Assortative Mating and Partner Influence: Problem Behavior across the Life Course

By

Kelly Evelyn Knight

M.A., San Francisco State University, 2002

B.A., State University of New York at Oswego 1993

A thesis submitted to the

Faculty of the Graduate School of the

University of Colorado in partial fulfillment

of the requirement for the degree of

Doctor of Philosophy

Department of Sociology

2011

This thesis entitled:

Assortative Mating and Partner Influence: Problem Behavior across the Life Course

written by Kelly Evelyn Knight

has been approved for the Department of Sociology

_____

Stefanie Mollborn, Co-chair

_____

Terence P. Thornberry, Co-chair

_____

Jason Boardman

_____

Kimberly L. Henry

_____

Joanne Belknap

June 29, 2011

The final copy of this thesis has been examined by the signatories, and we

Find that both the content and the form meet acceptable presentation standards

Of scholarly work in the above mentioned discipline.

IRB protocol # 0410.2

Knight, Kelly Evelyn (Ph.D., Sociology)

Assortative Mating and Partner Influence: Problem Behavior across the Life Course

Thesis directed by Professor Terence P. Thornberry and Professor Stefanie Mollborn

Why do individuals select romantic partners who use drugs, are criminals, or have mental health problems, a choice that eventually puts them and their children at increased risk for negative developmental outcomes? Theoretically, assortative mating and partner influence are both plausible explanations. Results from a systematic literature review found that the research is split. All cross-sectional, retrospective studies except one supported assortative mating over partner influence. In contrast, all prospective studies supported partner influence. Studying the problem behaviors of romantic couples across the life course is challenging and differences in findings likely result from a number of methodological obstacles. The aim of this study was to use dyadic data from the Rochester Youth Development Study and the Rochester Intergenerational Study to examine these competing hypotheses. Partial correlations and actor-partner interdependence models estimated social homogamy, partner similarity, assortative mating, contagion, and partner influence effects. Heterotypic associations, different types of romantic relationships, and gender differences were also explored. Although social homogamy and partner similarity on problem behavior is evident, little support for assortative mating, except on drug use, and virtually no support for partner influence is found using the Rochester data. Findings do indicate, however, that a comprehensive explanation of partner similarity requires a refined consideration of heterotypic problem behaviors across the life course.

For all the Missing Pieces and for all the Big Os.

~Shel Silverstein, 1981

Acknowledgements

First, I would like to thank my committee—Terence Thornberry, Stefanie Mollborn, Kim Henry, Joanne Belknap, and Jason Boardman—for all of their patience, support, and wisdom. Working with Terry is a phenomenal experience. I would also like to thank the folks at IBS 11 for giving me a home for the past six years. I am indebted to all of you. I am particularly grateful to Sharon Mihalic who gave me funding, time, and space to complete the dissertation. A special thanks to Barry Krisberg for inspiring me and insisting that I come to Boulder. Thanks to my family and friends for sticking it out with me. I have learned so much. To my mentor, William Woodward, my gratitude for you is beyond words. Thank you for being the example I always wanted but did not think existed. Last, thanks to my husband and lid, Dr. Colter Ellis, for making everything so much better.

Table of Contents

Table of Figures

Table of Tables

Chapter 1

Introduction

The family is among the most important socialization domains in a child's life (Simons, Gordon Simons, & Ebert Wallace, 2004) and research has demonstrated that the choices parents make can exert both positive and negative influences on their child's development (Thornberry, Freeman-Gallant, & Lovegrove, 2009). Perhaps the most important choice a parent ever makes, which occurs well before his or her child is born, is the selection of the child's other parent. This person contributes half of the child's genome and, hopefully, a reasonable share of the parenting and socialization, as well as ultimately contributing to the family's genetic immortality (Lykken & Tellegen, 1993). Although the selection of a mate has profound consequences, the process is not well understood. Even less is known about individuals who select dysfunctional or antisocial mates who, for example, use drugs, are criminals, or have mental health problems that eventually put them and their children at heightened risk for negative developmental outcomes.

There is some consensus among researchers that people choose mates who are similar to themselves, a phenomenon often referred to as assortative mating. Broadly defined, assortative mating is "the nonrandom coupling of individuals based on their similarity to each other on one or more characteristics" (Watson et al., 2004, p. 1030). The term mating is taken from biology to indicate an individual's pairing with the opposite sex to produce a biological child. However, in social science research, the operationalized definition of assortative mating has less to do with

biology and more to do with close relationships and the type of data collected about partners[1] and their relationships occurring at different developmental stages. Definitions of mates can include adolescent couples, cohabiting young adults, spouses, same-sex partners, and at other times biological parents. In addition, some research distinguishes between primary and secondary assortative mating. Primary assortative mating describes similarity based on the direct selection of phenotypes (i.e., observable characteristics and behavior). Secondary assortative mating occurs when concordance is due to shared demographic characteristics or social environment (e.g., race). Often, the process of assortative mating is conflated with other concepts related to partner similarity which is a blanket term used to describe the concordance seen between two partners.[2] The mechanisms thought to be responsible for partner similarity can be divided into two broad areas: selection and socialization (Yamaguchi & Kandel, 1993).

In general, selection is an umbrella concept that refers to the processes that initially help two individuals find each other and includes related terms, such as assortative mating, homophily, homogamy, and endogamy. Homophily refers to the contact among similar others that occurs at greater rates than among dissimilar others (McPherson, Smith-Lovin, & Cook, 2001). Homogamy describes a partnership with or marriage to someone similar in status, where as endogamy involves marriage in one's own group (Kalmijn, 1998). Social homogamy refers to the process whereas individuals in similar social groups are more likely to form relationships (Rhule-Louie & McMahon, 2007). Conversely, intermarriage, heterogamy, and exogamy are terms used to describe marriage outside one's group (Kalmijn, 1998). In contrast to these selection processes, socialization is

---

[1] In this chapter, the terms *partner*, *couple*, and *respective other* are all used interchangeably. In subsequent chapters, each will have its own operationalized definition.

[2] The terms *partner similarity*, *concordance*, and *homophily* are used interchangeably.

another broad concept used in this context to describe the influence partners have on each other once their union begins. The literature includes several analogous terms to describe this phenomenon, including contagion, corruption, causation, cohabitation effects, phenotypic convergence, infection, reciprocal exchange, social amplification, and partner influence.

Research on these concepts is fraught with a number of methodological limitations. In addition, selection and socialization processes are often conflated. For example, an author may find support for assortative mating because partners appear similar on their drug use when measured well into their relationship (which is actually a measure of partner similarity). However, such an assessment cannot determine whether partners were similar in their drug use before their courtship, a factor that may have increased the probability of their coupling (i.e., selection), or whether one or both of the individuals' drug use changed over time as a result of the other partner's influence (i.e., socialization). Furthermore, research on the extent and mechanisms of selection into and socialization of problem behavior is rather piecemeal, given the topic's interdisciplinary relevance to psychologists, sociologists, geneticists, and criminologists alike. Considering the importance of this topic, not only for individuals themselves, but also for their children, the family, and society at large, the goal of the dissertation is to extend theoretical, methodological, and analytic advances in the field to address these limitations and ask the following overarching question: Through assortative mating processes, does an individual's problem behavior in adolescence and young adulthood influence his or her mate selection and, in turn, does that individual's mate selection influence his or her later problem behavior?

To answer this question, the dissertation is divided into eight chapters. The current chapter includes this introduction, reviews theoretical perspectives that explain assortative mating and partner influence, and presents research questions and hypotheses. The second chapter provides a systematic assessment of the literature on assortative mating and partner influence and is organized

based on the specific research questions examined in the dissertation. The third chapter describes the dissertation's method, including the data, sample, and measures. Chapter 4 documents the extent to which partners are similar—a step necessary to justify subsequent chapters. Chapter 5 tests the assortative mating hypothesis. Chapter 6 evaluates the contagion proxy, a method sometimes used in previous research in lieu of estimating assortative mating. Chapter 7, the last analytic chapter, models partner influence. The dissertation concludes with Chapter 8, a discussion that summarizes overall findings, limitations, theoretical implications, future research, and take-home messages.

Assortative Mating Theory

Theoretically, there are various mechanisms that can account for assortative mating and partner influence. The following section outlines both structural and individual perspectives, as well as genetic-based hypotheses of assortative mating. Then, theories that help explain the influence that partners have on each other's problem or antisocial behavior are discussed.[3]

A structural explanation for assortative mating that focuses on the larger social context is often referred to as social homogamy. Community structural factors, such as ethnic heterogeneity, residential stability, socioeconomic status, and level of urbanization, are correlated with a variety of behaviors (Sampson & Groves, 1989), promote propinquity, and limit the scope of possible mates (Matsueda & Heimer, 1997). Academic, occupational, and religious institutions, as well as the family, promote both group identification and sanctions that shape mating preferences and provide a shared environment in which individuals are likely to socialize and select a similar other (Kalmijn, 1998).

---

[3] The terms *problem behavior* and *antisocial behavior* are used interchangeably.

At the individual level, problem behaviors are associated with a host of other issues (Fergusson, Horwood, & Lynskey, 1994) that may promote assortative mating. Often, individuals high in problem behaviors have lower levels of intelligence (Lynam, Moffitt, & Stouthamer-Loeber, 1993; Raine et al., 2005), a history of maltreatment (Ireland, Smith, & Thornberry, 2002), and limited or compromised advice and support from family and friends (Quinton, Pickles, Maughan, & Rutter, 1993). They may have less self-control (Gottfredson & Hirschi, 1990) and are thus less likely to perceive opportunities, consider alternatives, and make effective choices when selecting mates (Quinton et al., 1993). Combined, these limitations lower the extent to which a person is perceived as desirable when looking for a partner, which by default may increase his or her chances of pairing with a similar individual.

