetic relatives (Brown, 1975).

Evidence also indicates that people behave nepotistically. Parenting behavior provides one example. Parental care comes at a cost to adults who provide it (in terms of expended time, effort, and other resources) and it is beneficial to children who receive it. Two lines of evidence suggest that parental care is also provisioned nepotistically. In several cultures, children are more likely to be adopted by genetic relatives than by non-relatives (Silk, 1980). Parents are also more likely to abuse
stepchildren than they are to abuse genetic children (Daly & Wilson, 1988). People behave nepotistically in several other social contexts as well, favoring their closer genetic relatives as recipients of both tangible and emotional support (e.g., Essock-Vitale & McGuire, 1980; Laham, Gonsalkorale, & von Hippel, 2005; Segal & Bouchard, 1993; Smith, Kish, & Crawford, 1987).

The logic of inclusive fitness not only implies that people will act nepotistically; it also implies predictions about the conditions under which nepotism is more or less likely to occur. One prediction emerges from considering the costs associated with altruistic acts. More costly acts of altruism must be offset by relatively greater indirect fitness benefits. This suggests that, as altruism becomes especially costly, it is more likely to be directed exclusively toward genetically closer kin. Consistent with this reasoning, for relatively high-cost forms of help (such as donating an organ or saving someone from a burning building), there is a stronger relationship between genetic relatedness and helping than there is for relatively low-cost forms of help (such as picking up an item at a store for someone; Burnstein et al., 1994; Sime, 1983; Stewart-Williams, in press).

This last point suggests that nepotism is especially apparent in relatively high-cost forms of helping behavior. It also suggests that, in deriving psychological predictions about how people attempt to influence their kin’s romantic relationships, it is important to consider the costliness of different psychological aspects of such relationship influence.
1.3.1. Nepotism in Relationship Vigilance

Inclusive fitness depends, in part, on the probability of kin member’s reproductive success. Indirect fitness benefits are gained if one’s kin members secure mates who, for whatever reason, help them produce reproductively viable offspring. It follows that people will likely expend time and effort to help their kin secure desirable mates. Moreover, because the reproductive success of individuals’ genetically close kin has a relatively greater impact on their inclusive fitness, individuals may focus their effort on ensuring positive relationship outcomes for their genetically close kin.

At a psychological level, this reasoning suggests that people may be especially vigilant of their genetically close kin’s romantic relationships. It takes time and effort to keep abreast of developments in kin’s relationships and to acquire information about kin’s current relationship partners; this time and effort could instead be spent pursuing other fitness-relevant goals. The logic of inclusive fitness suggests that people may be more willing to incur these costs when greater indirect fitness benefits are to be gained, as is the case when the reproductive success of genetically close kin is at stake. Thus, inclusive fitness logic not only suggests that people may be nosy in their kin members’ romantic affairs, it also leads to the prediction that such nosiness is nepotistic; people may hold greater vigilance over genetically close kin members’ romantic relationships than over more distant kin members’ relationships.

As noted earlier, certain standards or preferences for kin’s partners also seem necessary to ensure positive relationship outcomes for kin. However, while substantial effort is associated with vigilance of kin’s relationships, little or no effort
is likely associated with simply maintaining these preferences. Thus, while inclusive fitness logic suggests nepotism in vigilance of kin’s relationships, the same logic does not suggest nepotism in preferences that are held for kin’s romantic partners. At little or no cost to fitness, people may hold similar standards for both genetically close kin and distant kin alike.

What evidence, if any, reveals a tendency to nepotistically exert vigilance over kin’s romantic relationships? Some evidence indirectly suggests that people exert greater influence over their genetically closer kin’s romantic relationships. In cultures practicing marriage arrangement, parents typically exert the greatest influence over partner choice (e.g., Blood, 1967; Fox, 1975; Mandelbaum, 1970). One study of dating relationships also suggests that, at all stages of a relationship (i.e., from casual dating to marriage) people’s close kin (parents, in particular) exert greater relationship influence than more distant kin (Johnson & Milardo, 1984).

This research provides some preliminary evidence of nepotism in relationship vigilance. However, studies of arranged marriages and dating relationships focus on influence exerted by parents; they typically do not consider influence exerted by other close kin (e.g., siblings) or more distant kin (e.g., aunts, uncles, grandparents, and cousins). These studies also examine reports of actual behavioral influence, but not psychological vigilance (i.e., awareness of kin’s relationships and concern for their relationship outcomes). To rigorously assess the extent of nepotism in relationship vigilance, studies are needed that examine psychological vigilance over kin of various degrees of genetic relatedness.
1.4. Sex Differences in Parental Investment and Mating Strategies

The logic of inclusive fitness suggests that people might maintain vigilance over their kin’s relationships in ways that indirectly bolster fitness. As one consequence, people likely attend to the genetic relatedness of their kin, and benefit from maintaining greater vigilance over genetically closer kin’s relationships. People might gain indirect fitness benefits by attending to several other characteristics of their kin as well. One characteristic that people likely attend to is the sex of their kin; people might benefit from differently attending to the relationships of their male and female kin. The logic of differential parental investment theory provides an account of why people might benefit from doing so. Therefore, prior to deriving predictions about sex differences in the attention paid to kin’s romantic relationships, this section reviews some basic principles of differential parental investment logic.

Both men and women invest costly resources in their offspring (Daly & Wilson, 1988; Silk, 1980). However, biological differences between men and women reveal that women’s minimum investment in their offspring is greater than men’s: Women’s minimum investment involves a pregnancy lasting several months, as well as lactation following pregnancy. Men’s investment in their offspring can be as minimal as their contribution of sperm at conception. Moreover, pregnancy places constraints on women’s lifetime reproductive capacity; on average, a woman is constrained to producing fewer offspring than a man can sire in his lifetime.

Trivers (1972) proposed that these sex differences have important implications for mate selection. He reasoned that, for any species, members of the more heavily investing sex incur a greater fitness cost from reproducing with
substandard mates. As a consequence, members of the more heavily investing sex are likely more discriminating in selecting mates, whereas members of the less investing sex are likely more competitive with one another in seeking mates.

Consistent with the logic of differential parental investment, in mammals, females are the more heavily investing sex and are especially choosy in selecting mates, whereas males are especially competitive in seeking out females. Among some animal species, sex differences in minimum parental investment are reversed; males invest greater resources in the rearing of offspring than females. Among these species, males are especially selective and females are especially competitive (Trivers, 1985).

In humans too, the logic of differential parental investment suggests that men and women likely pursue different mating strategies. A large body of evidence indicates that women, whose minimum parental investment is greater than men's, are generally more discriminating in seeking out mates. In one study, the majority of men were willing to consent to sex with an attractive, opposite-sex stranger, whereas no women consented (Clarke & Hatfield, 1989). Another study found that men are willing to consent to sex at an earlier point in a romantic relationship than are women (Buss & Schmitt, 1993). Other evidence indicates that women hold potential mates to a higher standard; women, more so than men, require their potential mates to possess several desirable characteristics (Kenrick, Sadalla, Groth, and Trost, 1990). Still other evidence suggests that women and men hold potential mates to somewhat different kinds of standards. Women, more so than men, value characteristics in potential mates that likely reflect an ability to invest in offspring; among these characteristics
are high socioeconomic status and ambition. Men, more so than women, desire characteristics in potential mates that likely reflect fertility and high reproductive value, such as youthfulness and physical attractiveness (Buss, 1989; Feingold, 1990; 1992; Kenrick & Keefe, 1992).

When combined with the logic of differential parental investment, inclusive fitness logic also suggests sex differences in how people attend to the romantic relationships of their kin. Specifically, this logic suggests that people may be differently vigilant of their male and female kin’s romantic relationships. Moreover, people might hold different standards for their male and female kin’s romantic partners.

1.4.1. Vigilance of Male and Female Kin’s Relationships

Women benefit from pursuing a more discriminating strategy in selecting mates; in other words, they benefit from being more vigilant than men over the choice of their mates. Parental investment logic, when combined with the logic of inclusive fitness, further suggests that people may indirectly benefit by being especially vigilant of their female kin’s romantic relationships. If one fails to attend to the mating activities of a female kin member, one potentially loses the opportunity to dissuade her from spending one of her precious reproductive opportunities on a substandard mate – an act that not only has the potential to negatively affect her reproductive fitness, but indirectly, one's own fitness as well. The mating activities of male kin have less consequential implications for one's own inclusive fitness. This reasoning
suggests the prediction that people may hold greater vigilance over the romantic relationships of female kin than male kin.

Some evidence indeed suggests that people differently attend to the relationships of their male and female kin: Studies of dating relationships indicate that parents more often attempt influence over daughters' relationships than over sons' relationships (Bates, 1942; Leslie, Huston, & Johnson, 1986; Sprecher & Felmlee, 1992). These findings indirectly suggest that people may be especially vigilant of their female kin's romantic relationships.

Inclusive fitness and parental investment logic further implies predictions about the preferences that people hold for their male and female kin's romantic partners. Just as women benefit from holding potential romantic partners to a higher standard than men, so too might people indirectly benefit from holding their female kin’s partners to a higher standard than male kin’s partners.

This logic not only suggests higher standards for female kin’s partners, it also suggests qualitatively different standards for female kin; people may indirectly benefit from requiring that female kin’s partners possess characteristics reflecting an ability to invest in offspring (e.g., status and ambition). People may instead benefit from requiring that male kin’s partners possess characteristics reflecting fertility and reproductive value (e.g., youth and physical attractiveness). Previous conceptual analyses have arrived at similar predictions about preferences that are held for kin’s romantic partners:
"The bride’s kinsmen also have a biological interest in the fitness of the offspring, and typically choose a groom who will contribute to that fitness according to criteria that are congruent with a female reproductive strategy. In our cultural idiom, a father will seek a “good provider” for his daughter. Fathers are typically far choosier and critical of whom their daughters consort with, than is the case with their sons." (van den Berghe & Barash, 1977, p. 815)

At least one study of dating relationships provides empirical evidence that people hold unique preferences for their female and male kin’s partners: Bates (1942) found that parents especially value the “economic rank” of daughters’ partners and especially value the physical attractiveness of sons’ partners. Descriptions of arranged marriage practices in many cultures provide additional evidence: In Japan, parents seek out partners for their daughters who earn a high income and seek out partners for their sons who appear healthy, physically attractive, and are likely to bear healthy children (Blood, 1967; Vogel, 1961). In China, parents seek out high status partners for their daughters and seek out partners for their sons who are physically attractive and have good domestic skills. These preferences have persisted in China despite the introduction of government policies discouraging marriage arrangement by kin (Croll, 1981; Xie & Combs, 1996). In Indian marriage practices, a bride’s parents pay a larger dowry to the families of more highly educated grooms. A groom’s parents instead pay a greater bride price for the right to marry a physically attractive bride (Mandelbaum, 1970). These descriptions suggest that people value characteristics
reflecting an ability to invest in offspring in their female kin’s partners and instead value characteristics reflecting fertility and reproductive value in their male kin’s partners.

Considered together, research on dating relationships and arranged marriage practices suggests that people are differently vigilant of their male and female kin’s romantic relationships, and hold male and female kin’s partners to different standards. However, this evidence comes solely from research examining the influence held by parents over their children’s romantic relationships. No previous research has examined how people might differently attend to the relationships of more distant male and female kin.

It seems possible that the predicted effect of sex on vigilance of kin’s relationships may be moderated by kin’s genetic relatedness; people might only attend to the sex of their kin when a substantial indirect fitness benefit is at stake, as is the case in the reproductive outcomes of genetically closer kin. To explore this possibility, studies are needed that examine vigilance held over male and female kin of varying degrees of genetic relatedness.

1.4.2. Vigilance Held by Male and Female Kin

Inclusive fitness logic, paired with the logic of differential parental investment, implies differences in how people attend to their male and female kin’s romantic relationships. The same logic implies one additional sex difference; that men and women might differently attend to their kin’s romantic relationships.
Women are biologically constrained to producing fewer offspring than men can sire. In other words, men more so than women are capable of enhancing their fitness through direct means. Women instead expend greater effort enhancing their fitness through indirect means; in general, they show stronger nepotistic tendencies than men and place a greater emphasis than men on kin relations (e.g., Neyer & Lang, 2003; Salmon & Daly, 1996). It follows from inclusive fitness and parental investment logic that women may also expend greater effort in helping their kin achieve positive relationship outcomes. For instance, they may be more likely than men to play a matchmaking role for their kin, and for kin already involved in romantic relationships, they may be especially wary of their romantic partners. This reasoning suggests the prediction that women devote greater psychological vigilance to their kin’s romantic relationships than men.

In support, some existing evidence suggests that women exert greater influence over marriage partner choice than men; a matchmaker typically works with an individual’s mother to find him or her a suitable marriage partner (e.g., Blood, 1967; Vogel, 1961). Additional evidence indicates that mothers exert greater influence than fathers over their children’s dating relationships (Bates, 1942; Solomon, 1961), and that women introduce their kin members to new dating partners more often than men (Parks & Eggert, 1991).

This research suggests that people’s mothers may be especially vigilant of their romantic relationships. Are other female kin also especially vigilant? For example, are grandmothers more vigilant than grandfathers, are aunts more vigilant than uncles, and are sisters more vigilant than brothers? Additional studies are
required to assess the extent that women of various kin categories are generally more vigilant of their kin's romantic relationships than men. New studies might also assess whether this predicted sex difference is moderated by other factors thought to predict vigilance. Women might only devote greater vigilance than men to kin's relationships when greater indirect fitness consequences are at stake. For instance, women might devote greater vigilance than men when they are attending to the relationships of genetically closer kin, or when they are attending to the relationships of their female kin.

1.5. Vigilance of Kin's Short-Term and Long-Term Relationships

The conceptual analysis outlined here proposes that people attend to the romantic relationships of their kin in ways that increase their inclusive fitness. To do so, people might attend to characteristics of their kin, such as kin's sex and genetic relatedness. The same reasoning also implies that people might attend to certain characteristics of their kin's romantic relationships; in particular, people might attend to whether kin are involved in long-term, committed relationships or briefer, less committed ones.

At times, both men and women enter into brief and relatively uncommitted relationships (e.g., casual dating relationships), and at other times they enter into more committed and longer lasting relationships (e.g., marriage; Gangestad & Simpson, 2000). Unique fitness costs are associated with these short-term and long-term romantic relationships. Compared to short-term relationships, relatively greater fitness costs are incurred from long-term, committed relationships; people likely
expend costly resources on long-term romantic partners and on offspring produced with these partners. As one consequence, both men and women are more discriminating when choosing partners for long-term relationships (Buunk, Dijkstra, Fetchenhauer, & Kenrick, 2002; Kenrick, Sadalla, Groth, & Trost, 1990).

The logic of inclusive fitness also suggests that people may differently attend to their kin's short-term and long-term romantic relationships. One prediction that follows from this logic is that people may be relatively more vigilant of their kin's long-term, committed romantic relationships; people may indirectly benefit from exerting relatively greater relationship vigilance when kin are involved in these high-cost relationships.

It also follows from this reasoning that people may hold their kin's long-term romantic partners to a higher standard than kin's short-term romantic partners. People may indirectly benefit from promoting kin's long-term relationships with especially desirable partners, who may be relatively more able and willing to invest resources in these kin and their offspring.

No known research has directly compared influence over kin's short-term and long-term relationships. The cross-cultural ubiquity of arranged marriages suggests that people care a great deal about their kin's long-term romantic relationships (Blood, 1967; Fox, 1975; Mandelbaum, 1970). One study of dating relationships also suggests that parents exert more extreme relationship influence when their children plan on marrying an undesirable dating partner; under these circumstances, parents sometimes threaten to withdraw financial support from their children (Sussman, 1953). Existing research therefore provides somewhat indirect evidence that people
maintain greater vigilance over kin's long-term relationships and hold higher standards for kin's long-term partners.

To more rigorously assess the predicted effects of kin's relationship type, additional studies are needed that examine relationship vigilance and partner preferences in the context of both short-term and long-term relationships. These studies might also examine whether relationship type moderates the effect of other factors thought to predict relationship vigilance. In particular, it seems that nepotism and sex differences in vigilance may emerge more strongly when greater indirect fitness costs and benefits are at stake, as is likely the case for kin's long-term, committed relationships. People may be especially attentive to the sex and genetic relatedness of kin in exerting vigilance over kin's long-term relationships. Moreover, a tendency for women to exert greater vigilance than men may be more pronounced when kin are involved in long-term relationships.

1.6. Summary of Predictions and Research Objectives

Inclusive fitness logic implies several psychological predictions about how people attend to their kin's romantic relationships. This logic implies four specific predictions about the psychological vigilance that people hold over their kin: A central prediction is that people might maintain greater vigilance over the relationships of their genetically closer kin. Two sex differences in vigilance are also implied by pairing the logic of inclusive fitness with the logic of differential parental investment: People might hold greater vigilance over the relationships of female kin than male kin. Women also might hold greater vigilance over their kin's relationships
than men. A final prediction is implied by considering the types of relationships in which kin are involved: People may be more vigilant of their kin’s long-term and committed relationships than kin’s briefer and less-committed relationships.

This analysis implies that people may be more vigilant of their kin’s romantic relationships when greater indirect fitness costs and benefits are at stake. One logical consequence is that certain interactions may emerge between factors thought to predict relationship vigilance. For example, the predicted sex differences implied by inclusive fitness and parental investment logic may emerge more strongly for vigilance of genetically closer kin or for kin involved in long-term relationships.

Inclusive fitness logic also implies psychological predictions about the preferences that people hold for their kin’s romantic partners. This logic, paired with differential parental investment logic, suggests that people might hold their female kin’s partners to generally higher standards, and might hold different kinds of standards for their female and male kin’s partners. The logic of inclusive fitness also suggests that people may hold kin’s long-term romantic partners to a generally higher standard than kin’s short-term partners.

A review of existing research examining influence held over kin’s romantic relationships revealed some support for some of these predictions. However, existing research typically examines actual influence attempts, but not the psychological processes that likely precede these influence attempts, including relationship vigilance and the maintenance of preferences for kin’s partners. Existing research also focuses on influence held by parents over their children’s relationships; few studies have examined influence held by other genetically close kin (e.g., siblings) or various
distant kin (e.g., aunts, uncles, cousins, and grandparents). Moreover, no previous research has directly compared influence over kin’s long-term and short-term romantic relationships.

This review reveals that new studies are required to rigorously test the predictions derived here. Ideally, some of these studies would assess relationship vigilance held over several kin involved in different types of romantic relationships. By simultaneously assessing the extent that multiple factors predict vigilance (e.g., genetic relatedness, sex, and relationship type), new studies could test individual predictions derived from inclusive fitness logic and also explore potential interactions between these factors. Additional studies might assess preferences for various kin members’ romantic partners, and whether two factors in particular – sex and relationship type – predict these preferences.

One assumption of the analysis presented here is that relationship vigilance and partner preferences both underlie attempts at actual relationship influence. Studies could address the validity of this assumption by exploring links between relationship vigilance, partner preferences, and actual influence attempts. For example, new studies could simultaneously assess relationship vigilance and influence attempts; if vigilance precedes influence attempts, then a tendency to be more vigilant of kin might be associated with a tendency to attempt greater relationship influence. New studies could also assess whether factors thought to predict relationship vigilance and preferences (e.g., genetic relatedness, sex, and relationship type) also predict influence attempts.
A series of new studies was designed to meet the various research objectives identified here; results of these studies are presented in the following chapters of this dissertation.

1.7. Overview of Dissertation and Research

Each of the four following chapters of this dissertation addresses a unique research objective. Chapter 2 presents the results of two studies designed to assess nepotism and sex differences in relationship vigilance. Both studies employed questionnaire methods to assess vigilance. One study assessed participants' vigilance of various kin members' romantic relationships, while a second study assessed participants' perceptions of vigilance held by various kin over their own relationships. Both studies examined vigilance as a function of participants' genetic relatedness to their kin, participants' own sex, as well as the sex of their kin. This approach allowed for potential interactions to emerge between these variables, thus exploring whether greater vigilance is exerted when indirect fitness consequences seem especially high (for example, when the reproductive outcomes of genetically close female kin are at stake).

Results of studies described in Chapter 2 suggested an additional evolutionary psychological prediction about relationship vigilance; characteristics in others that, at a heuristic level, connote kinship ties likely arouse relationship vigilance, and might also account for a tendency to nepotistically exert vigilance. Chapter 3 presents results of a study designed to examine this possibility. This study again assessed nepotism and sex differences in relationship vigilance, and to test this additional
prediction, it also assessed the presence in one's kin of various kinship-connoting characteristics. A second objective of this study was to examine potential links between relationship vigilance and actual attempts at relationship influence. This study examined whether kin who are more vigilant of participants' relationships are also more likely to exert behavioral influence, and whether factors thought to predict vigilance (e.g., sex and genetic relatedness of kin) also predict influence attempts.

Chapter 4 focuses on the prediction that greater vigilance may be held over kin's relatively long-term, committed relationships. This chapter presents the results of a study designed to test this prediction; it assessed vigilance over both short-term and long-term romantic relationships. This study also examined nepotism and sex differences in relationship vigilance, and therefore, whether effects of sex and genetic relatedness on vigilance are moderated by the type of relationships in which kin are involved.

Chapter 5 focuses on preferences that are held for kin's romantic partners. It presents results of one study designed to test predicted sex differences in these preferences; in this study, participants were asked to rate their preferences for various characteristics in the potential romantic partners of a male or female kin member. This chapter also presents the results of a second study designed to test predicted differences between preferences for kin's long-term and short-term romantic partners. This study somewhat indirectly examined whether higher standards are held for kin's long-term partners; participants indicated the extent that kin would express concern over their relationships with undesirable long-term and short-term partners.
Following these chapters, a final chapter considers the extent that study results provide support for predictions derived from an inclusive fitness perspective. This chapter also considers these findings from additional theoretical perspectives. Last, several directions for future research are discussed.
2. Nepotism and Sex Differences in Relationship Vigilance

Inclusive fitness logic implies that people benefit from exerting greater psychological vigilance over their genetically closer kin; in other words, this reasoning implies a degree of nepotism in relationship vigilance. Paired with the logic of differential parental investment, this reasoning also implies two sex differences in relationship vigilance; people likely hold greater vigilance over their female kin than over their male kin, and women may be generally more vigilant of their kin’s relationships than men. This chapter presents results of two studies designed to examine possible nepotism and sex differences in relationship vigilance.

Each of two studies described here employed a somewhat unique questionnaire method to assess vigilance. In one study, participants completed a questionnaire assessing the extent that they are vigilant of various kin members’ relationships. In a second study, participants instead completed a questionnaire assessing the extent that they perceive various kin members as vigilant of their own relationships. Both studies assessed vigilance as a function of participants’ genetic relatedness to their kin, participants’ sex, and their kin’s sex. This approach allowed for potential interactions to emerge between these factors, and to explore whether, for example, effects of sex are moderated by genetic relatedness.

Both studies examined vigilance of several genetically close kin members’ relationships, including brothers, sisters, sons, and daughters. People are separated by one degree of genetic relatedness to each of these kin; together, vigilance of these kin’s romantic relationships represents vigilance over first-degree kin. However, each
of these kin members occupies a somewhat different kinship role (Daly, Salmon, & Wilson, 1997); as one consequence, certain first-degree kin might exert relatively greater relationship vigilance. To explore this possibility, prior to assessing nepotism and sex differences in vigilance, preliminary analyses compared vigilance held by different categories of same-sex first-degree kin (e.g., analyses compared vigilance held by brothers and fathers, and compared vigilance held by sisters and mothers).

To examine whether people might nepotistically exert relationship vigilance, each study compared vigilance of first-degree kin's relationships with vigilance of more distant kin's relationships. Study 1 assessed vigilance of cousins' relationships. People are separated by three degrees of genetic relatedness to their cousins, and so this study compared vigilance of various first-degree kin's relationships with vigilance of third-degree kin's relationships (i.e., cousins). Study 2 assessed vigilance of grandchildren's relationships. Grandparents are separated by two degrees of genetic relatedness to their grandchildren, and so this study instead compared vigilance of various first-degree kin's relationships with vigilance of second-degree kin's relationships (i.e., grandchildren).

2.1. Study 1

2.1.1 Method

Participants were 123 University of British Columbia undergraduate students (92 women and 30 men; 1 additional participant failed to indicate sex). Fifty-nine participants were of an East Asian ethnic background, 43 were of European
background, and 21 indicated a variety of other ethnic backgrounds. Participants' mean age was 20.3 years.

Participants were randomly assigned to answer a questionnaire about one of six kin members: brother, sister, father, mother, male cousin, or female cousin. Some participants' families lacked the kin member about whom they were initially assigned to answer a questionnaire; for example, a participant might be an only child or might live in a single-parent family. In these cases, participants were randomly re-assigned to answer a questionnaire about another kin member. In all studies, participants were also instructed to respond about actual genetic relatives only. In this study, some participants were initially randomly assigned to a genetically unrelated family member (e.g., a step-parent or adopted sibling). These participants were randomly re-assigned to instead respond about an actual genetic relative.

Participants answering questionnaires about a sibling or cousin were instructed to respond about one who is at least 16 years old. This ensured that participants answered their questionnaires about a kin member who is old enough to pursue romantic relationships. The mean age of siblings and cousins was 22.0 years.

Several participants answering questionnaires about a parent responded about one who is married: Thirty-five of 41 parents were married, 4 were single, and 2 were involved in dating relationships. If a parent was married, participants were asked to imagine a scenario in which that parent has recently become single and is looking for a new romantic partner. Parents' mean age was 49.6 years.

All participants responded to three items assessing the extent to which they are vigilant of their kin member's romantic relationships: "I am usually aware of my
Participants rated their agreement with each statement on 9-point scales with endpoints labeled "strongly disagree" and "strongly agree."

Responses to the three items assessing relationship vigilance were positively correlated; r’s between the first and second items, first and third items, and second and third items were .63, .37, and .28, respectively (all p’s < .001). Therefore, mean ratings across the three items were computed to serve as a composite index of vigilance (Cronbach's alpha = .68).

2.1.2 Results

Two preliminary analyses compared vigilance of siblings' and parents' relationships. One analysis revealed that participants were about equally vigilant of sisters’ and mothers’ relationships (M’s = 6.46 and 6.70, respectively; t_{41} = .55, p = .58). Another analysis revealed that participants were about equally vigilant of brothers’ and fathers’ relationships (M’s = 5.68 and 5.59; t_{38} = .19, p = .85). For analyses that follow, participants’ responses about same-sex siblings and parents were pooled to represent vigilance of male and female first-degree kin’s relationships, and were compared with participants’ responses about male and female cousins (i.e., third-degree kin).

Scores on the composite vigilance index were subjected to a 2 X 2 X 2 analysis of variance to assess the effects of three predictor variables: sex of
participant, sex of kin, and degree of genetic relatedness. There was a main effect of
genetic relatedness, \( \eta^2 = .13, F_{1,114} = 16.90, p < .001 \). Participants were more
vigilant of first-degree kin (M = 6.11) than they were of third-degree kin (M = 4.48).

No main effects of participant sex or kin sex emerged. Female participants
reported somewhat greater vigilance of kin’s relationships than male participants (M's
= 5.64 and 5.39, respectively), however this difference was statistically non­
significant (\( \eta^2 = .01, F_{1,114} = 1.27, p = .26 \)). All participants also reported somewhat
greater vigilance of female kin’s relationships than male kin’s relationships (M's =
5.91 and 5.22); this difference was also statistically non-significant (\( \eta^2 = .01, F_{1,114}
= 1.54, p = .22 \)).

One significant interaction emerged between genetic relatedness of kin and
sex of kin (\( \eta^2 = .04, F_{1,114} = 4.58, p = .04 \)). This interaction is depicted in Figure 1:
For first-degree kin, participants were substantially more vigilant of female kin than
male kin (M's = 6.57 and 5.61, respectively). However, for third-degree kin,
participants were about equally vigilant of female and male kin (M's = 4.48 and 4.47,
respectively).
**Figure 1.** Interactive effect of genetic relatedness and sex of kin in predicting vigilance over kin members' romantic relationships.

2.1.3 Discussion

Results of this study provide clear support for one of the predictions derived from inclusive fitness logic: Greater vigilance of genetically closer kin's romantic relationships. Participants reported substantially greater vigilance over the relationships of first-degree kin (siblings and parents) than third-degree kin (cousins). This effect suggests a degree of nepotism in relationship vigilance; people seem relatively more willing to expend the time and effort associated with vigilance on their genetically closer kin.

Results also provided some support for the prediction that greater vigilance is held over female kin's romantic relationships. Participants reported greater vigilance of their female kin's relationships, but this effect was moderated by participants' degree of genetic relatedness to their kin: Participants were more vigilant of female first-degree kin than male first-degree kin, but were about equally vigilant of female
and male third-degree kin. This finding seems consistent with the logic of inclusive fitness. If a greater indirect fitness benefit is gained from vigilance over female kin’s relationships, this is especially so for one’s closest kin.

No evidence was found to support the prediction that women are more vigilant of their kin’s relationships than men. Female participants reported somewhat greater vigilance over kin’s relationships than male participants. However, the size of this effect was small and failed to meet conventional standards for statistical significance.

Results of this study indicated greater vigilance of genetically closer kin. These results also partially supported one of two predictions concerning sex differences in vigilance. To more confidently draw conclusions about nepotism and sex differences in vigilance, it would be useful to conduct additional studies which employ different methods of assessing vigilance over different categories of kin. One of these studies is presented next. This study was conceptually similar to Study 1, but employed a somewhat different questionnaire method to assess vigilance, and compared vigilance over first-degree kin with vigilance over a different category of more distant kin.

2.2. Study 2

In Study 1, participants rated the extent that they are vigilant of various kin members’ romantic relationships. In Study 2, participants instead rated the extent that they perceive various kin members as vigilant of their own romantic relationships. Participants rated the extent that siblings and parents (i.e., first-degree kin) are vigilant of their relationships, and also rated the extent that as many as four
grandparents (i.e., second-degree kin) are vigilant of their relationships. Thus, while Study 1 compared vigilance of first- and third-degree kin, Study 2 assessed potential nepotism in relationship vigilance by comparing vigilance of first-degree and second-degree kin.

2.2.1 Method

Participants were 34 University of British Columbia undergraduate students (24 women and 10 men). Twenty-three participants were of an East Asian ethnic background, 10 were of European background, and 1 indicated a South Asian ethnic background. Participants' mean age was 19.9 years.

Participants completed a questionnaire assessing their perceptions of the extent that various kin members are vigilant of their own romantic relationships. The specific categories of kin were: brother, sister, father, mother, paternal grandfather, paternal grandmother, maternal grandfather, and maternal grandmother. Criteria were applied in recruiting participants to ensure that each study participant respond about both male and female first-degree kin (i.e., parents and siblings), as well as male and female second-degree kin (i.e., grandparents): Only individuals with at least one living grandmother and at least one living grandfather were allowed to participate. Individuals with no siblings were allowed to participate so long as they could provide responses about both parents. Participants with multiple brothers and/or multiple sisters responded about the one brother and/or the one sister closest in age to themselves. As in Study 1, all participants were instructed to respond about siblings who were at least 16 years old.
To assess perceived vigilance, participants responded to three statements in which they indicated the extent that each kin member (1) “is usually aware of your romantic partners’ good and bad qualities,” (2) “is usually aware of how your romantic relationships are progressing,” and (3) “worries about how your romantic relationships are progressing.” Participants rated their agreement with each statement on 9-point scales with endpoints labeled "strongly disagree" and "strongly agree."

Responses to the three items assessing relationship vigilance were positively correlated. Therefore, for each kin member, mean ratings across the three items were computed to serve as composite indices of vigilance (Chronbach’s alphas ranged from .79 to .91 for the different kin categories).

2.2.2. Results

Two preliminary analyses compared vigilance held by participants’ parents and siblings. One analysis focused on participants who responded about both a sister and their mother. This analysis revealed that sisters and mothers were about equally vigilant of participants’ relationships (M’s = 5.84 and 5.44, respectively; \(t_{14} = .55\), \(p = .59\)). Another analysis focused on participants who responded about both a brother and their father. This analysis revealed that brothers and fathers were about equally vigilant of participants’ relationships (M’s = 4.84 and 4.47, respectively; \(t_{16} = .72\), \(p = .48\)). Therefore, participants’ responses about same-sex siblings and parents were pooled to represent vigilance held by male and female first-degree kin.

Two additional preliminary analyses compared vigilance held by participants’ maternal and paternal grandparents. One analysis focused on participants who
responded about both their maternal grandmother and their paternal grandmother. This analysis revealed that maternal and paternal grandmothers were about equally vigilant of participants' relationships (M's = 2.98 and 2.79, respectively; \( t_{18} = .42, p = .68 \)). Another analysis focused on participants who responded about both their maternal grandfather and their paternal grandfather. This analysis revealed that maternal and paternal grandfathers were about equally vigilant of participants' relationships (M's = 2.96 and 3.00, respectively; \( t_8 = .29, p = .78 \)). Therefore participants' responses about same-sex grandparents were pooled to represent vigilance held by male and female second-degree kin and were compared with participants' responses about first-degree kin.