Consensual validation theories, in general, may also help explain the mechanisms responsible for assortative mating. Individuals are thought to seek out similar others to validate their perspective of the world. That is, they select compatible environments and companions supportive of their values and behavior. Such agentic moves facilitate understanding and communication, increase participation in joint activities, and promote a common lifestyle (Capaldi & Crosby, 1997; Kalmijn, 1994, 1998; Yamaguchi & Kandel, 1997). Ultimately, "it is rewarding to be around an individual who engages in actions that one regularly enjoys, but unpleasant to spend time with a person who behaves in ways that one finds foreign and uninviting" (Simons, Stewart, Gordon, Conger, & Elder, 2002, p. 404).

Genes are thought to influence problem behaviors and to play a role in assortative mating. Mate selection is undoubtedly driven by personal preferences, which are often based on phenotypes, or observable, genetically influenced characteristics. Some evolutionary perspectives, such as genetic similarity theory (Rushton, 1989), assert that genetically similar individuals detect and prefer one another to ensure reproductive benefits and gene survival (Reynolds, Baker, & Pedersen, 2000). In

opposition to direct genetic detection theories, Bereczkei, Gyuris, Koves, and Bernath (2002, p. 681) posit a "genetically canalized learning process" of assortative mating based on attachment processes, whereby children internalize their opposite-sex parent's phenotype as a template for acquiring mates with shared genes. Adult men "match the mental image of their mother to females as potential mates, estimate the degree of similarity, and prefer those who resemble their mother" (Bereczkei et al., 2002).

Partner Influence Theory

Structural, individual, and genetic factors may play important roles in understanding assortative mating with respect to problem behavior. From the literature, it appears that individuals with problem behaviors are likely to select into relationships with each other. Once partnerships have been established, however, do partners influence each other's problem behaviors through socialization processes? Perspectives from criminology—namely social learning, social control, and developmental theories—can begin to address this question. They illuminate the mechanisms underlying partner influence by considering how interactions with important others help explain not only the etiology of problem behavior but also the mechanisms by which it changes over time. For example, social learning theories assume that children come into the world tabula rasa and are, in large part, socialized by their parents' behavior (Buchanan, 1996) through observation, modeling, and reinforcement (Bandura, 1977). Later in adolescence and young adulthood, peers begin to play an increasingly important role in shaping behavior (Haynie, Giordano, & Manning, 2005). Sutherland's (1947) differential association theory posits that problem behavior is learned through interactions within adolescent peer groups. An application of this theory would argue that similarity between partners stems from dating within these homophilous peer groups, in which favorable definitions of problem behavior are learned and reinforced.

In addition to social learning theories, social control perspectives posit that individuals are more likely to engage in problem behavior when their bonds to prosocial people and institutions are weak; they are then less influenced by prosocial norms (Hirschi, 1971). Conversely, individuals with strong attachment to prosocial others avoid jeopardizing those bonds; this process is key to influencing their behavior toward conformity. An application of this theory might suggest that when two antisocial individuals are romantically involved with each other, they, too, avoid jeopardizing bonds with their mates. Ultimately, couples may conform to each other to ensure that bonds are maintained.

Thornberry, Lizotte, Krohn, Farnworth, and Joon Jang (1991) extended the social control perspective in their interactional theory of delinquency to posit a developmental approach that views problem behaviors as dynamic and time varying (Thornberry & Krohn, 2005). Problem behavior in one developmental stage can subsequently influence and reinforce future outcomes. Movement along a problem behavior trajectory is related to movement along other life-course trajectories and transitions into age-graded roles, such as dating, marriage, and family (Elder, 1998). Theoretically, an individual's problem behavior trajectory has mutually reinforcing consequences for mate selection. For example, young adults who have not outgrown normative adolescent delinquency will have few conventional options, and their pool of possible mates will be limited to other antisocial individuals. In turn, mate selection itself should affect subsequent problem behavior because it is subject to the influence that partners can have on each other over time.

In summary, the confluence of selection (i.e., assortative mating via structural, individual, and genetic factors) and socialization (i.e., partner influence via social learning and social control mechanisms), coupled with the developmental consequences of problem behavior over time (as proposed by interactional theory) may help explain the similarity seen between mates. Simply put, similarity may arise from a number of reinforcing factors. For instance, selection into a relationship

with a similarly antisocial person may be partly a result of the developmental consequences of participating in problem behaviors (e.g., when prosocial ties are no longer available). In addition, similarity may increase from the socialization that occurs once a relationship has been established and problem behavior is reinforced over time, not by peers, but by partners.

Research Questions and Hypotheses

Although assortative mating and partner influence make theoretical sense, the overall aim of the dissertation is to improve upon existing research and extend our understanding of these concepts as they relate to partner similarity. Foreshadowing the next chapter, which is a systematic assessment of the literature, I find that the research is marred by a number of limitations that can be improved upon. By analyzing both retrospective and prospective measures assessed over the life course of both partners, disaggregating different types of romantic relationships, controlling for social homogamy, examining gender differences, and testing heterotypic effects, the dissertation will make a significant contribution to the literature. To that end, research questions and hypotheses empirically tested in the dissertation are presented next. Note that research questions are presented here, prior to the literature review, because they are used to organize the findings from the literature. Figure 1-1 corresponds to the research questions and to the structure of Chapter 2 by depicting a longitudinal model divided into three sections (i.e., assortative mating, contagion, and partner influence), each illustrating one of the primary measures of partner similarity (which is illustrated at the top of the model).

In each section of the figure, time (t) is represented from left to right. Mate selection is depicted by a solid, vertical box that divides time into the time before and the time after a couple begins a relationship together. Clear boxes represent developmentally specific problem behaviors for a focal respondent or his or her respective other. Arrows indicate positive associations between

the partners' behavior. Corresponding to the first section of Figure 1-1, the first research question is presented below.

Research Question 1 (Assessing Contemporaneous Partner Similarity). Are focal respondents' demographic factors and adult problem behaviors correlated with their respective others' demographic factors and adult problem behaviors (all measured prospectively after mate or partner selection) and, if so, in what direction and how strongly?

Purpose. The overall goal of the first research question is to ensure that, indeed, partners are similar, as purported in the literature. Without this preliminary support, further investigation into the mechanisms responsible for partner similarity is not warranted. In addition, this descriptive chapter explores various demographic factors, problem behaviors, dyad types, and gender differences to inform subsequent analyses. The following four hypotheses are based on the first research question.

Hypothesis 1a. Social homogamy will be evidenced by significant and positive correlations between focal respondents and their respective others on demographic factors.

Hypothesis 1b. Partner similarity will be evidenced by significant and positive correlations between focal respondents and their respective others on problem behaviors (as well as their correlates).

Hypothesis 1c. Of the three dyad types (mates, partners, and couples—defined in the method's chapter), dyads identified as couples (i.e., individuals who had a child and stayed together) will have stronger significant and positive correlations of problem behaviors when compared to mates and partners.

Hypothesis 1d. Compared to female focal respondents and their respective others, male focal respondents and their respective others will have fewer significant and positive correlations on problem behaviors (i.e., gender differences).[4]

Research Question 2 (Assortative Mating). Are focal respondents' adolescent problem behaviors (measured prospectively before mate or partner selection) positively correlated with their respective others' adolescent problem behaviors (measured retrospectively after mate or partner selection), controlling for social homogamy (i.e., demographic factors) and, if so, in what direction and how strongly?

Purpose. Assortative mating is estimated to better understand the mechanisms responsible for partner similarity.

Hypothesis 2. Focal respondents and their respective other's adolescent problem behaviors will be positively correlated, while controlling for social homogamy.

Research Question 3a and 3b (Contagion Proxy). First, what effect does focal respondents' adolescent problem behaviors (measured prospectively) have on their respective others' problem behaviors (measured prospectively), after controlling for their respective others' adolescent problem behaviors, focal respondents' adult problem behaviors, and demographic factors? Second, what effect do respective others' adolescent problem behaviors (measured retrospectively) have on focal respondents' problem behaviors (measured prospectively), controlling for the focal respondents' adolescent problem behaviors, the respective others' adult problem behaviors, and demographic factors?

---

[4] The theoretical rationale for this hypothesis is outlined in Chapter 4 (on partner similarity). Note, however, that sample size and power limitations prohibit statistically testing differences between focal respondents' gender. Related analyses are exploratory.

Purpose. The contagion proxy is estimated because it addresses a number of methodological issues and is sometimes used in the literature to assess both assortative mating and partner influence. It involves testing for indirect but unidirectional effects and is explained more fully in Chapter 6.

Hypothesis 3a. Focal respondents' adolescent problem behaviors will be significantly and positively associated with their respective others' adult problem behaviors, controlling for their respective others' adolescent problem behaviors, focal respondents' adult problem behaviors, and demographic factors.

Hypothesis 3b. Respective others' adolescent problem behaviors will be significantly and positively associated with the focal respondents' adult problem behaviors, controlling for the focal respondents' adolescent problem behaviors, the respective others' adult problem behaviors, and demographic factors.

Research Question 4 (Partner Influence). After mate or partner selection, what effect do male respondents' adult problem behaviors (measured at Time + 1) have on their female partners' adult problem behaviors (measured at Time + 2), controlling for both respondents' prior problem behaviors and demographic factors (measured at Time + 1)? Conversely, after mate or partner selection, what effect do female respondents' adult problem behaviors (measured at Time + 1) have on their male partners' adult problem behaviors (measured at Time + 2), controlling for both respondents' prior problem behaviors and demographic factors (measured at Time + 1)?

Purpose. Partner influence is estimated to better understand the mechanisms responsible for partner similarity.

Hypothesis 4a. Male respondents' adult problem behaviors (measured at Time + 1) will be associated with their female partners' adult problem behaviors (measured at Time + 2), controlling for both respondents' adult problem behaviors (measured at Time + 1).

Hypotheses 4b. Female respondents' adult problem behaviors (measured at Time + 1) will be associated with their male partners' adult problem behaviors (measured at Time + 2), controlling for both respondents' adult problem behaviors (measured at Time + 1).

Research Question 5 (Explaining Partner Similarity). Is partner similarity best explained by assortative mating or partner influence?

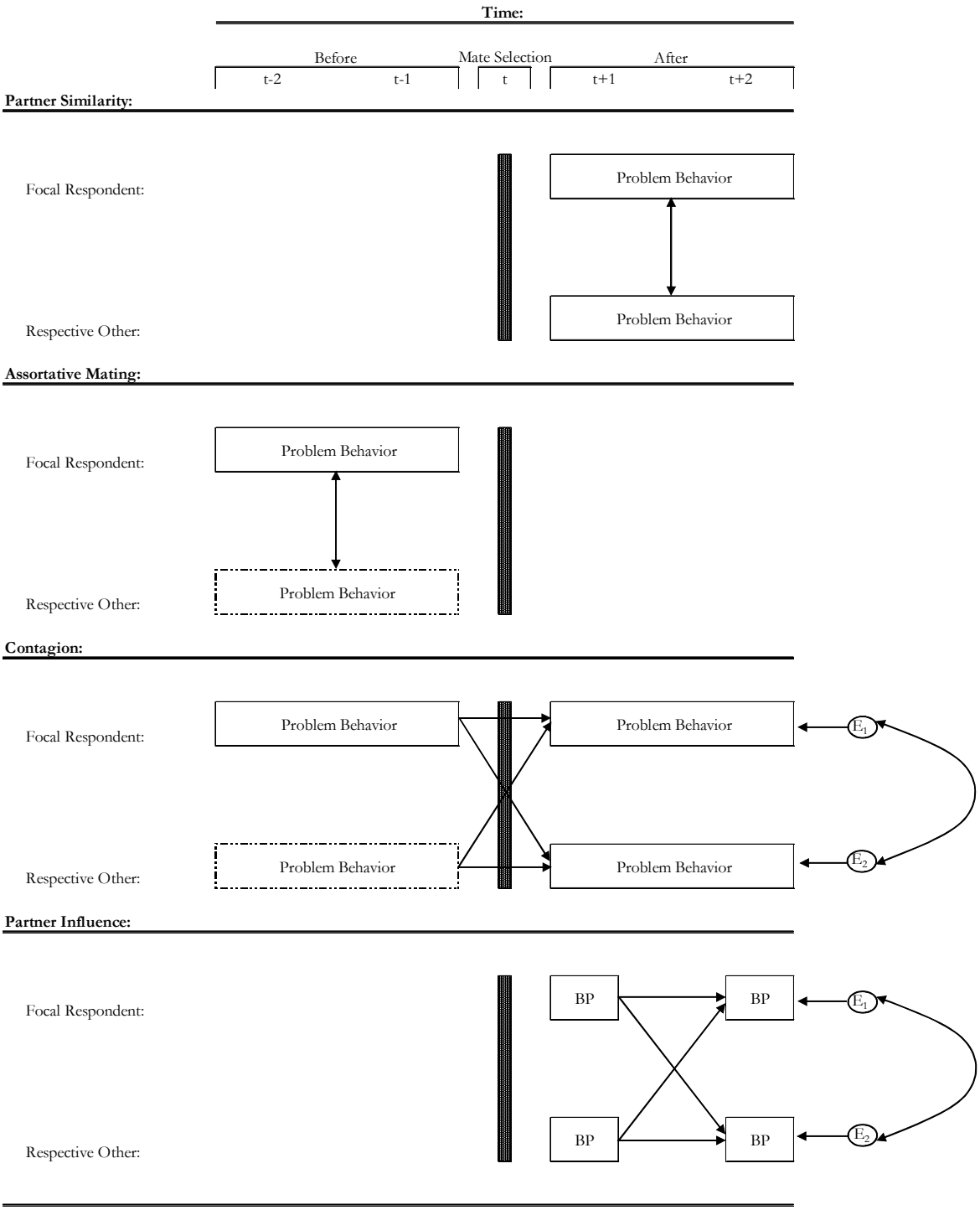
Purpose. The goal of this fifth overarching research question is to compare all of the finding from the dissertation to determine which mechanism—assortative mating, contagion, or partner influence—is primarily responsible for partner similarity.

Hypothesis 5. The similarity between focal respondents and their respective others is best explained by partner influence. That is, more evidence will be found for partner influence than for assortative mating. In addition, evidence for the contagion proxy will be stronger than the evidence for assortative mating but weaker than the evidence for partner influence.

Conclusion

It is unclear why individuals chose high-risk partners, a choice that is likely to have profound consequences. One explanation is assortative mating and, indeed, couples do appear similar in terms of their problem behaviors. However, the mechanisms responsible for partner similarity are unclear. Theoretically, assortative mating and partner influence are plausible explanations but, as the next chapter will show, these processes are often conflated and the research is methodologically weak. Five research questions were developed to address these limitations and, ultimately, findings push forward our understanding of mate selection, the etiology of problem behavior, and its consequences across the life course.

Figure 1-1. Model of Partner Similarity, Assortative Mating, Contagion, and Partner Influence for Problem Behaviors



Note:
Solid boxes represent prospective measures of problem behavior.
Dashed boxes represent retrospective measures of problem behavior.
All arrows indicate positive associations.

Chapter 2

Assessment of the Literature

Theoretically, assortative mating and partner influence are plausible explanations for partner similarity. It is important, however, to examine what the literature has shown so far. Unfortunately, finding clear evidence that distinguishes between these selection and socialization effects is virtually impossible because problem behaviors are dynamic and time-varying (Thornberry & Krohn, 2005). Despite good intentions, most studies assess some form of partner concordance, as a result of a methodological limitation inherent in these studies: the need to measure the behaviors of both individuals before mate selection takes place and, thus, before they are able to influence each other. However, it is nearly impossible to design a study that follows both members from adolescence into late adulthood because, at the initiation of a study, few adolescents know with whom they will mate (i.e., have a child).[5] This problem does not affect other studies that examine stable, time-invariant variables. For example, research has shown that, by and large, individuals positively assort on race (Kalmijn, 1998), which can be measured long before or after couples have met and does not change.

---

[5] The only exception found in the literature is the Simon et al. (2008) study of middle school couples all attending the same school. Data from a subsample of students (n = 78) who did not have relationships with each other during the first wave of data collection but who were later involved in romantic relationships at the second wave were used to estimate assortative mating. However, the study, like so many others, suffered from methodological limitations. Only 30% of respondents from the original sample were included, participants were very young, and the average length of relationship was 3 months. Moreover, findings from one school are not generalizable to the larger population.

The preferred design, to collect prospective data on both individuals in a dyad before mate selection, is nearly impossible to accomplish unless an entire population is studied. Alternative research designs could include (a) cross-sectional studies that collect data after mate selection, which at best measure concordance between dyad members but not assortative mating per se; (b) longitudinal studies that use prospective early data for the focal respondent collected before mate selection and prospective data for the partner collected after mate selection, although this measures only an indirect association between partners; (c) longitudinal studies that use prospective early data for the focal respondent collected before mate selection but rely on retrospective data for the mate collected after mate selection; and (d) studies that use official criminal records, which are intrinsically prospective but frequently biased and underestimate assortative mating.[6] Overall, the research designs can sidestep the methodological difficulty inherent in studies of assortative mating, but doing so involves methodological trade-offs that convolute the evidence for assortative mating for problem behavior. With this limitation in mind, the rest of this chapter presents a comprehensive literature review, organized into two primary areas: assortative mating and partner influence. Within each area, results are largely sorted by the studies' design (e.g., prospective vs. retrospective).

To conduct the literature review, the titles and abstracts of approximately 250 articles and books were screened from bibliographies, the Internet, and computerized databases. The social science subject area of CSA Illumina was used to search 27 databases, including PsycINFO, Sociological Abstracts, and Criminal Justice Abstracts. Key search terms included *assortative mating*, *homogamy*, *partner similarity*, *problem or antisocial behavior*, *crime*, *delinquency*, *alcohol use*, *drug use*, *marriage*,

---

[6] Data collected from official records measure response to criminal acts rather than actual problem behavior, much of which is not recorded by the criminal justice system (Thornberry & Krohn, 2000). In addition, individuals (especially women) with a criminal record are less common and are often located at the extreme end of the problem behavior continuum.

romantic relationships, and *couples*. In total, 81 articles and books were deemed potentially relevant because they examined some form of partner similarity; they were obtained for further review. This strategy kept the search broad. However, 55 studies were eliminated because they (a) were older than 30 years, (b) relied on a single respondent to assess both members of the dyad's behavior, (c) measured only general personality or mild affective disorders, (d) sampled fewer than 25 respondents, (e) used a biased sampling strategy (e.g., treatment sample without controls, or snowball sample), (f) were review articles, or (g) were duplicate studies (with similar data already reviewed here). No qualitative studies were found. In the end, 26 studies were retained for in-depth review.