Scores on the composite vigilance indices were subjected to a 2 X 2 X 2 analysis of variance to assess the effects of three predictor variables: sex of participant, sex of kin, and genetic relatedness of kin. (Participant sex was a between-subjects factor; the other two predictors were within-subjects factors.) There was a main effect of genetic relatedness, \( \eta^2 = .71, F_{1,32} = 77.24, p < .001 \). Participants' first-degree kin were more vigilant than their second-degree kin (M's = 5.25 and 2.35, respectively). A marginally significant main effect of participant sex emerged; female participants reported greater vigilance of their relationships than male participants (M's = 4.08 and 3.13, respectively; \( \eta^2 = .09, F_{1,32} = 3.07, p = .09 \)). A significant effect of kin sex also emerged; all participants reported greater vigilance of their relationships by female kin than male kin (M's = 4.26 and 3.35, respectively; \( \eta^2 = .36, F_{1,32} = 17.67, p < .001 \)).
Three significant two-way interactions emerged. An interaction emerged between genetic relatedness and participant sex ($\eta^2 = .32$, $F_{1,32} = 14.95$, $p = .001$). This interaction is depicted in Figure 2. Female participants reported greater vigilance held by their first-degree kin than male participants (M’s = 5.85 and 3.82). However, female and male participants reported about equal vigilance held by their third-degree kin (M’s = 2.32 and 2.44, respectively).

**Figure 2.** Interactive effect of genetic relatedness of kin and sex of participant in predicting perceived vigilance of participants’ romantic relationships.

An interaction also emerged between genetic relatedness and kin sex ($\eta^2 = .15$, $F_{1,32} = 5.57$, $p = .03$). This interaction is depicted in Figure 3. Participants reported greater vigilance held by their female first-degree kin than by their male first-degree kin (M’s = 5.99 and 4.52, respectively). However, participants reported only slightly greater vigilance held by their female third-degree kin than by their male third-degree kin (M’s = 2.53 and 2.18, respectively).
Figure 3. Interactive effect of genetic relatedness of kin and sex of kin in predicting perceived vigilance over participants' romantic relationships.

A third interaction emerged between participant sex and kin sex ($\eta^2 = .13$, $F_{1,32} = 4.79$, $p = .04$). This interaction is depicted in Figure 4. For vigilance held by their female kin, female participants reported greater vigilance than male participants (M's = 4.65 and 3.31, respectively). However, for vigilance held by their male kin, female participants reported only slightly greater vigilance of their relationships than male participants (M's = 3.51 and 2.95, respectively).
2.2.3. Discussion

To examine possible nepotism and sex differences in relationship vigilance, this study employed a somewhat different method than the previous study; participants rated the extent that various kin members are vigilant of their own romantic relationships. Despite this methodological difference (and a relatively small sample size), results of Study 2 again clearly supported the prediction that people are more vigilant of their genetically closer kin; participants perceived greater vigilance held over their relationships by first-degree kin (parents and siblings) than by second-degree kin (grandparents). Together with Study 1 results, these results again suggest that people are nepotistic in holding vigilance over their kin's romantic relationships.

Results of Study 2 also supported predictions about sex differences in relationship vigilance. As predicted, female participants perceived greater vigilance over their relationships than male participants, however this effect was moderated by
kin’s genetic relatedness to participants; this sex difference emerged for perceived vigilance held by first-degree kin only. This effect conceptually replicates an interaction that emerged from the previous study; Study 1 participants reported greater vigilance over their female first-degree kin than male first-degree kin, but reported about equal vigilance over more distant male and female kin. These conceptually similar interactions suggest that people are especially vigilant of their female kin’s romantic relationships when their relationship outcomes have a relatively greater impact on inclusive fitness (as is likely the case for genetically closer kin’s relationship outcomes).

One other sex difference emerged from Study 2; as predicted, participants perceived greater vigilance over their relationships by female kin than by male kin. This finding provides support for the prediction that women are more vigilant of their kin’s romantic relationships than men, however, a conceptually similar finding did not emerge from Study 1 (i.e., female participants were not significantly more vigilant than male participants). In Study 2, interactions also emerged between kin sex and kin’s genetic relatedness, as well as kin sex and participant sex. These interactions imply that women’s tendency to be more vigilant of their kin than men is especially pronounced when other factors (e.g., kin’s genetic relatedness and sex) suggest that relatively greater indirect fitness consequences are at stake. However, the finding that women are generally more vigilant than men, as well as these additional interactions, emerged only from Study 2. Therefore, it is important to consider results of studies presented in the following chapters prior to drawing confident conclusions about sex differences in relationship vigilance.
In Study 1, participants reported about equal vigilance held over their same-sex siblings and parents, and in this study, participants perceived that same-sex siblings and parents are about equally vigilant of their own relationships. These findings suggest that, in general, various first-degree kin may be about equally vigilant of each others’ romantic relationships. However, some close kin members may be more likely than others to actually attempt behavioral influence. Research reviewed earlier examining influence of kin’s dating relationships and marriage partner choice suggests that parents may be especially influential. The possibility that certain close kin may exert greater behavioral influence is explored in the following chapter, which presents a study assessing both vigilance and influence exerted by various close and distant kin.

The results of studies presented in this chapter indicate that people are more vigilant of the romantic relationships of their first-degree kin than second-degree kin or third-degree kin. If people exert vigilance over their kin’s relationships solely on the basis of genetic relatedness, one might expect a linear relationship between degrees of genetic relatedness and relationship vigilance. Instead, results indicated that a relatively great deal of vigilance is held over first-degree kin, but relatively little vigilance is held over second- or third-degree kin. In fact, the effect size corresponding to the difference in vigilance held by first- and second-degree kin (Study 2) was actually larger than the effect size corresponding to the difference in vigilance held by first- and third-degree kin (Study 1). Although Studies 1 and 2 employed somewhat different methods of assessing vigilance, these findings suggest that vigilance is not exerted solely on the basis of genetic relatedness.
If people do not rationally exert vigilance as a function of their kin’s actual genetic relatedness, why are they especially vigilant of their genetically close kin? Several lines of evidence indicate that nepotistic behavior is not influenced by mathematical logic, but instead by psychological processes, including recognition mechanisms through which individuals use various superficial cues to discriminate between kin and non-kin (DeBruine, 2004, 2005; Essock-Vitale & McGuire, 1985; Neyer & Lang, 2003; Lieberman, Tooby, & Cosmides, 2003; Park & Schaller, 2005; Korchmaros & Kenny, 2001). This reasoning suggests that the perception of kinship-connoting cues in others might also arouse vigilance of their romantic relationships. Moreover, people may be especially vigilant of their close kin because these kin are more likely to possess such kinship-connoting characteristics. This suggests that the perception of these characteristics in one’s kin might mediate the relationship between genetic relatedness and relationship vigilance. The next chapter presents a study designed to examine this possibility, which assessed both vigilance of kin’s relationships as well as the presence in kin of various kinship-connoting characteristics.
3. Psychological Mediators of Relationship Vigilance

People gain indirect fitness benefits from directing altruistic behavior toward their kin, but incur fitness costs from directing altruistic behavior toward non-kin. To gain indirect fitness benefits and to avoid direct fitness costs, people therefore require a means of distinguishing kin from non-kin. To do so, previous research indicates that people attend to multiple cues in others that, at a heuristic level, reflect kinship ties. Some of these cues connote familiarity (e.g., early co-residence; Lieberman, Tooby, & Cosmides, 2003), while other cues connote phenotypic similarity (e.g., attitudinal and physical similarity; Debruine, 2004, 2005; Park & Schaller, 2005). In turn, these cues arouse specific emotional states (e.g., emotional closeness) which further serve a kin-recognition function (Korchmaros & Kenny, 2001).

Among humans and several other species, the presence of kinship-connoting cues in others arouses various functional thoughts and behaviors. For example, in several animal species, individuals who are reared together are relatively more cooperative and are less aggressive (Sherman, 1980). In humans, early-life co-residence arouses greater perceived kinship, but less physical attraction; this response presumably assists in avoiding the fitness costs associated with incest (Lieberman, Tooby, & Cosmides, 2003). Similarity also arouses greater perceived kinship, and people are more willing to help attitudinally similar and facially similar others (Debruine, 2004; Park & Schaller, 2005). Other evidence suggests that the presence of kinship cues in others mediates the relationship between genetic relatedness and altruism; results of one study indicated that people are more likely to help their
genetically closer kin because they feel emotionally closer to these kin (Korchmaros & Kenny, 2001).

The presence of these kinship cues in others might also functionally arouse relationship vigilance. By focusing vigilance on the relationships of others who possess these cues, people stand a greater chance of ensuring positive relationship outcomes for their actual genetic relatives. Moreover, since genetically closer kin are especially likely to possess kinship-connoting cues, the presence or absence of these cues in one’s kin might mediate the relationship between genetic relatedness and relationship vigilance; people might maintain greater vigilance of their genetically closer kin because they have co-resided with these kin, feel closer to these kin, and perceive greater similarity to these kin.

This chapter describes a study that was conducted to examine these possibilities. This study again assessed vigilance over various kin members’ romantic relationships. It also assessed the presence in kin of four likely kinship-connoting cues: physical and attitudinal similarity, emotional closeness, and co-residence. Analyses were conducted to examine whether people are more vigilant of kin who possess these cues, and whether the presence or absence of these cues in kin mediates the link between genetic relatedness and relationship vigilance.

A secondary objective of this study was to examine actual behavioral attempts to influence kin’s relationship outcomes. Different categories of kin may favor different behavioral strategies in attempting relationship influence. Therefore, in addition to assessing relationship vigilance, this study also assessed attempts to influence kin’s relationships in a positive manner (through encouragement or
approval) and a negative manner (through discouragement or disapproval). The conceptual analysis presented here also suggests that relationship vigilance precedes actual attempts at relationship influence. To explore this possibility, analyses of relationship influence examined whether vigilance predicts relationship influence, and whether some of the same factors that predict vigilance (e.g., sex and genetic relatedness of kin) also predict attempts at relationship influence.

3.1. Study 3

3.1.1. Method

Participants were 184 University of British Columbia undergraduate students (151 women and 33 men). One hundred and three participants were of an East Asian ethnic background, 49 were of European background, and 31 indicated a variety of other ethnic backgrounds (1 additional participant failed to indicate ethnic background). Participants' mean age was 20.0 years.

Participants were randomly assigned to answer a questionnaire about parents and siblings (first-degree kin), aunts and uncles (second-degree kin), or cousins (third-degree kin). If participants' families lacked the kin members about whom they were asked to respond, they were randomly re-assigned to consider a different category of kin. All but four participants were able to respond to items about at least one male kin member and one female kin member. If participants' families were large enough, they were asked to respond about two male kin members and two female kin members.
Participants answering questionnaires about first-degree kin responded to items about both of their parents, one sister (if they had any sisters), and one brother (if they had any brothers). If participants had more than one sister and/or more than one brother, they were asked to respond about those siblings closest in age to themselves. As in the previous studies, participants were also asked to respond only about siblings who were at least 16 years old.

Participants answering questionnaires about second-degree kin responded to items about as many as two aunts and two uncles. If participants had more than two aunts and/or more than two uncles, they were asked to respond about those aunts and uncles closest in age to their parents.

Participants answering questionnaires about third-degree kin responded to items about as many as two female cousins and two male cousins. If participants had more than two female cousins and/or more than two male cousins, they were asked to respond about those cousins closest in age to themselves. Participants were also asked to respond only about cousins who were at least 16 years old.

Participants responded to the same set of items for each kin member about whom they were questioned. Participants first responded to three items assessing the extent that a given kin member is vigilant of their romantic relationships: "My [kin member] is usually aware of my romantic partners’ good and bad qualities," "My [kin member] is usually aware of how my romantic relationships are progressing," and "My [kin member] often worries about how my romantic relationships are progressing." Participants rated their agreement with each statement on 9-point scales with endpoints labeled "strongly disagree" and "strongly agree." As in previous
studies, participants’ responses to the three vigilance items were substantially correlated, and so the mean of responses to these items was computed to serve as a composite index of vigilance. For each participant, two separate composite indices were computed: one for perceived vigilance held by participants’ female kin and another for perceived vigilance held by participants’ male kin. Cronbach’s alphas for composite indices of vigilance held by female and male kin were .90 and .82, respectively.

Participants responded to two additional items assessing whether a given kin member had ever attempted to influence the outcome of their romantic relationships. One item assessed whether a given kin member ever attempted to positively influence relationship outcomes: "Has your [kin member] ever said or done anything to indicate that [he/she] encouraged or approved of you starting a romantic relationship with someone or continuing an existing relationship?" Another item assessed whether a given kin member ever attempted to negatively influence relationship outcomes: "Has your [kin member] ever said or done anything to indicate that [he/she] discouraged or disapproved of you starting a romantic relationship with someone or continuing an existing relationship?" Participants responded to each item by circling "yes" or "no". For each participant, four indices were computed, indicating the proportions of participants’ male kin and female kin attempting positive influence (i.e., encouragement or approval), and the proportions of participants’ male kin and female kin attempting negative influence (i.e., discouragement or disapproval). Results of analyses on these positive and negative indices are presented separately, and follow results of analyses on vigilance ratings.
Last, for each kin member, participants responded to 4 items assessing kinds of information that might be used as kinship cues. Participants rated their agreement with statements assessing similarity in physical appearance ("Other people think that I look like my [kin member]"), similarity in attitudes ("My [kin member]'s attitudes are similar to my own attitudes") and feelings of emotional closeness ("I feel close to my [kin member]"). These three ratings were made on 9-point scales with endpoints labeled "strongly disagree" and "strongly agree." A fourth item assessed co-residence: Participants indicated the number of years (if any) that they had lived in the same house as each kin member.

3.1.2. Results: Relationship Vigilance

Preliminary analyses again compared vigilance held by siblings and parents. One analysis focused on participants who responded about both a sister and their mother. This analysis revealed about equal vigilance of participants' relationships by sisters and mothers (M's = 6.10 and 6.17, respectively; \( t_{27} = .16, p = .88 \)). Another analysis focused on participants who responded about both a brother and their father. This analysis revealed about equal vigilance of participants' relationships by brothers and fathers (M's = 4.54 and 4.89, respectively; \( t_{29} = .99, p = .33 \)). Therefore, as in previous studies, responses about same-sex siblings and parents were pooled to represent vigilance of participants' relationships by "first-degree" kin. These responses were compared with other participants' responses about vigilance held by aunts and uncles ("second-degree" kin), and cousins ("third-degree" kin).
Composite vigilance ratings were subjected to a 2 X 2 X 3 analysis of variance to assess the effects of three predictor variables: sex of kin, sex of participant, and genetic relatedness of kin. (Sex of kin was a within-subjects factor; sex of participant and genetic relatedness of kin were between-subjects factors.) There was a main effect of genetic relatedness, $\eta^2 = .21$, $F_{2,174} = 23.26$, $p < .001$. Post-hoc analyses revealed that participants perceived greater vigilance of their relationships by first-degree kin ($M = 5.35$) than by either second-degree kin or third-degree kin ($M's = 3.25$ and $3.37$, respectively; both $p's < .05$). There was also a main effect of kin sex, $\eta^2 = .23$, $F_{1,174} = 53.13$, $p < .001$. Participants perceived greater vigilance of their relationships by female kin than by male kin ($M's = 4.14$ and $3.24$, respectively). No compelling effects emerged involving sex of participant. Female participants perceived somewhat greater vigilance over their relationships than male participants ($M's = 4.05$ and $3.76$, respectively), however this effect was statistically non-significant, $\eta^2 = .003$, $F_{1,174} = .44$, $p = .51$. Nor was there any significant higher-order interaction involving sex of participant.

Additional analyses examined the extent to which four previously documented kinship cues (physical similarity, attitudinal similarity, emotional closeness, and co-residence) might account for the relationship between actual genetic relatedness and relationship vigilance. For these analyses, participants’ responses about their male and female kin were pooled.

Four one-way analyses of variance revealed that these cues are present to a greater extent in participants’ first-degree kin than in participants’ second- or third-degree kin. These effects are evident in the means that appear in Table 1. Participants
perceived greater physical similarity to first-degree kin than to second- or third-degree kin, \( \eta^2 = .49, F_{2,180} = 87.66, p < .001 \); participants perceived greater attitudinal similarity to first-degree kin than to second- or third-degree kin, \( \eta^2 = .20, F_{2,180} = 23.02, p < .001 \); participants felt emotionally closer to first-degree kin than to second- or third-degree kin, \( \eta^2 = .27, F_{2,180} = 32.60, p < .001 \); participants also spent more years co-residing with first-degree kin than with second- or third-degree kin, \( \eta^2 = .93, F_{2,181} = 1224.38, p < .001 \). Post-hoc analyses revealed that, on all four of these variables, differences between first- and second-degree kin were significant (all p’s < .05), differences between first- and third-degree kin were significant (all p’s < .05), but no differences between second- and third-degree kin were significant (all p’s > .05).