These studies were divided into four main types: (a) life-course studies that followed either community-based or high-risk adolescents through adulthood, (b) shorter school-based studies of adolescents, (c) marriage and substance-use studies, and (d) studies primarily using diagnostic interview schedules. Studies with diagnostic measures included community-based samples, treatment patients with matched controls, and designs involving twins and their spouses or parents. Many of the studies were longitudinal in design, but their analyses in publications were based on data collected from only one time point. Sample sizes ranged from 79 to 4,318 dyads. Often, studies used subsamples of dyads from larger, longitudinal studies. In such cases, attrition and selection issues potentially limit the generalizability of the findings. The types of dyads were usually some combination of young couples, cohabiting partners, spouses, and parents. Some 40 different types of problem behavior were measured—most commonly delinquency and/or crime, substance use, and psychiatric disorders. In some studies a broad construct of antisocial behavior was used that consisted of several indicators. Later in this text, these measures are reported simply as antisocial behavior (e.g., Capaldi, Kim, & Owen, 2008). Wherever possible, the specific measure of problem behavior is reported (e.g., prevalence of drug use).

The goal of most studies included estimating assortative mating. However, many studies simply measured partners' similarity at one time point, usually after marriage. Other strategies included correlating retrospective measures that assessed age of onset and were purported to have occurred before mate selection; however, the limitations of retrospective measures have been well documented (Yarrow, Campbell, & Burton, 1970). Some of the better estimates involved associations between one partner's adolescent and the other partner's adult measures, a method referred to in this text as a contagion proxy. The most comprehensive studies included estimates of (a) partner similarity, (b) assortative mating measured using the contagion proxy or retrospectively, and (c) partner influence. Findings from the three types of assessments are compared to determine whether partner similarity is a function of selection, socialization, or some combination of both. To paint the clearest picture possible while still being descriptively succinct, the following details are described whenever a specific study is discussed: sample size, participates' ages, relationship length, dyad type (e.g., dating couples, biological parents), study design (e.g., prospective or retrospective), type of data analyzed (e.g., self-reports, official records), analytic method (e.g., correlations, logistic regression), findings when significant, and statistical controls and gender differences if reported.

The following six sections of this chapter summarize the findings related to assortative mating only. Studies are organized by their design features (i.e., studies with prospective or retrospective measures, studies comparing data from different developmental stages, studies without controls for social homogamy, studies of partners' parents' history of alcoholism, and studies comparing heterotypic behavior). Descriptions of these studies are often shorter than descriptions in the subsequent section on partner influence because the analyses are generally less complex (e.g., correlations).

Assortative Mating

This section corresponds to Research Question 2, which asks whether focal respondents' adolescent problem behaviors (measured prospectively before mate or partner selection) positively correlate with their respective others' adolescent problem behaviors (measured retrospectively after mate or partner selection), controlling for social homogamy (i.e., demographic factors) and, if so, in what direction and how strongly? This research question involves examining studies that relied only on prospective data for one mate and retrospective data for the other (see the second section of Figure 1-1).

Studies with this design can compensate for the inherent inability to measure the behaviors of both individuals before mate selection, as discussed previously. Methodologically, this design is perhaps the strongest for estimating assortative mating, given that problem behaviors vary over time and are susceptible to the influence of others. Unfortunately, none of the studies examined assortative mating with this type of data. This means that no studies used the best possible design and evidence for assortative mating is further limited, which is surprising because such a design is feasible.

Although evidence was not available to answer the first research question, 25 of the 26 studies assessed the similarity of partners' problem behavior after the couple had already met. All reported significant associations, which provides overwhelming support for partner similarity. However, this strategy is only a crude proxy for assortative mating because estimates are contaminated with the influence couples have on each other. With one exception (Simon, Aikins, & Prinstein, 2008), couples had already been together for some time when at least one partner's problem behavior was measured. Given that relationship length and age are generally correlated, findings from studies using somewhat older, established couples are even more muddled by partner influence effects. In contrast, studies with younger samples could minimize the inclusion of partner

influence effects, as those couples have had less time to influence each other. Next are findings from four prospective studies that represent young couples in relatively new relationships, listed from youngest respondents to oldest. Accordingly, Hypothesis 1b, the partner similarity hypothesis, is based on these findings.

Young Couples and Prospective Measures. Among the youngest couples, Furman and Simon (2008) estimated partner similarity in adolescent relationships of 3 months or longer in duration (n = 83 dyads,[7] mean age = 15, average relationship length = 11 months, standard deviation [*SD*] = 9.26) and, using the Achenbach Youth Self-Report, found significant concordance on externalizing (r = .23, $p < .05$[8]) but not on internalizing behaviors. With a slightly older sample, Capaldi and Crosby (1997) also found significant homophily among a young sample (n = 118, mean age = 18, average relationship length = 11 months), using a construct of prospective antisocial behavior that included official offenses, self-reported delinquency, and observed aggression (r = .44). These couples were in relatively less stable relationships; only 4% were married, whereas the rest were living together (26%) or dating (70%).

Krueger, Moffitt, Caspi, Bleske, and Silva (1998) used the Dunedin sample to study assortative mating among 360 young adult couples (mean age = 21) in long-term relationships (average relationship length = 26 months, 48% married or cohabiting). To reduce measurement error, confirmatory factor-analytic models estimated the similarity of partners on three indices of antisocial behavior. Results indicated that couples were highly assorted on self-reported antisocial behavior (.54) and peer delinquency (.54). Dyads were only moderately assorted on five attitudinal

---

[7] All samples sizes represent dyads (e.g., a sample of n = 83 dyads involves 166 individuals).

[8] All correlations are significant, $p < .05$. To save space, specific p-values are not reported. Likewise, 95% confidence intervals are not reported.

measures of the consequences of antisocial behavior (average $r = .32$). Even less assortment was found on two personality correlates of antisocial behavior, negative emotionality (.17) and constraint (.13).

Last, Leonard and Mudar (2003) estimated partner similarity among relatively older, newlywed couples ($n = 519$, mean age = 27, median relationship length = 18 months) and found significant covariate-adjusted correlations on self-reported antisocial behavior ($r = .23$), depressive symptoms ($r = .13$), alcohol involvement ($r = .47$), and peer drinking ($r = .74$), but not on parental alcoholism. In summary, these four studies demonstrated significant partner similarity on a variety of problem behaviors and their correlates (e.g., peer delinquency and drinking, depression, attitudes, personality). Couples in relatively new relationships were examined, which minimizes partner influence confounds. Note, however, that relationships in adolescence and young adulthood are often short term and experimental (Haynie et al., 2005). The median age at first marriage in the United States is approximately 25 years for women and 27 years for men (Fields, 2004). The mean age of mothers at first birth is in the range of 25 years (Mathews & Hamilton, 2002). Ultimately, estimates based on young couples may be of less consequence; these relationships are more likely to dissolve, and problem behaviors are subject to maturational effects. Altogether, the findings indicate that partner similarity among samples of young couples is a common but imperfect proxy that demonstrates support for assortative mating.

Twin Studies and Retrospective Measures. In addition to using relatively young couples to prospectively estimate partner similarity, some studies used data from twins and their families, in which reliance on cross-sectional, retrospective measures was more common. Frequently, the goal of these studies was to improve heritability estimates; less attention was given to precisely estimating assortative mating. None of the twin studies reported the age of dyad members or relationship length. Nevertheless, findings from five twin studies are reported here because they constitute a

body of research that attempts to address assortative mating, primarily in the context of genetic studies.

Foley et al. (2001) reported similarity between parents' (n = 544) self-reports on lifetime prevalence of psychiatric disorders, specifically depression (2.4%, confidence interval [CI] [1.6, 3.9]), depression comorbid with paternal alcoholism (1.3%, CI [0.6, 2.3]), and heterotypic diagnoses of maternal depression and paternal alcoholism (1.5%, CI [0.8, 2.6]) or paternal simple phobia (1.4%, CI [0.7, 2.5]). Agrawal et al. (2006) also retrospectively measured female twins and their spouses on self-reported alcohol consumption (n = 2,897) and cigarette smoking (n = 914). Significant tetrachoric correlations were found for lifetime prevalence of nicotine dependence (r = .31), regular smoking (r = .30), alcoholism (r = .15), and regular drinking (r = .38). Likewise, Maes et al. (2006) found a significant tetrachoric correlation between twins and their spouses (n = 4318) on lifetime self-reported smoking (r = .38). Altogether, these studies demonstrate significant partner similarity, and their large sample sizes lend additional strength to the findings. However, because of their reliance on lifetime prevalence measures, they did not directly assess assortative mating per se.

These estimates would be more compelling if the authors had ascertained age of onset and could isolate reports of problem behaviors to adolescence only. Two such studies used this somewhat improved method. Taylor, McGue, and Iacono (2000) found significant parental correlations (using structural equation models) for retrospectively assessed, self-reported adolescent delinquency (n = 486; r = .23 and r = .35, for men and women, respectively).[9] In addition, Maes, Silberg, Neale, and Eaves (2007) found similarity between biological parents (using maximum-likelihood estimations of correlations) on retrospective measures of conduct disorder occurring

[9] Hicks, Krueger, Lacono, McGue, and Patrick (2004) also analyzed the data and found significant parental similarity on general vulnerability to externalizing disorder (r = .51, CI = .41–.61).

before age 18 (n = 920; r = .18). Although retrospective reports have their limitations, these two studies provide better estimates of assortative mating because they attempted to measure behaviors that occurred well before parents had met each other. In summary, these findings indicate that significant partner similarity was found on a variety of problem behaviors (including psychiatric disorders, substance use and abuse, and delinquency), all retrospectively measured before couples had met.