Table 1. Perception of kinship-connoting characteristics in participants’ kin.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>In First-Degree Kin</th>
<th>In Second-Degree Kin</th>
<th>In Third-Degree Kin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Similarity</td>
<td>5.63</td>
<td>2.79</td>
<td>2.91</td>
</tr>
<tr>
<td>Attitude Similarity</td>
<td>5.40</td>
<td>3.75</td>
<td>4.15</td>
</tr>
<tr>
<td>Emotional Closeness</td>
<td>6.63</td>
<td>4.67</td>
<td>4.68</td>
</tr>
<tr>
<td>Years of Co-Residence</td>
<td>18.34</td>
<td>1.15</td>
<td>0.65</td>
</tr>
</tbody>
</table>

Correlational analyses also revealed that participants’ perceptions of these cues in kin (regardless of kin’s degree of relatedness) predicted relationship vigilance (\( r’s \) were .61, .55, .72, and .52 between relationship vigilance and physical similarity,
attitudinal similarity, emotional closeness, and years of co-residence, respectively; all
p’s < .001).

A regression analysis was conducted to examine the extent that perception of
these cues in kin mediates the relationship between actual genetic relatedness and
relationship vigilance. All four kin-connoting variables were entered into this
regression analysis, along with actual genetic relatedness, as predictors of perceived
relationship vigilance. For this analysis, vigilance was predicted from actual
coefficients of genetic relatedness; coefficients were .50, .25, and .125 for first-, second-, and third-degree kin, respectively (Trivers, 1985). Results indicated
statistically significant unique effects for two of the five predictor variables: physical
similarity (beta = .27; t₁₁₇ = 3.66, p < .001), and emotional closeness (beta = .53; t₁₁₇
= 7.89, p < .001). However, results indicated no significant unique effects for
attitudinal similarity (beta = .04; t₁₁₇ = .66, p = .51), co-residence (beta = -.07; t₁₁₇ = .53, p = .60), or genetic relatedness (beta = .13; t₁₁₇ = 1.05, p = .30). This stands in
contrast to the substantial relationship found between actual coefficients of genetic
relatedness and vigilance when not controlling for proximal kinship cues (r = .52, p < .001). A Sobel test verified that the unique effects of physical similarity and
emotional closeness, in combination, account for a significant drop in the relationship
between genetic relatedness and vigilance (p < .001). These results indicate that the
effect of genetic relatedness on relationship vigilance is mediated by the perception of
two kinship-connoting characteristics: physical similarity and emotional closeness.
3.1.3. Results: Attempted Relationship Influence

In addition to reporting perceived vigilance of kin members, participants also reported on actual attempts by kin members to influence their relationships, in either a positive manner (through encouragement or approval) or a negative manner (through discouragement or disapproval). Perceived vigilance ratings for kin members correlated positively with reports of kin members' attempts at positive relationship influence \( (r = .58, p < .001) \) and negative relationship influence \( (r = .46, p < .001) \). Reports of kin members' attempts at positive and negative relationship influence were also somewhat correlated \( (r = .28, p < .001) \). Additional analyses examined whether factors that predicted vigilance of kin’s relationships (i.e., sex and genetic relatedness) also predict attempts to behaviorally influence kin’s relationship outcomes. Separate analyses were conducted on reports of positive and negative influence attempts.

3.1.3.1 Positive Relationship Influence

Preliminary analyses compared positive influence exerted by siblings with that exerted by parents. One analysis revealed that sisters and mothers were about equally likely to exert positive influence \( (M’s = .57 \text{ and } .68, \text{ respectively}; t_{27} = .90, p = .38) \). Another analysis revealed that brothers and fathers were also about equally likely to exert positive influence \( (M’s = .43 \text{ and } .47, \text{ respectively}; t_{29} = .25, p = .80) \). Therefore, responses about same-sex siblings and parents were pooled to represent the proportion of participants’ first-degree kin exerting positive influence over their
relationships, and were compared with the proportion of second- and third-degree exerting positive influence.

Reports of positive influence attempts were subjected to a 2 X 2 X 3 analysis of variance that assessed the effects of the three primary predictor variables (sex of kin, sex of participant, and genetic relatedness of kin). Three significant effects emerged; these are evident in the means that appear in Table 2. There was a main effect of genetic relatedness, $\eta^2 = .11$, $F_{2,174} = 11.21, p < .001$. Post-hoc analyses revealed that the proportion of first-degree kin exerting positive influence was greater than the proportion of both second- and third-degree kin exerting positive influence (both $p$'s < .05). There was also a main effect of kin sex, $\eta^2 = .03$, $F_{1,174} = 5.29, p = .02$: Participants' female kin exerted greater positive influence than participants' male kin. No significant main effect of participant sex emerged, $\eta^2 = .003$, $F_{1,174} = .54, p = .46$. However, a significant interaction emerged between participant sex and kin sex, $\eta^2 = .03$, $F_{1,174} = 4.54, p = .03$. This interaction is depicted in Figure 5. Female participants reported significantly more positive influence attempts by female kin than by male kin ($M$'s = .46 and .26, respectively; $t_{147} = 5.52, p < .001$), but for male participants, this difference was non-significant ($M$'s = .41 and .38 for male participants' female and male kin, respectively; $t_{31} = .44, p = .66$).
Table 2. Proportion of kin attempting influence over participants’ romantic relationships.

<table>
<thead>
<tr>
<th>Kin Category</th>
<th>Positive Influence Attempts</th>
<th>Negative Influence Attempts</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-Degree Kin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Kin</td>
<td>.48</td>
<td>.40</td>
</tr>
<tr>
<td>Female Kin</td>
<td>.65</td>
<td>.48</td>
</tr>
<tr>
<td>Second-Degree Kin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Kin</td>
<td>.21</td>
<td>.08</td>
</tr>
<tr>
<td>Female Kin</td>
<td>.30</td>
<td>.20</td>
</tr>
<tr>
<td>Third-Degree Kin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Kin</td>
<td>.14</td>
<td>.10</td>
</tr>
<tr>
<td>Female Kin</td>
<td>.39</td>
<td>.23</td>
</tr>
</tbody>
</table>

Other analyses were conducted to examine whether the perception of kin-connoting cues mediates the relationship between actual genetic relatedness and positive relationship influence. Correlational analyses revealed that perceptions of kin’s physical similarity, attitudinal similarity, and emotional closeness, as well as years of co-residence, all predicted attempts at positive relationship influence ($r$’s were .41, .33, .49, and .43, respectively, all $p$’s < .001). These four kin-connoting variables were then entered into a regression analysis, along with actual genetic relatedness, as predictors of positive relationship influence. Results indicated a statistically significant unique effect for emotional closeness only ($beta = .37; t_{177} = 4.18, p < .001$). Results indicated no significant unique effects for physical similarity ($beta = .12; t_{177} = 1.25, p = .22$), attitudinal similarity ($beta = -.05; t_{177} = .55, p = .58$), co-residence ($beta = .08; t_{177} = .46, p = .65$), or genetic relatedness ($beta = .11; t_{177} = .83, p = .41$).
.66, p = .51). Considering the substantial relationship between actual coefficients of genetic relatedness and attempts at positive relationship influence when not controlling for other variables (r = .42, p < .001), these results suggest mediation of this relationship by perceptions of emotional closeness to kin. In support, a Sobel test verified that perceived emotional closeness to kin accounted for a significant drop in the relationship between genetic relatedness and positive relationship influence (p < .001).

Figure 5. Interactive effect of participant sex and kin sex in predicting attempts to positively influence participants' romantic relationships.

3.1.3.2 Negative Relationship Influence

Preliminary analyses compared negative influence exerted by siblings and parents. One analysis revealed that sisters and mothers were about equally likely to exert negative influence (M's = .50 and .68, respectively; t_{27} = 1.41, p = .17). Another analysis revealed that participants' fathers were significantly more likely than
participants' brothers to exert negative influence (M's = .60 and .30, respectively; \( t_{29} = 2.52, p = .02 \)). To maintain consistency with analyses on other dependent variables, reports of same-sex parents' and siblings attempts to negatively influence participants' relationships were again pooled and were compared with reports of negative influence exerted by second- and third-degree kin.

Reports of negative influence attempts were subjected to a 2 X 2 X 3 analysis of variance that assessed the effects of the three primary predictor variables (sex of kin, sex of participant, and genetic relatedness of kin). Two significant effects emerged; these are evident in the means that appear in Table 2. There was a main effect of genetic relatedness, \( \eta^2 = .16, F_{2,174} = 15.98, p < .001 \). Post-hoc analyses revealed that the proportion of first-degree kin exerting negative influence was greater than the proportion of both second- and third-degree kin exerting negative influence (both \( p \)'s < .05). There was also a main effect of kin sex, \( \eta^2 = .03, F_{1,174} = 5.23, p = .02 \): Participants' female kin exerted greater negative relationship influence than participants' male kin. No significant main effect of participant sex emerged, \( \eta^2 = .005, F_{1,174} = .83, p = .36 \), nor did any significant higher-order interactions.

Other analyses were conducted to examine whether the perception of kin-connoting cues mediates the relationship between actual genetic relatedness and negative relationship influence. Correlational analyses revealed that perceptions of kin's physical similarity, attitudinal similarity, and emotional closeness, as well as years of co-residence, all predicted attempts at negative relationship influence (\( r \)'s were .41, .26, .26, and .44, respectively, all \( p \)'s < .001). These four kin-connoting variables were then entered into a regression analysis, along with actual genetic
relatedness, as predictors of negative relationship influence. Results indicated only a marginally significant unique effect for physical similarity ($beta = .19; t_{177} = 1.87, p = .06$), but no statistically significant unique effects for attitude similarity ($beta = .04; t_{177} = .40, p = .69$), emotional closeness ($beta = -.02; t_{177} = .25, p = .80$), co-residence ($beta = .20; t_{177} = 1.12, p = .26$), or genetic relatedness ($beta = .13; t_{177} = .75, p = .46$). This stands in contrast to the substantial relationship between actual coefficients of genetic relatedness and negative relationship influence when not controlling for other variables ($r = .44, p < .001$). These findings again suggest mediation of this relationship by proximate psychological cues. In support, a Sobel test verified that perceptions of one cue exerting a unique (though marginal) effect on vigilance – physical similarity – accounted for a significant drop in the relationship between genetic relatedness and negative relationship influence ($p < .001$).

3.1.4. Discussion

A strong degree of correspondence exists between relationship vigilance and actual attempts at relationship influence. Results of Study 3 indicate that people who are more vigilant of their kin’s romantic relationships also exert greater relationship influence, in both a positive manner (encouragement and approval) and a negative manner (discouragement and disapproval). This finding suggests that relationship vigilance precedes actual attempts at relationship influence. Occasionally, this sort of influence is necessary to ensure positive relationship outcomes for kin; ongoing relationship vigilance is likely required to determine how and when to exert influence over kin’s relationships.
Study 3 results again provided evidence of nepotism and sex differences in how people attend to their kin's romantic relationships. Very similar patterns of results emerged on measures of relationship vigilance and influence: Results indicated that greater vigilance (and influence) is exerted over genetically closer kin's romantic relationships, and that greater vigilance (and influence) is exerted by women over their kin's relationships. Results were unsupportive of a second predicted sex difference, that people are relatively more vigilant of their female kin's relationships; instead, participants' responses indicated roughly equal vigilance and influence exerted over female and male kin's relationships. Sex differences in vigilance have emerged somewhat inconsistently from the studies described thus far, and so it is important to consider results of an additional study of vigilance prior to drawing any confident conclusions. Nevertheless, these results again indicate a close correspondence between relationship vigilance and influence. People sometimes expend relatively greater effort in maintaining vigilance over certain kin members' relationships (e.g., genetically close kin); when they do so, they are also relatively more likely to attempt relationship influence.

Several interactions emerged from Studies 1 and 2 between participants' own sex, the sex of their kin, and their kin's genetic relatedness. No conceptually similar interactions emerged from Study 3. One interaction emerged from Study 3, between participants' own sex and the sex of their kin, on the positive relationship influence measure. Similar effects did not emerge on measures of relationship vigilance or negative influence. This effect is also less clearly interpretable than interactions between participant sex and kin sex that emerged from previous studies. For example,
an interaction that emerged from Study 2 indicated especially high vigilance of women's relationships held by their female kin; this pattern was not replicated in the Study 3 interaction that emerged on positive influence. Potential interactive effects in how people attend to their kin's relationships are again considered in the two chapters that follow.

The primary objective of this chapter has been to consider whether characteristics in others that heuristically connote kinship ties arouse relationship vigilance and potentially account for a tendency to exert greater vigilance over genetically closer kin. Several results that emerged from Study 3 are supportive: results indicated that people are especially vigilant of their first-degree kin's relationships, but seem to maintain an equally low level of vigilance over their second- and third-degree kin. This suggests that vigilance is not aroused purely as a function of actual genetic relatedness. Other findings suggest that the presence or absence of kinship-connoting characteristics instead accounts for this pattern of results. These characteristics are present to the greatest extent in first-degree kin, and are about equally absent in second- and third-degree kin. Correlational analyses also indicated that each of the kinship-connoting characteristics assessed in Study 3 (physical and attitudinal similarity, emotional closeness, and co-residence) strongly predicts vigilance over kin's relationships. Moreover, regression analyses indicated that the presence or absence of these cues in kin fully mediates the link between genetic relatedness and relationship vigilance (as well as the link between genetic relatedness and relationship influence).
Two specific kinship-connoting characteristics – emotional closeness and perceived physical similarity – seem to account for the tendency to nepotistically attend to kin’s romantic relationships. When controlling for effects of genetic relatedness and other kinship-connoting characteristics, emotional closeness exerted unique and significant effects on both relationship vigilance and positive behavioral influence. Perceived physical similarity instead exerted unique and significant effects on relationship vigilance and negative behavioral influence. Although emotional closeness and physical similarity exerted somewhat inconsistent effects on actual behavioral influence, it is notable that each kinship connoting characteristic uniquely (and positively) predicted vigilance of kin’s romantic relationships.

Previous research indicates a degree of cognitive and behavioral specificity in the responses that are elicited by particular kinship-connoting characteristics. For example, responses to kin that serve an incest-avoidance function (e.g., disgust) are most strongly elicited by early-life co-residence (Lieberman, Tooby, & Cosmides, 2003). Results of the present study suggest that responses helping to ensure positive relationship outcomes for kin are most strongly elicited by emotional closeness and perceived physical similarity. Future research may be helpful in assessing the extent that these two characteristics consistently arouse these specific responses to kin. Future research might also examine whether other kinship-connoting characteristics not considered here also arouse such responses.

At times, characteristics such as emotional closeness and physical similarity, which may heuristically connote kinship ties, are also present in non-kin. For example, people often feel as emotionally close to their friends as they feel to their
close kin. This suggests that in some contexts, people may treat specific non-kin, such as close friends, as if they were kin. In support, responses that are typically directed toward kin, including helping behavior and sexual aversion, are often directed toward close friends (Ackerman, Kenrick, & Schaller, in press; Bailey, 1988). Similarly, emotional closeness may also arouse vigilance of non-kin’s romantic relationships. Preliminary studies not reported here indeed indicated that people’s close friends are about as vigilant of their relationships as are their first-degree kin. This again suggests that vigilance is not applied to others’ relationships based on a rational assessment of degrees of genetic relatedness, but is instead applied based on the perception of characteristics in others which heuristically connote kinship ties. In future studies, it may be interesting to examine the extent that other kinship-connoting characteristics, including physical similarity, may also arouse a high level of vigilance over non-kin’s romantic relationships.

It is also notable that Study 3 results indicated greater negative relationship influence exerted by fathers than brothers. (As in both previous studies, results indicated about equal relationship vigilance exerted by same-sex parents and siblings.) Considering that this parent-sibling difference emerged only for male kin, and only for negative behavioral influence, it should be interpreted cautiously. Potential parent-sibling differences are again considered in a study presented in the following chapter. This study compared vigilance of kin’s long-term and short-term relationships, and so potential parent-sibling differences were considered in each relationship context.
4. Vigilance of Kin’s Long-Term and Short-Term Romantic Relationships

The logic of inclusive fitness suggests that an indirect fitness benefit is potentially gained by maintaining vigilance over kin’s romantic relationships. However, the indirect fitness consequences of relationship vigilance likely differ depending on the characteristics of relationships in which kin are involved. Greater fitness consequences are likely at stake in the outcomes of kin’s long-term and committed romantic relationships (e.g., marriage), compared to their briefer, less committed relationships (e.g., casual dating relationships); kin are likely to recurrently expend costly resources on their long-term romantic partners and on offspring produced with long-term partners. If people fail to attend to their kin’s long-term romantic relationships, they may incur an especially high fitness cost. This suggests the prediction that greater vigilance may be held over kin’s long-term relationships than kin’s short-term relationships.

This chapter presents results of a study designed to test this prediction, which compared vigilance held over various kin members’ long-term and short-term romantic relationships. This study again assessed nepotism and sex differences in relationship vigilance. Therefore, the possibility was explored that kin’s relationship type might moderate the predicted effects of genetic relatedness and sex on vigilance; for example, a tendency to exert greater vigilance over genetically closer kin may be especially pronounced for vigilance held over kin’s long-term relationships.

As an ancillary objective, this study also assessed the impact on vigilance of kin’s chronic tendencies to pursue relatively long-term or short-term romantic
relationships. Previous research indicates that substantial variation exists in people’s sociosexual orientations (Gangestad & Simpson, 2000; Simpson & Gangestad, 1991). Some people are sociosexually restricted and tend to pursue long-term romantic relationships; they typically require greater closeness and commitment before feeling comfortable with sex. Others are sociosexually unrestricted and tend to pursue relatively short-term romantic relationships; they typically engage in sex without closeness or commitment and at an earlier point in the course of their romantic relationships. If relatively greater indirect fitness consequences are at stake in kin’s long-term, committed romantic relationships, then it may be especially beneficial to exert vigilance over one’s sociosexually restricted kin.

These additional considerations suggest the prediction of greater vigilance over sociosexually restricted kin than over more unrestricted kin. To explore this possibility, participants in Study 4 completed a questionnaire measure designed to assess sociosexual orientation (the Sociosexual Orientation Inventory; Simpson & Gangestad, 1991). Analyses were conducted to explore whether participants’ sociosexual orientation predicts the extent that they perceive various kin as vigilant of their own romantic relationships.

4.1. Study 4

4.1.1. Method

Participants were 83 University of British Columbia undergraduate students (68 women and 15 men). Forty-five participants were of an East Asian ethnic
background, 25 were of European background, and 13 indicated a variety of other ethnic backgrounds. Participants' mean age was 20.7 years.

All participants answered identical questionnaires assessing perceived relationship vigilance by both of their parents, one sister (if they had any sisters), one brother (if they had any brothers), as well as a female cousin and a male cousin. (Only individuals with at least one female cousin and at least one male cousin participated in this study.) If participants had multiple same-sex siblings or cousins, they were instructed to provide responses about those siblings and cousins closest in age to themselves. As in previous studies, participants were also asked to respond only about siblings and cousins who were at least 16 years old.

Participants responded to the same set of items for each kin member about whom they were questioned. Participants first responded to items assessing the extent that a given kin member is vigilant of their long-term, committed relationships. Participants were instructed to “think about occasions in which you have been involved in a serious and potentially long-lasting romantic relationship (e.g., you would consider marrying your romantic partner),” and to rate the extent that each kin member would be aware of and concerned about the progression of such a relationship. Next, participants responded to items assessing the extent that a given kin member is vigilant of their briefer, less-committed relationships. Participants were instructed to “think about occasions in which you might have been dating someone for only a brief period of time (e.g., just a few dates),” and to rate the extent that each kin member would be aware of and concerned about the progression of such a
relationship. All ratings were made on 9-point scales, with endpoints labeled "not at all aware or concerned" and "very aware and concerned."

All participants also completed the Sociosexual Orientation Inventory (SOI; Simpson & Gangestad, 1991). The SOI is presented in Appendix A. Four inventory items are measures of sexual behavior; these items assess number of sexual partners over the past year, number of sexual partners foreseen, number of one-night stands, and frequency of sexual fantasy. Three other items assess attitudes toward engaging in casual, uncommitted sex. These items reliably measure sociosexual orientation (Chronbach's alpha = .73; Simpson & Gangestad, 1991). An aggregate SOI score is computed by combining responses to all seven SOI items (instructions for computing this aggregate score are described in Simpson & Gangestad, 1991). Low SOI scores indicate a sociosexually restricted orientation (i.e., a tendency to engage in long-term, committed relationships), and high SOI scores indicate a sociosexually unrestricted orientation (i.e., a tendency to engage in briefer, less committed relationships). The SOI predicts actual relationship behavior (e.g., SOI scores predict how early in a relationship an individual will engage in sex), but correlates negligibly with measures of general sex drive (Simpson & Gangestad, 1991).

### 4.1.2. Results

Preliminary analyses compared vigilance held by same-sex siblings and parents. (These analyses focused on participants who responded about their father and a brother, and/or their mother and a sister). Analyses revealed that fathers were more vigilant than brothers of participants' long-term relationships (M's = 6.78 and 5.81,
respectively; $t_{35} = 2.70, p = .01$), and that mothers were more vigilant than sisters of participants’ long-term relationships (M’s = 7.81 and 7.10, respectively; $t_{30} = 2.94, p = .006$). Additional analyses revealed that participants’ fathers and brothers were about equally vigilant of their short-term relationships (M’s = 4.36 and 4.14, respectively; $t_{35} = .52, p = .61$), as were participants’ mothers and sisters (M’s = 5.61 and 5.58, respectively; $t_{30} = .07, p = .95$). For analyses that follow, responses about same-sex siblings and parents were again pooled to represent vigilance held by participants’ first-degree kin, and were compared with responses about cousins (third-degree kin).

Vigilance ratings were first subjected to a 2 X 2 X 2 X 2 analysis of variance that tested the effects of one between-subjects factor (sex of participant) and three within-subjects factors: sex of kin, degree of relatedness (first- versus third-degree kin), and relationship type (short- versus long-term relationship).

Three statistically significant main effects emerged. There was a main effect of genetic relatedness, $\eta^2 = .46, F_{1,81} = 69.87, p < .001$. Participants perceived greater vigilance of their relationships by first-degree kin than by third-degree kin (M's = 6.08 and 3.30, respectively). There was a main effect of sex of kin, $\eta^2 = .27, F_{1,81} = 29.43, p < .001$. Participants perceived greater vigilance of their relationships by female kin than by male kin (M's = 5.20 and 4.17, respectively). There was also a main effect of relationship type, $\eta^2 = .38, F_{1,81} = 50.52, p < .001$. As predicted, participants perceived kin members to be more vigilant of their long-term relationships than their short-term relationships (M's = 5.56 and 3.81, respectively).
There was no significant main effect of sex of participant, but there was a 2-way interaction between sex of participant and relationship type, \( \eta^2 = .05, F_{1,81} = 3.90, p = .05 \). Female participants perceived greater vigilance over their long-term relationships than male participants (M's = 5.69 and 4.97, respectively), but female and male participants perceived about equal vigilance of their short-term relationships (M's = 3.79 and 3.89).

This interesting 2-way interaction might itself be best understood within the context of an additional 3-way interaction between relationship type, sex of participant, and sex of kin \( \eta^2 = .06, F_{1,81} = 5.23, p = .03 \). This interaction is depicted in Figure 6. In the context of long-term relationships, female participants perceived greater vigilance than male participants from both female kin and male kin (just as described above). In the context of short-term relationships, female participants (compared to male participants) perceived slightly greater vigilance from female kin, whereas male participants (compared to female participants) perceived greater vigilance from male kin.
Figure 6. Interactive effect of relationship type, sex of participant, and sex of kin in predicting perceived vigilance of participants’ romantic relationships.

One additional two-way interaction emerged between genetic relatedness and relationship type, \( \eta^2 = .12, F_{1,81} = 11.22, p = .001 \). This interaction is depicted in Figure 7. The impact of relationship type on vigilance was more pronounced for first-
degree kin (M's = 7.21 and 4.94 for long- and short-term relationships, respectively) than for third-degree kin (M's = 3.92 and 2.68 for long- and short-term relationships, respectively).

**Figure 7.** Interactive effect of genetic relatedness and relationship type in predicting perceived vigilance of participants' romantic relationships.

Additional analyses were conducted to explore whether participants' own chronic tendencies toward long-term or short-term relationships (as indicated by SOI scores) might predict the extent that their kin are vigilant of their relationships. Two analyses examined whether SOI predicts vigilance held by first-degree kin over long-term and short-term relationships. These analyses revealed that higher SOI was associated with less vigilance held by first-degree kin over participants' long-term relationships ($r = -.46, p < .001$) and short-term relationships ($r = -.26, p = .02$). Two other analyses examined whether SOI predicts vigilance held by third-degree kin. These analyses also revealed negative (though non-significant) relationships between
SOI and vigilance held by third degree kin over participants’ long-term relationships ($r = -0.21, p = 0.06$) and short-term relationships ($r = -0.11, p = 0.24$).

### 4.1.3. Discussion

The objective of the study presented in this chapter was to compare vigilance of kin’s long-term and short-term romantic relationships. Study 4 results provided unambiguous support for the prediction that relatively greater vigilance is held over kin members’ long-term, committed relationships. This effect emerged regardless of participants’ sex or the sex of their kin, and it occurred among both close kin as well as more distant kin (cousins). It is also notable that relationship type interacted with genetic relatedness in predicting vigilance; results indicated that the effect of relationship type on vigilance of kin’s relationships is more pronounced for genetically closer kin. The main effect of relationship type, as well its interactive effect with genetic relatedness, again suggests that people are especially vigilant of their kin’s relationships when there are greater indirect fitness consequences, as is likely the case when genetically closer kin are involved in long-term, committed relationships.

Study 4 results also provided further evidence of nepotism and sex differences in relationship vigilance. Consistent with predictions, participants perceived greater vigilance of their relationships by their genetically closer kin, and also perceived greater vigilance by their female kin. Also as predicted, female participants perceived greater vigilance by kin than male participants; however, this effect emerged only in the context of long-term relationships. At a conceptual level, this interaction bears
some similarity to the results observed in Studies 1 and 2; results of those studies also suggested that people are more vigilant of their female kin, but that this effect emerges among genetically-close kin only. Together, these findings imply that people are more vigilant of their female kin's romantic relationships, but only when other factors (i.e., genetic relatedness of kin or kin's relationship type) indicate that relatively greater indirect fitness benefits are associated with vigilance.

As an ancillary objective, Study 4 also considered the extent that vigilance of kin's relationships differs as a function of their sociosexual orientations. Inclusive fitness reasoning suggests that people may benefit from being especially vigilant of their sociosexually restricted kin, who tend to become involved in long-term relationships. In support, Study 4 results indicated that participants' sociosexual orientation (as reflected in SOI scores) is negatively associated with the extent that they perceive first-degree kin as vigilant of their own relationships. However, it is unclear how this effect might best be interpreted. One interesting possibility is that, just as people are more vigilant of their kin's long-term relationships, they are also more vigilant of kin members who show a clearer dispositional tendency toward long-term mating strategies. Another possibility is that people who are sociosexually unrestricted are more highly motivated to perceive their kin as inattentive to their romantic relationships, perhaps because they fear familial disapproval of their promiscuous ways. If so, people's sociosexual orientations may be less strongly associated with their kin's actual vigilance held over their relationships. To explore this possibility, future studies might assess people's perceptions of vigilance held by their kin, as well as kin's own self-reported vigilance.
One additional finding that emerged from Study 4 is notable; in the context of long-term relationships, participants perceived their parents as more vigilant than their siblings. (Much like results of previous studies, in the context of short-term relationships, participants perceived their parents and siblings as about equally vigilant.) This is consistent with research examining arranged marriage practices, indicating that people's parents typically exert the greatest influence over their marriage partner choice (e.g., Blood, 1967; Fox, 1975; Mandelbaum, 1970). This finding also seems consistent with inclusive fitness reasoning; one's siblings, who are of higher reproductive value than one's parents, are relatively more capable of enhancing their reproductive fitness through direct means (i.e., by producing their own offspring). One's parents may instead focus greater effort on indirect means of enhancing fitness; as one strategy, parents may focus their efforts on ensuring positive outcomes for their children's long-term relationships.
5. Preferences for Kin Members’ Romantic Partners

A primary objective of the research presented in previous chapters was to examine nepotism in how people attend to their kin’s romantic relationships. Consistent with inclusive fitness logic, results of all studies described thus far indicated that people are relatively more vigilant of their genetically closer kin’s romantic relationships. The objective of research presented in this chapter is a somewhat ancillary one, to examine the preferences that people hold for their kin’s romantic partners, and whether certain factors (but not necessarily genetic relatedness) predict these preferences. It probably requires little effort simply to hold preferences for kin’s romantic partners, and so it is unlikely that they are maintained in a nepotistic fashion. Inclusive fitness logic instead suggests that two other factors – kin’s sex and relationship type – might predict preferences for their partners. This chapter presents results of two studies designed to test these predictions about partner preferences.

Inclusive fitness logic, combined with parental investment logic, suggests that relatively greater indirect fitness consequences are at stake in the outcomes of female kin’s relationships. As one consequence, people seem to exert greater vigilance over the relationships of female kin than male kin. As another potential consequence, people might hold their female kin’s romantic partners to a relatively higher standard. Moreover, people potentially hold different kinds of preferences for their female and male kin. For their female kin, people might prefer partners who possess characteristics connoting ability to invest in offspring (e.g., status and ambition),
while for their male kin, people might prefer partners who possess characteristics connoting fertility and reproductive value (e.g., youth and physical attractiveness). Both of two studies presented in this chapter (Studies 5 and 6) tested predictions about preferences for female and male kin’s partners.

The second study presented in this chapter (Study 6) also tested an additional prediction about vigilance held over different types of relationships in which kin are involved. Inclusive fitness logic suggests that relatively greater indirect fitness consequences are at stake in the outcomes of kin’s long-term romantic relationships, and as one consequence, people are especially vigilant of kin involved in such relationships. The same logic also suggests the prediction that people may hold relatively higher standards for their kin’s long-term romantic partners.

To test these predictions, participants in two of the studies described in earlier chapters, who completed measures of relationship vigilance, completed additional measures assessing preferences for their kin’s romantic partners. Participants in Study 1 completed measures assessing preferences for various characteristics in their male and female kin’s romantic partners; this investigation of partner preferences is referred to as Study 5. Participants in Study 4 completed measures assessing preferences for kin’s long-term and short-term romantic partners; this investigation of partner preferences is referred to as Study 6. (Alternatively, these investigations could be referred to as Studies 1b and 4b. They are referred to as Studies 5 and 6 to best distinguish investigations of partner preferences from investigations of relationship vigilance.)
5.1. Study 5

5.1.1. Method

Participants in Study 1 were randomly assigned to answer a questionnaire about one of six kin members: brother, sister, father, mother, male cousin, or female cousin. All participants completed questionnaire items assessing vigilance over one of these six kin members’ relationships; additional questionnaire items assessed preferences for the same kin member’s romantic partners.

Participants were presented with a list of 13 generally favorable traits and were asked to “rate how desirable it would be, in your own mind, for your [kin member’s] romantic partners to possess each characteristic.” The 13 traits were: good financial prospects, good personality, good looks, good sense of humor, doesn’t sleep around, ambitious, kind, isn’t lazy, smart, independent, high status, responsible, and faithful. Participants rated the desirability of each trait on a 7-point scale, with endpoints labeled "a really undesirable trait" and "a really desirable trait" (the midpoint was labeled "irrelevant"). Participants also indicated, in years, their kin member’s actual age and their own preferred age for that kin member’s mates. A measure of preferred relative age was created by subtracting the former value from the latter. (Positive values indicate a preference for their kin member to have an older mate, and negative values indicate a preference for their kin member to have a younger mate).
5.1.2. Results

Preliminary analyses compared preferences for same-sex siblings’ and parents’ partners. These analyses revealed only one consistent sibling-parent difference: “Good looks” was desired more in sisters’ partners than in mothers’ partners (M’s = 5.52 and 4.60, respectively; \( t_{41} = 3.11, p = .003 \)), and was desired more in brothers’ partners than in fathers’ partners (M’s = 5.79 and 4.48, respectively; \( t_{38} = 4.80, p < .001 \)). As with analyses conducted on relationship vigilance, rated preferences for siblings’ and parents’ partners were combined to represent preferences for first-degree kin and were compared with preferences for cousins (participants’ third-degree kin).

One analysis focused on testing the prediction that people generally hold their female kin’s partners to a higher standard than male kin’s partners. To examine this prediction, preference ratings of all 13 traits were subjected to a 2 X 2 X 2 multivariate analysis of variance (MANOVA) assessing the effects of three predictor variables: sex of participant, sex of kin, and genetic relatedness of kin. A marginally significant effect of kin sex emerged (\( \eta^2 = .18, F_{13, 101} = 1.72, p = .07 \)), indicating that, in general, female kin’s partners are held to a somewhat higher standard than male kin’s partners. There was no significant main effect of participant sex (\( \eta^2 = .12, F_{13, 101} = 1.06, p = .40 \)), or genetic relatedness of kin (\( \eta^2 = .16, F_{13, 101} = 1.51, p = .13 \)), nor did any significant interaction effects emerge.