Contagion Proxy. A somewhat better method involves testing for an association between focal respondents' adolescent behavior and their respective others' adult behavior, referred to here as a contagion proxy (see the third section of Figure 1-1). The term contagion is used because behavior appears to be transmitted from one person to another, over time. The term proxy is used because some studies have estimated contagion to provide support for selection effects whereas other studies have estimated it to provide support for socialization effects. Ultimately, findings based on a contagion proxy demonstrate that partners are similar in terms of their problem behavior. They do not, however, tell us definitively whether selection or socialization effects are at play. Three studies that use the contagion proxy to find support for assortative mating are presented below. They correspond to Research Question 3a.

In their life-course study, Simons et al. (2002) assessed young couples (n = 236, mean age = 21, relationship length not reported) in continuing and exclusive romantic unions (56%), cohabiting partnerships (22%), or marriages (21%). Using self-report data, the focal respondents' adolescent delinquency was significantly correlated with an equivalent measure of their partners' adult criminal behavior (r = .30 and r = .47 for focal men and women, respectively). Structural equation modeling provided comparable results (.38 and .26). In a similar assessment of self-report data, Moffitt, Caspi, Rutter, and Silva (2001) reassessed the Krueger et al. (1998) sample of young couples (n = 360, relationship length not reported) but this time correlated the focal respondents' adolescent antisocial

behavior with their adult partners' past-year delinquency (r = .33 and r = .33), violence (r = .27 and r = .34), perpetration of physical abuse against focal respondents (r = .32 and r = .26), and criminal charges (r = .21 and r = .38) (all for men and women, respectively). Kim and Capaldi (2004) also reassessed Capaldi and Crosby's (1997) sample using a smaller subsample (n = 79, initial mean age = 21, mean relationship length = 4.5 years) of predominately married and cohabiting couples who remained together at their second and third waves of assessments. Using a multimethod, multiagent construct of antisocial behavior, the focal respondents' adolescent behavior significantly correlated with their partners' adult antisocial behavior (r = .23). In summary, these three studies provide support for the contagion proxy.

In a slightly different version of this technique, Quinton et al. (1993) assessed focal respondents and their partners (n = 319) in their midtwenties who were cohabiting for six months or more (using teacher reports and self-reports). They used a retrospective measure of their focal respondent's childhood conduct disorder and, using logistic regression, found that it was associated with having a deviant partner, prospectively measured in adulthood (odds ratio [*OR*] = 2.42, CI [1.39, 4.49]). Altogether, the four life-course studies provide support for the argument that birds of a feather flock together. Although using a contagion proxy to estimate assortative mating is limited by its reliance on measures assessed in different developmental stages, it is perhaps the best bet, given the research to date. Through prospective, longitudinal measures, these findings indicate that focal respondents' behavior is indeed related, albeit indirectly, to their partners' behavior on measures of delinquency, crime, violence, and physical abuse. As a result, the contagion hypotheses (3a and 3b) are based on these findings.

Social Homogamy. In the evidence presented so far, partners appear similar to each other on measures of problem behavior, whether reported early in the relationship, retrospectively, or in different developmental stages. However, assortative mating may not be the only mechanism

responsible for partner similarity. Perhaps couples share similar demographic characteristics or social environments that increase the probability for problem behavior. Research has shown significant evidence for social homogamy in general (for reviews, see Kalmijn, 1994, 1998; McPherson et al., 2001) which could potentially account for what initially looks like assortative mating on problem behavior. However, only seven of the cross-sectional studies and none of the prospective studies found for this literature review (n = 26) controlled for variables related to social homogamy (e.g., age, race, education, socioeconomic status, religion) in their analyses. When included, these variables tended to reduce but did not eliminate associations found between partners' problem behavior. For example, McLeod (1995) used logistic regression to examine a community-based sample (n = 586, age and relationship length not reported) and found significant concordance among spouses on retrospective, self-reported drug dependence (OR = 3.34). However, adding age and education controls reduced odds ratios from 3.34 to 2.50. Sakai et al. (2004) showed that, among a sample of parents with children in treatment who were matched with community controls (n = 357, mean age = 44, duration not reported), correlations of retrospective, self-reported substance dependence and antisocial personality disorder symptoms decreased but remained significant when adjusted for age and race (e.g., r = .40 to r = .38, r = .33 to r = .28, respectively). In summary, social homogamy is likely to inflate assortative mating estimates. Studies need to include demographic controls to disaggregate social homogamy from assortative mating estimates. As a result, Hypothesis 1a, which estimates social homogamy, is based on this finding.

Parents' History of Alcoholism. Related to social homogamy are studies on couples' family background characteristics. These studies did not measure assortative mating as it is defined here but are reported because they provide evidence that there is something similar in the backgrounds of individuals that brings them together. This proxy for assortative mating is not precise but provides an indirect measure of behaviors or characteristics that occurred well before

partners met. Altogether, four studies examined concordance on family history of alcoholism. Note, however, that dyad members reported on their parents' behavior (i.e., investigators relied on a single respondent); thus, results should be interpreted with caution. Among a sample of newlyweds (n = 416, mean age = 23, relationship length not reported), Boye-Beaman, Leonard, and Senchak (1991) used logistic regression to find a positive association between spouses' retrospective, self-reports of having an alcoholic parent, net of sociodemographic characteristics (OR = 1.38 and 1.46, for men and women, respectively). In addition, Gleiberman, Harburg, DiFranceisco, and Schork (1992) examined a community sample of spouses (n = 184, mean age = 40, relationship length not reported) and found significant retrospective associations between wives' self-reports of alcohol use and husbands' reports of mother's alcohol use (only x^2 = 15 reported), but correlations between both spouses' parental history of alcohol use were not reported. In summary, two studies found indirect support for partner similarity based on family history of alcohol use.

However, the following two studies did not find support for concordance on parental history. In a longitudinal study of male university students and employees (n = 327, mean age = 35, mean relationship length = 8 years) using logistic regression, Schuckit, Smith, Eng, and Kunovac (2002) did not find concordance on spouses' retrospective self-reports of parental alcohol-use disorders or major depression, net of sociodemographic factors. In addition, Leonard and Mudar (2003; n = 519; mean age = 27, median relationship length = 18 months) did not find a significant correlation on self-reported parental alcoholism. Overall, there is little evidence to suggest that couples assort on the basis of their parents' history of alcoholism; two studies found support, whereas two studies did not. Consider, however, that findings are mired by reliance on a single respondent's retrospective reports or results that report an indirect association (i.e., similarity between parent's and spouse's alcoholism).

Heterotypic Assortment. Findings regarding assortative mating based on the family's history of problem behavior are inconclusive. However, family background characteristics are often implicated in the continuity of problem behavior across the life course. Persistent problem behavior often starts in early childhood (Moffitt, 1997), sometimes as a manifestation of coercive parent–child interactions (Patterson, Capaldi, & Bank, 1991). Heterotypic continuity in problem behaviors (e.g., poor temperament in childhood, delinquency in adolescence, substance use in adulthood) may actually represent different expressions of the same latent trait over the life course (Sakai et al., 2004). Therefore, it is important to determine whether couples are assorting on behaviors that appear different but are similarly antisocial (e.g., finding an association between an individual's criminal behavior and his or her partner's drug use). The seven studies that examined heterotypic concordance are discussed in the following paragraphs.

Two prospective studies report significant heterotypic concordance. Kim and Capaldi (2004; n = 79, initial mean age = 21, and mean relationship length = 4.5 years) found significant heterotypic similarity between long-term partners' measures of antisocial behavior, depressive symptoms, and physical and psychological aggression using correlations and multimethod and multiagent constructs (r = .25-.56). With self-report data and structural equation models, Leonard and Mudar (2003; n = 519; mean age = 27, median relationship length = 18 months) found that, at marriage, husbands' alcohol involvement was associated with wives' peer drinking (.34), and vice versa (.25). However, antisocial behavior was not associated with either variable.

Five studies using retrospective diagnostic interviews examined heterotypic similarity, but only three found support for cross-concordance. Galbaud du Fort, Boothroyd, Bland, Newman, and Kakuma (2002; n = 519, mean age = 45, relationship length not reported) found that wives' depression was associated with husbands' antisocial behavior, net of other significant diagnoses and age (*OR* = 2.16, CI [1.11–4.19], using contingency tables). Using logistic regression, McLeod (1995;

n = 586, age and relationship length not reported) found that among lifetime and premarital diagnoses of anxiety, depression, and substance dependence, the only heterotypic concordance was between anxiety and substance dependence (adjusted *OR* = 2.05, CI [1.28, 3.38] and *OR* = 2.49, CI [1.51, 4.09], for wives' and husbands' risk, respectively). Foley et al. (2001; *n* = 544, age and relationship length not reported) assessed similarity on parents' lifetime prevalence of psychiatric disorders and found parental similarity on heterotypic diagnoses of maternal depression and paternal alcoholism (1.5%, CI [0.8, 2.6]) and of maternal depression and paternal simple phobia (1.4%, CI [0.7, 2.5]). Altogether, three studies found support for heterotypic similarity using retrospective diagnostic interviews.