Additional analyses were conducted to examine the prediction that people hold qualitatively different preferences for their male and female kin’s partners. Each of the 14 individual preference variables (13 trait ratings, plus the preferred relative
age measure) was subjected to a 2 X 2 X 2 analysis of variance again assessing the
effects of sex of participant, sex of kin, and genetic relatedness of kin. Across these
14 analyses, only one main effect of participant sex emerged: Male participants
desired “good financial prospects” in kin’s potential mates to a greater extent than did
female participants (M’s of 5.63 and 5.07 for male and female participants,
respectively ($\eta^2 = .05$, $F_{1, 114} = 5.89, p = .02$). There was also only one main effect
of genetic relatedness: On average, participants desired potential mates who were
1.05 years younger than first-degree kin and .69 years older than third-degree kin
($\eta^2 = .05$, $F_{1, 113} = 5.71, p = .02$). Compared to these negligible effects of participant
sex and genetic relatedness of kin, kin sex exerted a significant main effect on 5
different preference ratings (see Table 3 for descriptive and inferential statistics).
Compared to the mates of male kin, the mates of female kin were held to higher
standards on the characteristics “good financial prospects,” “ambitious,”
“independent,” and “responsible.” Participants also preferred that their male kin
become romantically involved with relatively younger mates, while preferring
relatively older mates for female kin.
Table 3. Preferences for various characteristics in male and female kin’s romantic partners.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mates of Female Kin</th>
<th>Mates of Male Kin</th>
<th>$\eta^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good financial prospects</td>
<td>5.67 (.97)</td>
<td>4.71 (1.07)</td>
<td>.07</td>
<td>.004</td>
</tr>
<tr>
<td>Good personality</td>
<td>6.51 (.69)</td>
<td>6.41 (1.12)</td>
<td>.001</td>
<td>.79</td>
</tr>
<tr>
<td>Good looks</td>
<td>5.25 (1.11)</td>
<td>5.20 (1.27)</td>
<td>&lt;.001</td>
<td>.87</td>
</tr>
<tr>
<td>Good sense of humor</td>
<td>5.81 (.92)</td>
<td>5.49 (1.10)</td>
<td>.01</td>
<td>.22</td>
</tr>
<tr>
<td>Doesn’t sleep around</td>
<td>6.27 (1.25)</td>
<td>6.34 (1.15)</td>
<td>&lt;.001</td>
<td>.84</td>
</tr>
<tr>
<td>Ambitious</td>
<td>5.62 (1.05)</td>
<td>4.76 (1.52)</td>
<td>.04</td>
<td>.03</td>
</tr>
<tr>
<td>Kind</td>
<td>6.25 (.76)</td>
<td>6.15 (1.08)</td>
<td>.002</td>
<td>.66</td>
</tr>
<tr>
<td>Isn’t Lazy</td>
<td>5.76 (1.09)</td>
<td>5.66 (1.12)</td>
<td>.004</td>
<td>.49</td>
</tr>
<tr>
<td>Smart</td>
<td>5.76 (1.01)</td>
<td>5.58 (1.16)</td>
<td>.002</td>
<td>.63</td>
</tr>
<tr>
<td>Independent</td>
<td>5.87 (.89)</td>
<td>5.22 (1.35)</td>
<td>.04</td>
<td>.03</td>
</tr>
<tr>
<td>High status</td>
<td>4.60 (1.35)</td>
<td>4.07 (.96)</td>
<td>.005</td>
<td>.45</td>
</tr>
<tr>
<td>Responsible</td>
<td>6.24 (.80)</td>
<td>5.83 (1.25)</td>
<td>.03</td>
<td>.05</td>
</tr>
<tr>
<td>Faithful</td>
<td>6.59 (.75)</td>
<td>6.44 (1.22)</td>
<td>.005</td>
<td>.43</td>
</tr>
<tr>
<td>Relative Age</td>
<td>1.81 (3.17)</td>
<td>-2.98 (4.99)</td>
<td>.14</td>
<td>.001</td>
</tr>
</tbody>
</table>

Note: With the exception of relative age (measured in years), all other preferences were assessed on 9-point rating scales, with higher values indicating a stronger preference. Values in parentheses are standard deviations of ratings.

In addition to the main effects exerted by sex of kin, two interactions involving this variable also emerged from these analyses: On rated preference for “high status” in kin members’ partners, an interaction emerged between sex of kin and sex of participants. Female participants valued “high status” to a greater extent in female kin’s partners than in male kin’s partners (M’s = 4.70 and 3.91, respectively),
whereas male participants valued “high status” to only a slightly greater extent in male kin’s partners than in female kin’s partners (M’s = 4.62 and 4.35, respectively; \(\eta^2 = .04, F_{1, 114} = 4.42, p = .04\)). On the preferred relative age measure, an interaction emerged between sex of kin and genetic relatedness of kin, indicating that the predicted effect of kin sex is especially pronounced for first-degree kin. Participants desired potential mates who were 1.23 years older than first-degree female kin, but were 4.89 years younger than first-degree male kin, whereas participants desired potential mates who were 1.41 years older than third-degree female kin, but were .50 years younger than third-degree male kin (\(\eta^2 = .05, F_{1, 113} = 5.33, p = .02\)). This particular interaction should be interpreted cautiously, since participants provided preference ratings about specific first-degree kin (i.e., parents) who were substantially older than third-degree kin (i.e., cousins).

### 5.1.3. Discussion

Results of Study 5 provided some evidence supporting the prediction that people hold their female kin’s partners to a higher and somewhat different standard than male kin’s partners. Participants indicated that they value the presence of several positive characteristics more so in their female kin’s partners. However, participants also indicated that they value several other positive characteristics in both their female and male kin’s partners. For example, participants rated “good personality” as one of their most valued characteristics, and desired this characteristic about equally in their female and male kin’s partners.
It is unsurprising that several characteristics were valued to about an equal extent in male and female kin's partners. The logic of inclusive fitness and parental investment suggests only that sex-of-kin differences will emerge for specific characteristics that likely connote ability to invest in offspring (and are typically desired more in women's partners) or fertility and reproductive value (and are typically desired more in men's partners). Previous conceptual and empirical analyses suggest that, of the 13 characteristics examined here, "good financial prospects," "ambitious," "smart," and "high status" would be valued to a greater extent in female kin's partners (Buss, 1989; Feingold, 1992). Results of the present investigation were somewhat supportive; in female kin's partners, participants desired the traits "good financial prospects" and "ambitious" significantly more than in male kin's partners. Previous analyses instead suggest that one of the 13 traits examined here — "good looks" — would be valued to a greater extent in male kin's partners, and also that relatively younger mates would be sought for male kin (Buss, 1989; Feingold, 1990). Although participants rated "good looks" as about equally desirable in male and female kin's partners, for male kin, participants indeed desired relatively younger partners. These findings indicate that sex-of-kin differences emerged on about half of the characteristics for which these differences would be expected.

Results also indicated that preferences for siblings' and parents' partners are generally very similar. However, it is notable that participants desired "good looks" to a relatively greater extent in their siblings' partners. This finding seems consistent with inclusive fitness logic: Physical attractiveness might be especially valued in the partners of people's younger kin because of the genetic benefit that it provides those
kin’s offspring. In turn, this genetic benefit may bolster people’s own inclusive fitness. People are perhaps less indirectly benefited by preferring that older kin (who themselves are less likely to produce additional offspring) seek out physically attractive partners.

Before drawing any further conclusions, it is important to consider results of another study, presented next, which again compared preferences for male and female kin’s romantic partners. In addition to examining sex differences in partner preferences, this study also compared preferences for kin’s long-term and short-term romantic partners.

5.2. Study 6

The outcomes of kin’s long-term relationships have important implications for people’s own inclusive fitness. Kin who are involved in long-term relationships are relatively more likely to recurrently invest resources in their partners, as well as offspring produced with these partners. Therefore, it seems especially beneficial to ensure positive outcomes for kin’s long-term relationships. As one consequence, people are especially vigilant of kin involved in long-term relationships (as revealed by results of Study 4). As another potential consequence, people might hold their kin’s long-term partners to relatively higher standards. The current study tested this prediction.

This study was also designed to explore potential links between preferences for kin’s partners and actual attempts at relationship influence. Vigilance of kin’s relationships, as well as the maintenance of preferences for their partners, likely both
precede actual attempts at relationship influence. Consistent with this reasoning, greater vigilance is associated with a tendency to attempt greater influence over kin’s relationships (as revealed by results of Study 3). Another logical consequence is that, if people’s partners fail to meet their kin’s standards, then their kin might be especially likely to attempt relationship influence.

To compare standards for kin’s long-term and short-term partners, and to explore the potential link between partner preferences and influence attempts, participants in Study 6 were presented with scenarios in which a long-term or short-term romantic partner possesses an undesirable characteristic. After, they indicated the likelihood that various kin members might attempt relationship interference. Thus, if higher standards are held for long-term partners, participants are likely to indicate greater interference by kin in their relationships with undesirable long-term partners than in their relationships with undesirable short-term partners.

Study methods were also designed to compare preferences for male and female kin’s romantic partners. All scenarios presented to participants described a romantic partner who possesses one of two undesirable characteristics: partners were described as unambitious or physically unattractive. If people especially value characteristics connoting ability to invest in offspring in their female kin’s partners, then female participants might indicate relatively greater interference by kin in their relationships with an unambitious partner. If people instead value characteristics connoting fertility and reproductive value in their male kin’s partners, then male participants may indicate relatively greater interference by kin in their relationships with a physically unattractive partner.
5.2.1. Method

Participants in a previous study (Study 4) all completed identical questionnaires that included items assessing perceived vigilance of their long-term and short-term relationships by siblings, parents, and cousins. On an additional set of items, the same participants indicated the likelihood that each of these kin would attempt interference in their long-term and short-term relationships if their romantic partner possesses a specific undesirable characteristic.

Participants first responded to two items assessing potential interference of their long-term relationships by kin. Participants were instructed to “Imagine that you have been involved in a serious and potentially long-lasting romantic relationship (e.g., you would consider marrying your romantic partner). Imagine also that your romantic partner is [unambitious / physically unattractive] (and that your family members are aware of this trait).” For each scenario, participants rated the likelihood that each kin member would attempt to interfere and end their relationship on 9-point scales, with endpoints labeled "not at all likely to interfere" and "very likely to interfere."

Next, participants responded to two items assessing potential interference of their short-term relationships by kin. Participants were instructed to “Imagine that you have been dating someone for only a brief period of time (e.g., just a few dates). Imagine also that your dating partner is [unambitious / physically unattractive] (and that your family members are aware of this trait). Participants again rated the likelihood that each kin member would attempt to interfere and end their relationship
on 9-point scales, with endpoints labeled "not at all likely to interfere" and "very likely to interfere."

### 5.2.2. Results

Preliminary analyses revealed a consistent difference between same-sex siblings' and parents' interference in participants' relationships with an unambitious partner. Participants indicated that their fathers were more likely than their brothers to interfere in their long-term relationships with an unambitious partner (M’s = 5.92 and 4.61, respectively; $t_{35} = 2.55, p = .02$), and that their fathers were more likely than their brothers to interfere in their short-term relationships with an unambitious partner (M’s = 4.69 and 3.72, respectively; $t_{35} = 2.48, p = .02$). Participants also indicated that their mothers were more likely than their sisters to interfere in their long-term relationships with an unambitious partner (M’s = 6.94 and 5.61, respectively; $t_{30} = 3.33, p = .002$), and that their mothers were more likely than their sisters to interfere in their short-term relationships with an unambitious partner (M’s = 5.16 and 4.26, respectively; $t_{30} = 2.08, p = .05$).

Other preliminary analyses examining the likelihood of interference in participants’ relationships with a physically unattractive partner revealed no statistically significant parent-sibling differences. For subsequent analyses, same-sex sibling and parent ratings were combined to represent the likelihood that first-degree kin would interfere in participants’ relationships, and were compared with the rated likelihood of interference by cousins (third-degree kin).
One analysis focused on the rated likelihood that kin members would interfere in participants' relationships with an unambitious partner. These ratings were subjected to a 2 X 2 X 2 X 2 analysis of variance that tested the effects of one between-subjects factor (sex of participant) and three within-subjects factors: sex of kin, genetic relatedness of kin (first- versus third-degree kin), and relationship type (short- versus long-term relationship).

Three statistically significant effects emerged. There was a main effect of relationship type, $\eta^2 = .24, F_{1,81} = 24.92, p < .001$. As predicted, participants indicated that kin members were more likely to interfere in their long-term relationships with an unambitious partner than in their short-term relationships with an unambitious partner ($M's = 4.71$ and 3.65, respectively). There was a main effect of genetic relatedness, $\eta^2 = .55, F_{1,81} = 99.08, p < .001$. Participants indicated that first-degree kin members were more likely to interfere than third-degree kin members ($M's = 5.58$ and 2.78, respectively. There was also a main effect of kin sex, $\eta^2 = .15, F_{1,81} = 14.00, p < .001$. Participants indicated that their female kin members were more likely to interfere than male kin members ($M's = 4.57$ and 3.80, respectively). There was no effect of participant sex: Female and male participants indicated that their kin were about equally likely to interfere in their relationships with an unambitious partner ($M's = 4.24$ and 3.93, respectively; $\eta^2 = .004, F_{1,81} = .34, p = .56$).

One interaction also emerged, between relationship type and genetic relatedness of kin, $\eta^2 = .06, F_{1,81} = 5.01, p = .03$. This interaction is depicted in Figure 8. The predicted effect of relationship type emerged more strongly for first-
degree kin (M's = 6.33 and 4.83 for long-term and short-term relationships, respectively), than for third-degree kin (M's = 3.09 and 2.47 for long-term and short-term relationships, respectively).

**Figure 8.** Interactive effect of genetic relatedness and relationship type in predicting likelihood of interference in participants' romantic relationships.

A second analysis focused on the rated likelihood that kin members would interfere in participants' relationships with a physically unattractive partner. These ratings were subjected to another 2 X 2 X 2 X 2 analysis of variance that again tested the effects of participant sex, kin sex, genetic relatedness of kin, and relationship type. All four predictor variables exerted significant main effects. There was a main effect of relationship type, \( \eta^2 = .10, F_{1,81} = 8.85, p = .004 \). As predicted, participants indicated that kin members were more likely to interfere in their long-term relationships with an unattractive partner than in their short-term relationships with an
unattractive partner (M's = 3.50 and 3.00, respectively). There was a main effect of genetic relatedness, $\eta^2 = .19$, $F_{1,81} = 18.36$, $p < .001$. Participants indicated that their first-degree kin members were more likely to interfere than third-degree kin (M's = 3.96 and 2.73, respectively). There was a main effect of kin sex, $\eta^2 = .05$, $F_{1,81} = 3.87$, $p = .05$. Participants indicated that female kin members were more likely to interfere than male kin members (M's = 3.55 and 2.95). There was also a main effect of participant sex, $\eta^2 = .05$, $F_{1,81} = 3.81$, $p = .05$. As predicted, male participants, compared to female participants, indicated that their kin were relatively more likely to interfere (M's = 4.08 and 3.07, respectively).

Two significant interactions also emerged from this analysis. A significant three-way interaction emerged between relationship type, genetic relatedness of kin, and sex of kin, $\eta^2 = .12$, $F_{1,81} = 11.13$, $p = .001$. This three-way interaction is best understood in the context of a significant four-way interaction that emerged between all predictor variables: relationship type, genetic relatedness of kin, sex of kin, and sex of participant, $\eta^2 = .11$, $F_{1,81} = 10.12$, $p = .002$. Means revealing this interaction are presented in Table 4. In general, the effect of participant sex on interference due to a partner's unattractiveness was more pronounced for participants' interfering male kin than for their interfering female kin. However, one specific exception emerged; for participants' female and male first-degree kin interfering in their long-term relationships, the effect of participant sex was about equally strong.
Table 4. Likelihood of interference by various kin in participants' relationships with physically unattractive partners.