In contrast, two studies did not find support for cross-concordance. Sakai et al. (2004) did not find evidence of heterotypic assortment among a sample of parents with children in treatment, who were matched with community controls (*n* = 357, mean age = 44, duration of relationship not reported). Among measures of conduct disorder, substance dependence, and antisocial personality disorders, as well as their respective symptom counts, significant homotypic correlations were found among both treatment and control parents (*r* = .16–.40), with only a few exceptions. However, heterotypic associations were no longer significant when multiple regression analyses controlled for homotypic behavior. Likewise, Low, Cui, and Merikangas (2007; *n* = 255, mean age = 40, average length of marriage = 14 years), using logistic regression analyses, did not find support for heterotypic, spousal similarity among substance use and anxiety disorders. In summary, only four of the seven studies that reported on heterotypic concordance found significant similarity between partners. Behaviors varied but were predominately retrospective measures of psychiatric disorders (including depression; anxiety; substance use; and phobic, conduct, and antisocial personality disorders). These findings indicate that the evidence for heterotypic assortment is minimal. It is unclear whether couples are more likely to assort on behaviors that appear different but are similarly

antisocial. Ultimately, there is not yet enough evidence to suggest that, within a couple, differences in the types of problem behavior committed by each partner actually represent two distinct expressions of the same latent antisocial trait. To further explore this research, the dissertation runs several heterotypic analyses.

Limitations: Different Types of Relationships and Definitions of Mates. Although support for heterotypic assortment was weak, other factors complicate the degree to which support for assortative mating could be found. For instance, the definitions of mates were often conflated, thus making it difficult to ascertain specific evidence for couples in different types of relationships, which ranged from adolescent couples to biological parents. In addition, relationship types ranged widely in each sample. For example, Simons et al. (2002) included dating, cohabitating, and married couples in their sample. Despite the broad use of the term *assortative mating*, the only studies that actually examined biological parents (mates, in the literal sense) were the twin and treatment-based designs (n = 4). Furthermore, Maes et al. (2007; age and relationship length not reported) was the only study to assess differences between biological and nonbiological parents. On retrospective measures of conduct disorder, significant correlations were found for twin families with both biological parents (n = 920; r = .18) but not for families with a nonbiological father (n = 94). Such distinctions are important because assortative mating (and its consequences) may be greater among couples who are parents or involved in some type of long-term relationship. Conversely, individuals with problem behaviors are more likely to become parents at a younger age (Thornberry, Krohn, Lizotte, & Smith, 1998) and less likely to attain supportive and stable relationships (Quinton et al., 1993). Sakai et al. (2004; n = 357, mean age = 44, relationship length not reported) found significantly higher correlations (using Fisher's Z transformation) on self-reported symptoms of antisocial personality disorder between biological parents who were no longer married than for married biological parents (coefficients not reported). Unfortunately, most studies (n = 12)

estimated assortative mating using marital samples. Thus, the degree to which antisocial individuals and antisocial parents, in particular, exhibit assortative mating may be underestimated. As a result, many of the dissertation analyses are disaggregated by dyad type.

Summary of Assortative Mating Findings. Several important findings emerge from the literature. Overall, assortative mating for problem behavior is substantial, if the definition of assortative mating is relaxed to include assessments of partner similarity based on (a) prospective measures among young couples in new relationships, (b) retrospective measures of lifetime prevalence, (c) retrospective measures of adolescent behavior, and (d) prospective measures of focal respondents' behaviors in adolescence and a prospective measure of the partners' behavior in adulthood (i.e., contagion proxy). Theoretically, an alternative (and perhaps methodologically better) examination would involve (e) correlating the focal respondents' prospective adolescent behavior with their partners' retrospective behavior, but unexpectedly, such studies do not exist. Surprisingly, (f) few studies control for social homogamy in their estimates; those that do reduce but do not eliminate assortative mating associations. In addition, (g) similarity on parents' history of alcoholism is not evident, and (h) support for heterotypic assortment is minimal. Last, (i) assortative mating may be underestimated because problem individuals are underrepresented in marital samples.

On the whole, partners are similar on a number of problem behaviors (including delinquency, crime, substance use, and psychiatric disorders). Nevertheless, the methodological issues discussed earlier (i.e., the need to measure behaviors of both individuals before mate selection, the age and length of relationships commonly assessed, retrospective data, contagion proxies comparing behaviors in different developmental stages, studies without controls for social homogamy, minimal support for heterotypic similarity, and underrepresentation of antisocial individuals in marital samples) weaken the evidence for assortative mating theory.

However, assortative mating is just one of the possible mechanisms influencing partner concordance. After mating selection occurs, the relationship is either short lived, sometimes resulting in a child, or involves some type of ongoing partnership. The next section examines the extent to which the literature shows that partners are similar because they are able to influence each other over time.

Partner Influence

Despite several methodological issues, this review reports substantial similarity between couples on a variety of problem behavior measures. After the initial assortment, however, other mechanisms responsible for partner concordance include contagion and partner influence. Defined here, contagion is the unidirectional effect that one partner has on the other. Estimating it involves using measures from different developmental periods. For example, respondents' adolescent drug use is used to predict their partners' adult drug use. Although the influence is indirect (because the respondents' behavior is measured well before they meet their partners), it has the advantage of isolating unidirectional effects. Findings regarding contagion were described earlier because several studies used estimates of contagion as a proxy for assortative mating. To review, four studies provided support for the contagion proxy on a number of measures, including delinquency, crime, violence, and physical abuse.

Partner influence, in contrast, is the bidirectional effect that occurs when both partners influence each other (see the fourth section of Figure 1-1). This distinction is important because mates will appear more similar than they actually were before mate selection. Sorting out these effects is essential to fully understanding the consequences of mate selection. Therefore, in addition to examining how problem behavior influences mate selection via assortative mating processes, a second goal of this Chapter is to consider how couples, through partner influence processes, affect each other's problem behavior trajectories once mate selection has occurred. Findings from the

literature correspond to Research Question 4, which examines, after mate or partner selection, the effect that focal respondents' adult problem behaviors (measured at Time + 1) have on their respective others' adult problem behaviors (measured at Time + 2), controlling for their respective others' prior problem behaviors (measured at Time + 1)—and conversely for respective others?

After examining the literature, no studies of partner influence using the definition described in this research question were found. Prospective longitudinal data on both partners over several time periods is rare, which means that establishing temporal order is difficult and our ability to interpret the causal direction of influence is reduced. However, 15 studies indirectly estimated partner influence, each using one of four methods: (a) 3 studies used prospective longitudinal data to estimate time-lagged, cross-partner associations; (b) 2 longitudinal studies assessed concurrent associations between partners' behavior after mate selection while controlling for prior problem behavior; (c) 2 studies examined prospective, cross-sectional data; and (d) 8 retrospective studies estimated the extent to which similarity increased over time. The findings from the 15 studies are outlined in the following section. For each study, the assortative mating (loosely defined) findings are summarized. Then, estimates for influence are described. Finally, the mechanisms most likely responsible for partner similarity—assortative mating, partner influence, or combinations of both—are discussed. Gender differences are discussed when reported.

Prospective Longitudinal Data. Three studies estimated time-lagged, cross-partner associations occurring after mate selection using prospective, longitudinal data. First, Kim and Capaldi (2004) found that partners of various types (n = 79, mean age = 21, mean relationship length = 4.5 years) were similar on adult antisocial behavior and depressive symptoms, as well as on a number of other heterotypic characteristics, using multimethod and multiagent data. In addition, the authors used hierarchical regression models to estimate heterotypic partner influence. Controlling for other behaviors, female partners' depressive symptoms (but not antisocial behavior)

at Time 1 (T1) significantly predicted male focal respondents' psychological (but not physical) aggression toward her at Time 2 (T2; $b = .24$, $p < .05$). In addition, a significant, negative interaction term was found between the partners' T1 antisocial behaviors ($b = –.27$, $p < .05$). Her T1 antisocial behavior influenced his T2 psychological aggression toward her when his T1 antisocial behavior was low but not when his T1 antisocial behavior was high. His behavior at T1 did not influence her behavior at T2. In a follow-up study (Capaldi et al., 2008), female partners' antisocial behavior also significantly predicted male focal respondents' arrests.[10] Overall, these findings suggest that women can, at times, influence the psychological aggression and criminal behavior of their male partners over time.

Second, Leonard and Mudar (2003) used prospective data ($n = 519$, mean age = 27, median relationship length = 18 months) to fit structural equation models and found significant associations between newlywed spouses on T1 self-reported alcohol involvement at the beginning of marriage (.46). In addition, husbands' T1 alcohol involvement predicted their wives' T2 alcohol involvement 1 year later (.15) but to a lesser extent. Here, men, but not women, influenced their partners' behavior.

Using a different method, the third study estimated time-lagged associations using data collected before and after mate selection, which is similar to the way that a contagion proxy is assessed. However, the findings are described here because it is the only study in which data were collected before couples actually met and, more important, because findings for influence are

---

[10] In this follow-up study (Capaldi et al., 2008), using data from a 12-year period ($n = 119–158$, mean age range: 18–28, mean relationship length: 49–216 weeks, depending if Wave 1–5), female partners' T1 antisocial behavior significantly predicted male focal respondents' T2 arrests (counts and prevalence within a 1-year period), net of arrest history, deviant peer associations, age, attachment to female partner, both partners' substance use and depressive symptoms, and relationship stability. The relationships held even when models were run separately for men at risk for persistence (i.e., with at least one arrest at T1) and for men at risk for onset in young adulthood (i.e., with no prior arrests at T1).

stronger than for assortative mating. In more detail, Simon et al. (2008) prospectively studied adolescent couples (n = 79, age not reported, mean relationship length = 13.63 weeks, SD = 19.10) in one middle school, Grades 6–8. The only measure that couples positively assorted on (as shown by assessing intraclass correlations at T1 before dating) was self-reported sadness (r = .38). However, for peer-rated sadness (b = .52, p < .01), relational aggression (b = .29, p < .01), relational victimization (b = .25, p < .05), and self-reported depression (b = .23, p < .05) (but not physical aggression and physical victimization), hierarchal regression models found that significant interactions between adolescents' T1 and their partners' T1 behavior predicted adolescents' later T2 behavior, but only when their partners' T1 behavior was high. Overall, this finding suggests little assortative coupling, but significant (though indirect, as couples did not know each other at T1) influence effects; adolescents who were initially low changed more as a result of their partners' behavior. Gender differences were not examined.

In summary, findings from these three prospective, longitudinal studies indicate that influence processes are at play on some but not all of the behaviors measured—women influenced men's psychological aggression and criminal behavior; men influenced women's alcohol use; and young adolescent couples influenced each other's sadness, depression, and relational aggression and victimization. However, none of the studies controlled for prior problem behavior.

In addition to the three time-lagged, cross-partner analyses, two additional studies estimated concurrent associations while controlling for prior problem behavior. First, Simons et al. (2002) fit structural equation models (n = 236, mean age = 21, relationship length not reported) and found that, for male focal respondents, self-reported adolescent delinquency predicted having an antisocial partner as a young adult (.38 contagion proxy). In turn, having an antisocial partner in adulthood predicted criminal behavior (.21). For female focal respondents, a similar effect was found (.26 and .45, respectively), but the coefficient for adult women was twice as large as that for men, which

suggests that romantic relationships exert more influence on women's criminal behavior. In addition, using ordinary-least-squares regression, a significant main effect of antisocial partner on criminal behavior was found for female focal respondents only (b = .44, t = 8.29), as was a significant delinquency × antisocial partner interaction effect (b = .23, t = 3.01). These findings show that the association between adolescent delinquency and adult crime is strong when women have antisocial partners.

Second, Moffitt et al. (2001) reported similar findings (n = 360, mean age = 21, relationship length not reported). As already discussed, evidence for assortative mating was found with a contagion proxy (r ranging from .21 to .38) among couples of various types. Then, using hierarchical multiple regression, partners' adult antisocial behavior predicted focal respondents' adult antisocial behavior, net of adolescent behavior, for both men and women (b = .33, t = 4.87 and b = .30, t = 5.29, respectively). However, an adolescent antisocial behavior × partners' adult antisocial behavior interaction effect occurred for women (b = .18, t = 2.25), but not men, again suggesting that the relationship between adolescent and adult antisocial behavior is stronger for women with antisocial partners. For men, there is continuity in their behavior regardless of their partners' behavior. In summary, findings from the two longitudinal studies add to the overall evidence that men are more likely than women to influence their partners, especially when their partners are antisocial in adolescence.

Prospective Cross-sectional Data. Just two studies included here used only prospective, cross-sectional data.[11] First, Haynie et al. (2005) analyzed Add Health (self-report) data on

[11] Arguably, the studies estimated partner similarity rather than partner influence but are still described in this section because they are the only prospective, cross-sectional studies that included regression and interaction models rather than correlations to estimate associations.

adolescents and their partners (n = 2945 and 1321, mean age = 16, mean relationship length = 9 months) using negative binomial regression. Although peers' delinquency had a stronger effect, romantic partners also predicted each other's delinquency for both minor (b = .1) and serious delinquency (b = .1) models, net of control variables associated with social homogamy (race, socioeconomic status, and family structure). When considering gender interactions, again, young men (but not women) influenced their partners' minor delinquency (b = 0.08).[12]

In the second study, Herrera, Wiersma, and Cleveland (2008) analyzed Add Health (self-report) data from the Romantic Pairs subsample (n = 1275, mean age = 22, relationship length not reported). Not surprisingly, their findings from hierarchal regression models show a positive association between partners' intimate partner violence (IPV) for both men and women (b = .20 and b = .28, $p < .001$, respectively). In addition, women's general violence was positively associated with their perpetration of IPV, but only for women in relationships with men who had perpetrated IPV against them (b = 2.79, $p < .01$). However, men's general violence was also positively associated with their perpetration of IPV, but only for men in relationships with women who did not perpetrate IPV against them (b = .40, $p < .01$). Overall, this study demonstrates the subtle but gendered nature of partner influence, at least in the context of partner violence. However, it is unclear whether violence is conditioned by partners' behavior and gender or, instead, whether assortative mating is at play. Altogether, results from the two prospective, cross-sectional studies should be interpreted with caution; the temporal order and direction of influence by gender is not clear.

---

[12] The coefficient b = 0.08 = 1 – (exp (.08)) = 8% means that each standard-unit-deviation increase in the male partner's behavior translates into an 8% increase in the female focal respondent's behavior.

Nevertheless, all seven prospective studies showed that partners are similar on problem behavior. The mechanisms responsible for concordance most likely include assortative mating, but partner influence, too, appears to play an important role (in sadness, depression, psychological aggression, relational aggression and victimization, minor and serious delinquency, crime, violence, IPV, and antisocial behavior). When considering gender, four of the seven studies provided evidence suggesting that, compared to women, men are more likely to influence their partners' behavior.

Retrospective Cross-sectional Data. In addition to the seven prospective studies already presented, eight studies examined partner influence using retrospective measures, and their strategies varied widely. However, all the studies in one way or another addressed the question of whether partners become more similar over time. Increased similarity, as a function of length of time spent together, was taken as evidence for partner influence. In summary, they all found support for assortative mating, but only one study reported support for influence.

Yamaguchi and Kandel's (1993) analytic strategy was similar to that of the studies presented earlier in their use of time-lagged, cross-partner estimates occurring after mate selection. However, the authors relied on retrospective measures collected after marriage that reported on behaviors occurring before marriage. Specifically, the authors examined 545 husband–wife dyads (mean age = 29, average relationship length = 5 years) and initially found support for premarital assortment on self-reported illicit drug use (kappa = .34). Then, they compared (less conservative) log-linear and (more conservative) latent trait models (that controlled for individuals' latent predispositions for drug use). Results from the less conservative analyses revealed T1 similarity (.24; before marriage), even greater T2 similarity (.44; within the last year of marriage), and, last, marital influence of wives' T1 drug use on husbands' T2 drug use (.14)—all of which suggested support for both assortative mating and influence. However, results from the more conservative models did not provide support

for influence. Following up 5 years later with the same couples, Yamaguchi and Kandel (1997) essentially replicated their findings, looking at marijuana use only. Overall, the authors argued that assortative mating rather than marital influence accounts for partner similarity on drug use.

The third study, McLeod (1995), used logistic regression to examine a community-based sample (n = 586, age and relationship length not reported) and found significant concordance within marital couples with retrospectively diagnosed anxiety and alcohol or drug dependence (OR = 2.05–3.34). Similar analyses confined to behaviors reported to have occurred before marriage supported premarital assortment. In addition, analyses of parental and childhood risk factors predicting partners' psychiatric problems provided indirect support for assortment but not conclusively. Three different tests of marital influence were not significant. Overall, findings revealed more support for assortative mating than for marital influence.

In the fourth study, Maes et al. (2006), using retrospective prevalence data from twins and their families (n = 4318, age and relationship length not reported), found significant spousal correlations on self-reported smoking (r = .38) but ruled out spousal influence as a mechanism of similarity because the association between spouses was not mediated by duration of marriage (findings not reported). In the fifth study, Agrawal et al. (2006; n = 914 and 2,897, age and relationship length not reported) also fit twin models and found little support for marital influence using retrospective, self-report measures of substance abuse.

The sixth study, by Price and Vandenberg (1980), demonstrated concordance in married couples (n = 134, mean age = 44, relationship length not reported) on retrospective measures of self-reported drinking (r = .50) and smoking (r = .31), starting when spouses began dating. Here, spousal similarity appeared to be a function of length of marriage; hierarchical regression models predicted wives' alcohol consumption by adding a husbands' alcohol × length of marriage

interaction term (b = .68, p < .001), which suggested that husbands had more influence on their wives' alcohol consumption as years of marriage increased.

Only one study, Low et al. (2007), simply compared the behaviors of each spouse before marriage with lifetime measures (using diagnostic interviews, family reports, and case histories). With a cross-sectional, clinical, and matched community sample (n = 255, mean age = 40, average length of marriage = 14 years), the authors first used logistic regression models and found a significant association between spouses on substance-use disorders, net of controls (*OR* = 7.6, CI [1.9, 30.4]), but not on anxiety or heterotypic disorders. However, providing evidence for assortative mating rather than for marital influence, findings revealed that 87.3% of focal respondents and 80% of spouses had a diagnosis before marriage. In addition, the proportion of spouses' relatives (siblings or parents) with substance-use disorders was 35.1% for concordant couples, which was significantly different from couples with one (21.4%) or no spousal diagnoses (17.4%).