<table>
<thead>
<tr>
<th>Relationship Type and Kin Category</th>
<th>Interference in Female Participants’ Relationships</th>
<th>Interference in Male Participants’ Relationships</th>
<th>Sex-of-Participant Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-Term Relationships</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First-Degree Female Kin</td>
<td>4.24</td>
<td>5.30</td>
<td>1.06</td>
</tr>
<tr>
<td>First-Degree Male Kin</td>
<td>3.39</td>
<td>4.33</td>
<td>.94</td>
</tr>
<tr>
<td>Third-Degree Female Kin</td>
<td>3.16</td>
<td>3.60</td>
<td>.44</td>
</tr>
<tr>
<td>Third-Degree Male Kin</td>
<td>2.46</td>
<td>4.27</td>
<td>1.81</td>
</tr>
<tr>
<td>Short-Term Relationships</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First-Degree Female Kin</td>
<td>3.68</td>
<td>4.57</td>
<td>.89</td>
</tr>
<tr>
<td>First-Degree Male Kin</td>
<td>2.91</td>
<td>4.73</td>
<td>1.82</td>
</tr>
<tr>
<td>Third-Degree Female Kin</td>
<td>2.68</td>
<td>2.80</td>
<td>.12</td>
</tr>
<tr>
<td>Third-Degree Male Kin</td>
<td>2.01</td>
<td>3.07</td>
<td>1.06</td>
</tr>
</tbody>
</table>

5.2.3. Discussion

Results of Study 6 supported the prediction that people hold their kin's long-term partners to a higher standard than kin’s short-term partners: Participants indicated that their kin are more likely to interfere in their long-term relationships with an undesirable partner than in their short-term relationships with an undesirable partner. Results also provided some additional support for the prediction that people hold somewhat different preferences for their male and female kin’s partners: Male participants indicated that their kin are more likely than female participants’ kin to interfere in their relationships with a physically unattractive partner. Considered
together with results of Study 5, the findings presented here seem to partially support the idea that people especially value characteristics signaling ability to invest in offspring in their female kin’s partners, and especially value characteristics signaling fertility and reproductive value in their male kin’s partners.

These results also imply a link between preferences for kin’s partners and relationship interference. People seem to hold unique preferences for their kin’s long-term and short-term partners, and also seem to hold unique preferences for their male and female kin’s partners. When kin’s romantic partners fail to meet these unique preferences, people are especially likely to interfere in their kin’s romantic relationships. Future studies might examine potential links between preferences for kin’s partners and various forms of positive relationship influence. For example, people might be especially encouraging of their kin’s relationships when their romantic partners exceed their desired standards.

It is also notable that the genetic relatedness and sex of participants’ kin predicted kin’s interference in participants’ relationships. Conceptually similar effects did not emerge from Study 5. However, in several other studies, these variables exerted similar effects on measures of relationship vigilance and influence. This is understandable, considering that the present study assessed preferences in the context of actual relationship interference. Unlike simply maintaining preferences for kin’s romantic partners, a substantial fitness cost is implied when these preferences serve as the basis of relationship interference; people must maintain a degree of vigilance to assess whether kin’s partners meet their standards, and in attempting relationship interference, they risk disrupting intra-family goodwill. Given these substantial costs,
people might only act on their preferences for kin's partners when a substantial inclusive fitness benefit is at stake (for example, when genetically close kin's partners fail to meet desired standards).

Results of Study 6 also suggested a difference between the preferences that people's parents and siblings hold for their romantic partners. Participants indicated that their parents are more concerned with the ambitiousness of their partners than are their siblings. This was an especially compelling parent-sibling difference; it emerged regardless of first-degree kin members’ sex or the duration of participants’ relationships.

A somewhat similar finding emerged from an unpublished study of preferences for kin’s partners. Buunk, Park, and Dubbs (2007) found that, compared to people’s own preferences for their partners, their parents are more concerned with characteristics connoting ability to invest in offspring. These authors suggest that parents’ emphasis on such characteristics best serves their inclusive fitness. Parents’ children might opt for less investing partners who possess other desirable qualities; however, these children (and their offspring) could therefore require fitness-reducing support from parents and other kin members. Parents are likely less burdened by children who opt for relatively high-investing partners. In general, kin may agree on the qualities that each other’s partners ought to possess; however, these additional findings suggest a degree of conflict when people’s own preferences imply indirect fitness costs to their kin.
6. General Discussion

The preceding chapters presented results of several studies designed to test psychological predictions derived from inclusive fitness logic about how people attend to their kin’s romantic relationships. Four studies tested predictions about the psychological vigilance that people hold over their kin’s relationships. Two additional studies tested predictions about the preferences that people hold for their kin’s romantic partners. Study results provided support for all predictions (in some cases, this support was qualified by additional conceptual considerations). One objective of this chapter is to summarize the results of these studies and consider the extent that study findings provide support for predictions derived from inclusive fitness logic.

Another objective of this chapter is to consider these findings from alternative theoretical perspectives. As noted in the introduction, these study findings, by themselves, cannot verify the potentially evolved origins of people’s attention to their kin’s romantic relationships. Therefore, it is important to consider the relative usefulness of an evolutionary psychological perspective and alternative theoretical perspectives in accounting for these findings.

6.1. Summary of Findings and Implications: Relationship Vigilance

A primary objective of studies of relationship vigilance was to test the prediction that greater vigilance is held over genetically closer kin’s romantic relationships. Results of all four studies of relationship vigilance were supportive. These results indicated that people’s first-degree kin (parents, children, and siblings)
are more vigilant of their relationships than second-degree kin (aunts, uncles, and grandparents) or third-degree kin (cousins).

Additional results that emerged from Study 3 indicated that the presence of kinship-connoting cues in others fully accounts for this tendency to exert greater vigilance over genetically closer kin: Participants in this study indicated that four kinship-connoting cues (physical and attitudinal similarity, emotional closeness, and co-residence) are present to a relatively greater extent in their first-degree kin. A mediation analysis also revealed a negligible effect of genetic relatedness on vigilance when controlling for these cues. This analysis instead indicated that two particular cues – emotional closeness and physical similarity – exerted unique and significant effects on relationship vigilance. These findings suggest that vigilance of kin’s relationships is not stimulated by rational knowledge of genetic relatedness and its fitness implications, but is instead – like other forms of nepotistic behavior – precipitated by the perception of cues that imperfectly connote kinship (Neyer & Lang, 2003; Park & Schaller, 2005).

Another prediction implied by inclusive fitness logic is that people are especially vigilant of their kin’s long-term, committed relationships. One study (Study 4) tested this prediction. Results were clearly supportive, and indicated that people are more vigilant of their kin’s long-term relationships than kin’s short-term relationships. This difference emerged regardless of people’s own sex, the sex of their kin, or the genetic relatedness of their kin. However, it is notable that the effect of kin’s relationship type on vigilance was especially strong for first-degree kin. This finding suggests that people are especially vigilant of their kin’s long-term
relationships when greater indirect fitness consequences are at stake (as is likely the case for genetically closer kin’s relationships).

6.1.1. Meta-Analytic Integration of Sex Differences in Vigilance

When paired with the logic of differential parental investment, inclusive fitness logic also suggested two sex differences in vigilance. One is that women may be more vigilant than men of their kin’s romantic relationships. Another predicted sex difference is that people may be more vigilant of female kin than male kin. Across four vigilance studies, results provided somewhat mixed support for these predictions. Therefore, additional meta-analyses were conducted, which combined results of all four vigilance studies to assess the predicted effects of sex on relationship vigilance.

Of the four vigilance studies presented here, three studies (Studies 2, 3, and 4) provided clear support for the prediction that women are more vigilant than men of their kin’s romantic relationships. Support for this prediction was less clear in Study 1; female participants indicated greater vigilance than male participants over their kin’s relationships, however this difference was non-significant ($p = .26$). Given this situation, a meta-analysis of results of all four vigilance studies was conducted using Stouffer’s method for combining $p$ values. The result of this meta-analysis strongly supported the predicted sex difference, indicating that women are more vigilant of their kin’s relationships than men ($Stouffer z = 5.50, p < .001$).

Another predicted sex difference implied by inclusive fitness and parental investment logic is that people may be relatively more vigilant of their female kin’s relationships. Mean differences were consistent with this prediction in all studies, but
in no individual study was this difference statistically significant (p’s associated with this difference in Studies 1 through 4 were .22, .51, .45, and .09, respectively). Given the limited statistical power associated with each study, a meta-analysis was conducted, which combined effects across all four studies. The result of this more statistically powerful meta-analysis revealed a significant sex difference indicating that people are relatively more vigilant of their female kin’s relationships than male kin’s relationships (Stouffer z = 2.13, p = .03).

It is important to note, however, that this effect is relatively weak, and in individual studies, was moderated by other variables. In Studies 1 and 2, this sex difference emerged only in the context of vigilance held over genetically close kin. This particular interaction was confirmed by a meta-analysis that combined interaction effects across all four studies. Results of this meta-analysis revealed that people are more vigilant of their close female kin than close male kin; however, this sex difference is negligible for vigilance held over more distant female and male kin (for this interaction effect, Stouffer z = 2.59, p = .01).

In Study 2, this effect also emerged more strongly in the context of vigilance held by women over their kin’s relationships. Therefore, another meta-analysis was conducted, which combined effects associated with this interaction across all four studies. Results of this meta-analysis indicated a marginally significant interaction; a tendency to exert greater vigilance over female kin is somewhat more pronounced among women than men (for this interaction, Stouffer z = 1.81, p = .07).

One additional two-way interaction that emerged in Study 2 suggested that the tendency for women to exert greater vigilance than men over their kin’s relationships
emerges more strongly for vigilance over first-degree kin. A similar pattern of means was evident in the three other vigilance studies, though the associated interaction effects were non-significant. However, when these effects were combined across all four vigilance studies, a significant interaction was revealed; women's tendency to exert greater vigilance than men is more pronounced for vigilance over first-degree kin than for vigilance over more distant kin (for this interaction, Stouffer $z = 2.55, p = .01$).

Given the results of these meta-analyses, it seemed useful to conduct an additional meta-analysis examining the three-way interaction between the two sex variables and genetic relatedness across all four vigilance studies. The patterns of means associated with this three-way interaction were inconsistent across these studies, and in no individual study was this interaction statistically significant. Results of a meta-analysis also indicated a statistically non-significant three-way interaction between the two sex variables and genetic relatedness (for this interaction, Stouffer $z = .62, p = .54$).

These meta-analyses importantly complement results of individual vigilance studies. Individual studies provided inconsistent evidence for two predicted sex differences in vigilance, perhaps because of their small sample sizes and associated lack of statistical power to detect these differences. When individual study results were combined through meta-analysis (thus increasing statistical power), results provided clear support for two predicted sex differences: women are more vigilant than men of their kin's relationships, and people are generally more vigilant of their female kin's relationships than male kin's relationships. Results of additional meta-
analyses revealed that these sex differences are importantly moderated by other variables. Although distinct in their details, these interactions seem interpretable from an inclusive fitness perspective: A tendency for people to exert greater vigilance over their female kin members' relationships may emerge only under conditions in which greater inclusive fitness consequences are at stake; this is likely the case for vigilance of genetically closer kin's relationships, for vigilance of female kin's relationships, and for vigilance held by women over their kin's relationships.

6.2. Summary of Findings and Implications: Partner Preferences

Two additional studies tested predictions derived from inclusive fitness logic about the preferences that people hold for their kin's romantic partners. One prediction is that people may hold higher standards for their kin's long-term partners. Study 6 tested this prediction, and results indicated that people are more concerned with the characteristics of their kin's long-term partners than kin's short-term partners. This effect emerged for concern expressed over both of two characteristics of kin's partners examined in this study: partners' ambitiousness and physical attractiveness.

A prediction derived from combining the logic of inclusive fitness and differential parental investment is that people may hold their female kin's partners to higher (and qualitatively different) standards than male kin's partners. Studies 5 and 6 tested this prediction, and results of both studies were partially supportive. Study 5 examined preferences for 13 desirable characteristics in kin's romantic partners. Results of one analysis indicated that people hold their female kin's partners to a
generally higher overall standard. Analyses conducted on preferences for specific characteristics further indicated that people especially value two characteristics in their female kin’s partners that are especially reflective of partners’ ability to invest in offspring (good financial prospects and ambition). Relative youthfulness, a characteristic instead reflecting fertility and reproductive value, was desired more so in male kin’s partners. Study 6 results provided additional evidence that people especially value characteristics connoting fertility and reproductive value in their male kin’s partners: Results indicated greater concern over the physical attractiveness of male kin’s partners than female kin’s partners. In both studies, these sex differences emerged on only about half of the characteristics for which they were anticipated. In future studies it would be useful to further examine the extent that these and other characteristics are differently valued in male and female kin’s partners.

6.3. Summary of Findings and Implications: Relationship Influence

A primary objective of the studies presented in this dissertation was to test predictions derived from inclusive fitness logic about vigilance of kin’s relationships and preferences for kin’s romantic partners. As another objective, these studies also employed methods examining the conditions under which people are especially likely to attempt actual influence over their kin’s relationships. To this end, Study 3 participants indicated both the extent that they perceive kin as vigilant of their relationships, and also indicated whether kin have actually attempted influence over their relationships. Results revealed that greater vigilance of kin’s relationships is
associated with a tendency to exert greater positive influence (i.e., encouragement and approval) and negative influence (i.e., discouragement and disapproval) over kin's romantic relationships. Moreover, some of the same kinship-connoting characteristics that mediated the relationship between genetic relatedness and vigilance (i.e., emotional closeness and physical similarity) also mediated the relationship between genetic relatedness and actual relationship influence. These results support the notion that relationship vigilance precedes attempts at relationship influence; people are likely to attempt relationship influence only if they have maintained substantial vigilance over their kin's relationships.

Another study examined potential links between preferences for kin's partners and relationship influence. Results of Study 6 indicated that people are relatively more likely to attempt influence over kin involved in relationships with undesirable partners. These results suggest that, in addition to relationship vigilance, the maintenance of preferences for kin's partners also precedes attempts at relationship influence; people are likely to attempt relationship interference only when their kin's partners fail to meet their desired standards.

More generally, these findings suggest that, to anticipate actual attempts at relationship influence, it is important to identify factors that predict both vigilance of kin's relationships and preferences for kin's romantic partners. Future research might identify factors not considered here which also predict vigilance and preferences, as well as actual attempts at relationship influence. For example, one factor that may be predictive is kin's reproductive value. Greater indirect fitness consequences are likely at stake in the romantic outcomes of kin who are relatively younger, healthier, or
exhibit other indicators of high reproductive value (Burnstein et al., 1994). As one consequence, people may be especially vigilant of these kin’s relationships, and may hold relatively higher standards for these kin’s romantic partners. The analysis presented here also suggests that people may be relatively more likely to attempt influence over these kin’s romantic relationships, perhaps especially when they are involved in relationships with undesirable romantic partners.

6.4. Cross-Cultural Similarities and Differences in Relationship Vigilance

Attempts by kin to influence one another’s romantic relationships are cross-culturally common; however, substantial cultural variability also exists in the extent that kin typically exert such influence (Buunk, Park, & Dubbs, 2007). Thus, given the substantial cultural variability of participant samples included in the present investigation, it seemed worthwhile to explore potential cultural differences in relationship vigilance. At a purely descriptive level, participants of different ethnic backgrounds indicated somewhat different amounts of vigilance; however, these differences were statistically non-significant and were inconsistent across the four vigilance studies.

More interestingly, results of all vigilance studies indicated substantial cultural similarity in the extent that people are nepotistic in applying vigilance to their kin’s relationships. Regardless of their ethnic backgrounds, participants’ responses indicated a strong tendency to exert greater vigilance over genetically closer kin. Although actual relationship influence may be more common in some cultures than in
others, a more universal tendency seems to exist for kin to be nepotistically nosey in one another’s romantic affairs.

6.5. Empirical Limitations and Alternative Explanations

For various reasons, the findings that emerged from this investigation should be interpreted somewhat cautiously. Some of these reasons are methodological in nature. For example, all studies employed self-report methods of assessing relationship vigilance. To more confidently draw conclusions, it may be useful to employ additional methods of assessing vigilance. Future studies might employ behavioral or physiological measures of the extent that people experience concern over their kin’s relationship outcomes.

Another methodological issue concerns the design of questionnaires assessing relationship vigilance. In two of the four vigilance studies (Studies 2 and 4), participants were presented with identical lists of several kin members and were instructed to rate vigilance held by each kin member over their own relationships. It is plausible that this ordering of kin may account for some of the findings presented here; thus, in future studies it would be useful to present participants with different orders of kin. However, it is unlikely that emerging findings are due solely to order effects; in two of the four studies (Studies 1 and 3), participants provided vigilance ratings for different kin members. Results of these studies were very similar to results of Studies 2 and 4. For example, in all studies, participants indicated greater vigilance over genetically closer kin, regardless of whether they provided vigilance ratings for only one kin member or several.
There are also limitations associated with the extent that emerging findings reveal potentially evolved origins of the vigilance that people hold over their kin’s romantic relationships. These findings importantly add to existing research on relationship influence by specifying conditions under which relationship influence may be expected (e.g., people are more likely to attempt influence over their genetically close kin, and are more likely to attempt influence over their female kin). However, the purpose of the present investigation goes beyond simply expanding on existing research: This investigation tested predictions derived from evolutionary psychological reasoning, which suggest that people attend to their kin’s romantic relationships in ways that bolster their inclusive fitness. Thus, the present investigation not only documents a contemporary psychological phenomenon – attention to kin’s romantic relationships – it also suggests that this phenomenon is the product of historical biological processes (i.e., evolution).

The findings presented here provide substantial evidence suggesting that people attend to their kin’s romantic relationships in ways that enhance inclusive fitness. However, for several reasons, these findings provide only limited evidence of the potentially evolved origins of this phenomenon. One reason is that multiple types of converging evidence are required to convincingly argue that a psychological phenomenon is the product of evolution (i.e., that it is a psychological adaptation; Schmitt & Pilcher, 2004).

Psychological studies provide only one type of evidence suggesting adaptation; this is the type of evidence gained from the findings presented here. Additional psychological evidence of adaptation might be gained by employing
different psychological methodologies. For example, the present investigation compared attention to various kin members’ romantic relationships. Future studies might instead compare attention to kin’s romantic relationships with attention to non-kin’s relationships. If people attend to others’ romantic relationships in ways that maximize their inclusive fitness, they may hold greater vigilance over kin’s relationships than over non-kin’s relationships, perhaps regardless of whether they feel especially emotionally close or similar to non-kin. As mentioned earlier, future investigations might also benefit from employing different methods of assessing vigilance, or concern, over kin’s romantic relationships. In addition to assessing self-reported concern over kin’s relationship outcomes, future studies might, for example, employ physiological measures of anxiety.

Whereas the findings presented here provide some psychological evidence of adaptation, a review of existing research usefully provided two additional types of evidence: cross-cultural evidence and hunter-gatherer evidence. Existing anthropological and sociological research suggests that in several cultures, including hunter-gatherer societies, people attempt substantial influence over their genetically closest kin’s romantic relationships (Buunk, Park, & Dubbs, 2007; Goode, 1959). However, as noted in the introductory chapter, cross-cultural and hunter gatherer studies, as a whole, have not rigorously examined the various predictions considered in the present investigation.

Schmitt and Pilcher (2004) identify several additional types of evidence for adaptation, including medical evidence (e.g., studies of physical health and mortality), genetic evidence (e.g., population genetics studies), and phylogenetic
evidence (e.g., primatological evidence). Phylogenetic evidence may be especially useful in convincingly arguing that attention to kin’s romantic relationships reflects psychological adaptation. Some existing evidence suggests that, among avian species, kin behave cooperatively in courting mates (Watts & Stokes, 1971). It would be useful to examine whether the behavior of various other species also reflects a concern for kin members’ mating outcomes.

According to Schmitt and Pilcher’s guidelines, results of the present investigation, as well as a review of existing research, provide only minimal evidence that the phenomenon considered here – attention to kin’s romantic relationships – reflects psychological adaptation. Moreover, there are other sensible reasons why, in reading this dissertation, one might be skeptical of such evolutionary psychological reasoning. This skepticism may arise, in part, because other theoretical perspectives, which focus exclusively on a psychological level of analysis, may offer more parsimonious accounts of some of the emerging findings.

One theoretical perspective worth considering is that people simply are more attentive to the relationships of others with whom they feel emotionally close. Existing research indicates that people are generally more willing to provide others with whom they feel emotionally close various forms of assistance (Korchmaros & Kenny, 2001). This psychological tendency to help emotionally-close others, by itself, may be sufficient to account for the emerging finding that people are especially vigilant of their genetically closest kin.

Another theoretical perspective worth considering is that social norms govern how people ought to attend to their kin’s romantic relationships (e.g., Bates, 1942).
One might apply this reasoning to account for the finding that people value different characteristics in their male and female kin's romantic partners. These differences might exist as a consequence of consensually-held beliefs about the characteristics that men's and women's partners ought to possess (Eagly & Wood, 1999).

These are just two examples of alternative theoretical perspectives that may account for some of the findings presented here; readers of this dissertation may have considered still other theoretical perspectives that parsimoniously account for some of these findings. Moreover, as discussed above, the findings presented here provide only preliminary evidence of psychological adaptation. For these reasons, one might doubt the usefulness of an evolutionary psychological perspective. The following section discusses specifically why an evolutionary psychological perspective may be more useful than alternative perspectives in studying the attention that people pay to their kin's romantic relationships.

6.6. The Utility of an Evolutionary Psychological Perspective

If there are theoretical perspectives that account for some of the findings presented here at a purely psychological level of analysis, why is it useful to instead consider these findings within an evolutionary psychological framework? There are several reasons; one is that these more parsimonious psychological-level explanations give rise to theoretical pluralism (Schaller, 2002; Schaller, Rosell, & Asp, 1998). In the absence of an evolutionary psychological framework, multiple theoretical perspectives are required to account for the findings presented here.
To illustrate how parsimony may lead to theoretical pluralism, it is useful to again consider some alternative explanations for some of the findings presented here. For instance, people may be especially vigilant of their genetically close kin because they tend to help others with whom they feel emotionally close. People may also value somewhat unique characteristics in their male and female kin’s partners because of social norms that imply how they ought to attend to their kin’s relationships. However, neither explanation, by itself, seemingly accounts for both of these findings. Moreover, additional explanations may be required to account for additional findings that emerged from the present investigation (for example, that people tend to be more vigilant of kin involved in long-term relationships). These relatively parsimonious explanations of individual phenomena yield a complicated explanatory framework when multiple phenomena are considered together. By examining these phenomena from an inclusive fitness perspective, a more concise explanatory framework emerges.

Compared to alternative theoretical perspectives, an evolutionary psychological perspective also provides a deeper understanding of the phenomena considered here. At a purely psychological level, it may be the case that emotional closeness and social norms are two factors predictive of relationship vigilance and preferences for kin’s partners. Evolutionary psychological reasoning helps to account for why this is so. To illustrate, this reasoning suggests that emotional closeness serves as one of several heuristic kinship cues. People likely gain greater indirect fitness benefits, and avoid direct fitness costs, by maintaining vigilance over others who possess these cues, and are therefore more certain kin. Evolutionary
psychological reasoning also suggests that people are likely to adopt social norms that aid in their attainment of fundamental social goals (e.g., Gangestad & Buss, 1993). In the context of attending to kin’s romantic relationships, it seems plausible that people have more readily adopted social norms that are associated with positive inclusive fitness consequences. Among these norms may be a tendency to prefer somewhat unique characteristics in one’s male and female kin.

Alternative theoretical perspectives may provide plausible explanations for some of the phenomena described here; however, mere explanation of a phenomenon is only one of several objectives of scientific inquiry. Another objective is to predict and discover new phenomena; this objective is unlikely to be met by generating post-hoc explanations of existing findings. An evolutionary psychological perspective instead offers a set of logical tools for deducing novel psychological theories and predictions (Kenrick, Schaller, & Simpson, 2006). The present investigation reflects the usefulness of this perspective; inclusive fitness reasoning generated a novel conceptual perspective on romantic relationship influence, and research inspired by this perspective generated several novel findings about the specific ways that people attend to their kin’s romantic relationships.

An evolutionary psychological perspective also offers a meta-theoretical framework within which superficially different phenomena can be integrated. To illustrate, inclusive fitness logic helps to explain why people are nepotistic, and implies that people will expend greater resources on their genetically closer kin. This tendency toward nepotism is most obviously apparent in the transfer of material resources to one’s kin (e.g., Essock-Vitale & McGuire, 1980). The same logic also
implies nepotism in the transfer of qualitatively very different – but also costly –
cognitive and emotional resources. The findings presented here support this
reasoning; people seem more willing to expend psychological effort in maintaining
vigilance over their genetically closer kin. This subtler psychological form of
nepotism is revealed only when relationship vigilance is considered within the
framework of inclusive fitness. Other novel instances of nepotism may be revealed by
examining how people expend cognitive and emotional resources to ensure that their
kin achieve various social goals not considered here. People may expend these
resources in a nepotistic fashion to ensure, for example, that kin avoid physical
dangers and disease, form beneficial social coalitions, and acquire high social status
(Neuberg, Kenrick, Maner, & Schaller, 2005).

6.7. The Utility of Additional Evolutionary Psychological Theorizing

The logic of inclusive fitness implied the prediction that people will pay
greater attention to their genetically closer kin’s romantic relationships. Additional
evolutionary psychological reasoning proved useful in refining this general
prediction. For example, the logic of differential parental investment further
suggested that people may be relatively more vigilant of their female kin. The logic of
kin detection also suggested that certain proximate psychological variables (i.e.,
heuristic cues to kinship) might account for a tendency to hold greater vigilance over
genetically closer kin. In this section, other theoretical perspectives are considered,
which are commonly employed by evolutionary psychologists, and may further refine
predictions about the attention that people pay to their kin’s romantic relationships.
Three specific perspectives are considered: the logic of reciprocal altruism, parent-offspring conflict, and paternal uncertainty.

6.7.1. Reciprocal Altruism

The logic of inclusive fitness suggests that people gain an indirect fitness benefit by providing their kin with various forms of assistance. In other words, people benefit by acting altruistically toward kin (Hamilton, 1964). The logic of reciprocal altruism further suggests that, under certain circumstances, people also benefit by acting altruistically toward non-kin. Specifically, people benefit by providing non-kin with various forms of assistance, if in the future, this assistance is likely to be reciprocated (Trivers, 1971). The logic of reciprocal altruism therefore implies that people may benefit by maintaining relationship vigilance over non-kin if such relationship assistance is likely to be reciprocated. This leads to the prediction that people may be especially vigilant of non-kin for whom relationship assistance is likely to be reciprocated, such as well-known friends.

More interesting and novel predictions emerge when considering reciprocation of relationship vigilance among both kin and non-kin. An abundance of human and animal evidence indicates that reciprocation of various forms of assistance is more likely among non-kin than among kin (Essock-Vitale & McGuire, 1980; 1985; Seyfarth & Cheney, 1984). This difference is interpretable from an inclusive fitness perspective: People are benefited by providing non-kin assistance only if this assistance is eventually reciprocated. In contrast, people are indirectly benefited by providing their kin with assistance even in the absence of future reciprocation. This
reasoning suggests a novel prediction that may be interesting to consider in future research: the perceived likelihood that relationship vigilance will be reciprocated is likely more predictive of relationship vigilance among non-kin than it is among kin. Support for this prediction would seem to strengthen the argument that people maintain vigilance over their kin specifically as a means of increasing their inclusive fitness.

6.7.2. Parent-Offspring Conflict

The conceptual analysis presented thus far implies a degree of cooperation among kin in mate selection. An individual seeking out a romantic partner, as well as his or her kin, share a mutual goal of securing for that individual a desirable romantic partner. This analysis, as well as findings presented here, suggests that kin may generally agree that one another’s romantic partners ought to possess various desirable characteristics.

The logic of parent-offspring conflict (Trivers, 1974) instead suggests that, under certain circumstances, kin may disagree about the characteristics that one another’s romantic partners ought to possess. Such disagreements are likely to arise when specific mate selection preferences differently impact the inclusive fitness of different kin members. As one example, parents likely incur a greater fitness cost than their children when children enter into relationships with low-investing partners and require fitness-reducing assistance from their parents. One logical consequence is that, compared to their children, parents seem especially concerned with the investment potential of their children’s romantic partners (Buunk, Park, & Dubbs,
A finding that emerged from the present investigation further reflects parents’ heightened concern with the investment potential of their children’s romantic partners; Study 6 results indicated that one’s parents are more likely than are one’s siblings to interfere in their romantic relationships with unambitious partners.

It is also worth considering additional circumstances in which kin may be somewhat uncooperative in seeking out mates. One factor that might predict such cooperation or conflict is kin’s current relationship status. When currently involved in a romantic relationship, individuals likely devote less time and effort to seeking out new romantic partners, and may be especially willing and able to provide their kin with relationship assistance. In contrast, when not involved in a romantic relationship, individuals may be less willing to provide their kin with relationship assistance, and may actually compete with their kin for desirable mates. This reasoning suggests that same-sex kin who are not currently involved in romantic relationships may be especially uncooperative in seeking out mates.

Another factor that may predict cooperation or conflict in seeking out mates is reproductive value. Compared to one’s siblings, one’s parents are of lower reproductive value, and may benefit more so from seeking out suitable mates for their kin rather than themselves. In contrast, siblings likely incur a higher direct fitness cost from focusing excessive effort on seeking out mates for one another rather than for themselves. Although results emerging from the current investigation suggest substantial vigilance held by one’s siblings, a degree of competitiveness may underlie such vigilance. In future studies, it would be interesting to examine motives
underlying vigilance, and whether they are relatively more self-serving among kin of higher reproductive value, such as one’s siblings.

6.7.3. Paternal Uncertainty

Biological sex differences reveal that, at minimum, women invest more in their offspring than men; the findings presented here suggest that these differences in minimum parental investment account for people’s tendency to pay closer attention to their female kin’s romantic relationships. Biological sex differences further reveal an important sex difference between paternal and maternal uncertainty: Whereas men can never be certain that their children are their own biological offspring, due to internal fertilization and pregnancy, women are always certain. As a likely consequence of this sex difference, men are especially vigilant of their partners’ potential sexual infidelity (Buss, 2003).

The logic of paternal uncertainty also helps to explain why some kin are relatively more willing to invest resources in one another. For example, maternal grandparents are more certain of their genetic relatedness to grandchildren than are paternal grandparents, and as a consequence, maternal grandparents are relatively more likely to invest tangible and emotional resources in their grandchildren (Laham et al., 2005). It follows from this reasoning that maternal grandparents may also be relatively more vigilant than paternal grandparents of their grandchildren’s romantic relationships. This possibility was explored in one study presented here (Study 2), which compared relationship vigilance held by various grandparents. Study results indicated about equal vigilance held by maternal and paternal grandparents; however,
this study examined vigilance held by a relatively small sample of grandparents. In future studies, it would be useful to compare vigilance held by larger samples of various maternal and paternal kin (e.g., maternal and paternal grandparents, aunts, uncles, and cousins).

Another interesting direction for future research may be to examine the consequences of paternal uncertainty on preferences for kin’s partners. People generally hold their female kin’s romantic partners to a higher standard than male kin’s partners. However, the logic of paternal uncertainty suggests that people may especially value characteristics in their male kin’s partners reflecting a tendency to be sexually faithful. People may value characteristics such as trustworthiness and honesty more in their male kin’s partners than in their female kin’s partners.

6.8. Conclusion: On the Evolved Origins of Mate Preferences

Evolutionary psychological approaches to human mating assume that mate preferences arose through evolution to solve recurrent adaptive problems. For example, the logic of differential parental investment suggests that men and women recurrently faced different obstacles to reproductive success, and as a consequence, they evolved somewhat different mate preferences (Buss & Schmitt, 1993). This perspective therefore implies that people’s mate preferences are the product of evolved psychological mechanisms located in their own minds.

One shortcoming of this perspective is that it fails to consider the broader social context within which people select mates (Hagen & Symons, 2007). The findings presented here (as well as a review of existing research) indicate that people
exert considerable influence over their kin members' mating decisions. Moreover, the conceptual analysis presented here implies that people evolved to exert such influence in ways that provide indirect fitness benefits. For example, people are likely benefited by valuing somewhat different characteristics in their male and female kin's romantic partners. This reasoning suggests that mate preferences are not just the product of evolved psychological mechanisms located in people's own minds; they may also be the product of evolved psychological mechanisms located in the minds of people's nepotistically nosey kin.
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Appendix A. Sociosexual Orientation Inventory

Please answer all of the following questions honestly. For the questions dealing with behavior, write your answers in the blank spaces provided. For the questions dealing with thoughts and attitudes, circle the appropriate number on the scales provided.

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

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

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

4. How often do you fantasize about having sex with someone other than your current dating partner? (Circle one).
   1. never
   2. once every two or three months
   3. once a month
   4. once every two weeks
   5. once a week
   6. a few times each week
   7. nearly every day
   8. at least once a day

5. Sex without love is OK.

   I Strongly Disagree
   I Strongly Agree
   1   2   3   4   5   6   7   8   9

6. I can imagine myself being comfortable and enjoying “casual” sex with different partners.

   I Strongly Disagree
   I Strongly Agree
   1   2   3   4   5   6   7   8   9

7. I would have to be closely attached to someone (both emotionally and psychologically) before I could feel comfortable and fully enjoy having sex with him or her.

   I Strongly Disagree
   I Strongly Agree
   1   2   3   4   5   6   7   8   9