In the eighth and last study, Galbaud du Fort et al. (2002) asked pairs of spouses (or cohabiting couples) to complete the Diagnostic Interview Schedule to provide retrospective information on lifetime psychiatric symptoms (n = 519, mean age = 45, relationship length not reported). To measure spousal associations for psychiatric symptoms and disorders, they calculated odds ratios for prevalence from two-by-two contingency tables. Spousal similarity for juvenile behaviors included truancy (*OR* = 5.11, CI [2.66, 9.85]), lying (*OR* = 3.21, CI [1.43, 7.23]), early substance use (*OR* = 6.43, CI [3.15, 13.1]), vandalism (*OR* = 4.96, CI [.88, 27.8]), and childhood conduct disorder (CCD; *OR* = 4.02, CI [2.03, 7.96]). In adulthood, similarity was found for antisocial behavior (AAB; *OR* = 20.1, CI [5.97, 67.5]) but not for antisocial personality disorder (APD = CCD + AAB), which is a life-course measure of antisocial behavior from childhood through adulthood. Overall, spousal similarity was stronger for adult antisocial behavior than for

childhood conduct disorder, which indicates support for influence. However, additional analyses demonstrated that similarity in adult antisocial behavior and in child conduct disorder were independent of each other (i.e., the couples who were similar for juvenile symptoms were not the same couples similar for adult symptoms). Ultimately, the authors argued that assortative mating, rather than marital influence, was evident, because analyses from their larger sample revealed that having adult-only antisocial behavior was similar between married and unmarried individuals. Altogether, the eight studies provided more support for assortative mating than for influence on psychiatric disorders, substance use, and antisocial behavior. The only study to address gender suggested that husbands' alcohol use influenced wives' use over time. However, given these studies' reliance on retrospective measures, their findings have less weight.

Summary of Partner Influence Findings. At face value, the literature suggests that assortative mating, rather than partner influence or social homogamy, is the primary mechanism responsible for partner similarity. However, methodological limitations—namely the need to assess the behaviors of both individuals before mate selection and the reliance on retrospective, cross-sectional measures—affect the validity of this finding. All the cross-sectional, retrospective studies except one (Price & Vandenberg, 1980) supported assortative mating over influence (n = 8). Caspi and Herbener (1990, 1993), although not reviewed here because the authors measured personality rather than problem behavior, also found little support for influence (measured as similarity over time). They argued that couples may share a common reinforcement history, and if rewards and punishments are the same from one situation to the next (i.e., before and after marriage), then little change is expected. In contrast, all the prospective studies found support for partner influence (n = 7). As a result, Hypotheses 4a and 4b are based on these findings and posit the support for partner influence will be found. In addition, four studies suggested that men are more likely than women to influence their partner's problem behavior on measures of delinquency, crime, alcohol use, and

violence. However, research on gender-based partner influence effects is minimal. Therefore, my partner influence hypotheses do not make any guesses about gender effects.

The difference between retrospective and prospective results is a new and important finding that emerged only through this systematic review of the literature. Given that prospective data are generally better than retrospective data, prospective findings should be given more weight. Furthermore, partner influence processes can influence retrospective reports that are used to find support for assortative mating, thus making assortative mating effects appear stronger than partner influence effects. Conversely, influence processes do not affect prospective data collected before mate selection, because mates have yet to meet. Although Rhule-Louie and McMahon (2007) found support in the literature for assortative mating, partner influence, too, is recognized here as an important mechanism responsible for the concordance found between partners. This finding has been largely hidden or discounted by the literature because of a historical reliance on retrospective, cross-sectional designs. Research Question 5 addresses this issue directly. The dissertation uses prospective data to estimate partner influence and, as a result, I hypothesize that, overall, more support will be found for partner influence mechanisms.

Conclusion

The overall goal of this chapter has been to assess and integrate the empirical literature on partner similarity to determine whether, through assortative mating processes, an individual's mate selection influences his or her later problem behavior. As Chapter 1 illustrated, theoretically, the confluence of selection (i.e., assortative mating via structural, individual, and genetic factors) and socialization (i.e., partner influence via social learning and social control) processes, coupled with the developmental consequences of problem behavior over time (as proposed by interactional theory) helps explain partner concordance. However, the majority of the research did not empirically test theoretical explanations of assortative mating or partner influence. Barring the inclusion of basic

demographic variables to examine social homogamy (which received little support in this literature review), virtually no studies explored, for example, whether structural (e.g., socioeconomic status, ethnic heterogeneity) or individual (e.g., self-control, intelligence, decision making) factors best explain assortative mating on problem behavior. McLeod (1995) did examine childhood and adult risk factors but found little explanatory support for assortative mating, ultimately arguing that the mechanisms are diverse and complex. Theoretical tests of partner influence were a bit more prevalent, showing some support for both social learning and social control mechanisms (Capaldi et al., 2008; Haynie et al., 2005; Simons et al., 2002).

By and large, the goal of many studies was to ascertain evidence, in and of itself, for assortative mating or partner influence. Methodologically, however, the data were often conflated with other processes related to partner concordance, thus making it difficult to empirically assess the mechanisms and consequences of mate selection. Figure 1-1 illustrates how problem behavior measures should be temporally disaggregated and demonstrates that more is involved than simply finding an association between partners' concurrent problem behavior. As a result, a systematic review of the literature was conducted to disentangle the support for assortative mating, contagion, and partner influence process by paying special attention to how (retrospectively or prospectively), when (before or after mate selection), and what types of problem behaviors were measured. Findings from this literature were used to inform research questions and hypotheses.

Assortative Mating. The first part of the literature review corresponded to Research Question 2 on assortative mating and attempted to address the methodological problems inherent in the study of assortative mating by assessing the similarity between two individuals before they actually meet and thus before they are able to influence each other. Unfortunately, no studies examined assortative mating by correlating the focal respondents' prospective adolescent behavior with their partners' retrospective adolescent behavior. Nevertheless, assortative mating for various

problem behaviors is evident if the definition is relaxed to include concurrent, retrospective, and contagion proxies that actually measure partner similarity. Little similarity is observed on respondents' parental history of alcoholism, and support for heterotypic assortment is minimal. Few studies controlled for social homogamy, and those that did reduced but did not eliminate assortative mating associations.

Contagion. The second part of the this chapter, which corresponds to Research Question 3 on the contagion proxy, addressed two methodological issues by assessing the association between focal respondents' prospective adolescent behavior and their partners' prospective adult behavior. First, the contagion proxy has been used to estimate assortative mating. Although this strategy is limited because measures are assessed in different developmental stages, the use of prospective, longitudinal measures is an improvement on cross-sectional data. Second, contagion has also been used as a proxy for partner influence, as it has the added advantage of temporally isolating the unidirectional effects that one partner has on the other. However, the association is indirect because partners have yet to meet. Regardless of whether the contagion proxy is used to assess assortative mating or partner influence, prospective findings indicate that focal respondents' adolescent behavior is related to their partner's adult behavior on measures of delinquency, crime, violence, and physical abuse.

Partner Influence. The third section of the literature review, which corresponds to Research Question 4 on partner influence, was an attempt to address how partners affect each other's antisocial trajectory once mate selection had occurred. No studies were found, presumably because few had prospective longitudinal data on both partners over several periods and none controlled for prior problem behaviors. The influence that one partner had on the other, however, has been estimated using several different strategies and measures. All of the cross-sectional, retrospective studies except one supported assortative mating over partner influence. In contrast, all

the prospective studies found support for partner influence. Given the limitations inherent in the study of assortative mating and the fact that, in general, prospective data are better than retrospective data, partner influence is recognized here as an important mechanism responsible for partner similarity; this mechanism was previously hidden or discounted in the literature as a result of a reliance on retrospective, cross-sectional designs.

Methodological and Contextual Issues. Although this finding is an important and new addition to the literature—because results from studies were disaggregated and compared by their design features—other methodological and contextual issues affect the validity of the research on assortative mating and partner influence, as well. First, samples are rarely representative of the general population. Many studies use clinical samples or subsamples of larger studies, in which selection bias is evident. In addition, male respondents are often oversampled because they are more likely to commit problem behavior. Likewise, samples with responses from both members of the dyad are small, possibly because dyadic data are difficult and expensive to collect. Frequently (but not in studies included in this review), one partner is asked to report on the behaviors of both individuals, which results in inflated correlations and has a problem of shared-method variance (Lorenz, Conger, Simon, Whitbeck, & Elder, 1991). Respondents' perceptions are biased because they may project their own values and assume similarity (Jussim & Osgood, 1989).

Second, measurement issues make it difficult to compare findings. Problem behavior is a broad term used to encompass a spectrum of problem behaviors across the life course, including delinquent attitudes and peers, substance use, delinquent behavior, criminal justice involvement, intimate partner violence, and clinical diagnoses (anxiety, depression, conduct and adult personality disorders). Measurement techniques range from collecting self-reported general delinquency to retrospectively diagnosing psychiatric disorders and reviewing official criminal records. Likewise,

definitions of mates range from adolescent couples to biological parents. Few, if any, studies examine assortative mating among same-sex couples.

Third, contextual changes further complicate research. Over time, increases in educational attainment expand the network of potential partners (Kalmijn, 1998). College students, for example, are often geographically separated from their parents, thus weakening the family's influence on dating and marital choices (Rosenfeld, 2007). Other factors include changes in women's participation in the workforce, access to contraception, and average age at marriage. There have also been considerable changes in the importance of women's earning potential and their position in the marriage market (Sweeney & Cancian, 2004). Contextual issues such as these make it difficult to generalize from these findings because early research (e.g., in the 1950s) was different from that of today. Combined, these issues—generalizability, measurement, and contextual changes—make it difficult to assess findings and limit the understanding of assortative mating and partner influence.

Putting aside these methodological issues, the weight of the evidence for Research Question 5, which asks whether partner similarity is best explained by assortative mating or partner influence, leans towards partner influence mechanism. Fortunately, the goal of the dissertation is to improve upon the research found in the literature by disaggregating assortative mating and partner influence from partner similarity, while addressing many of the methodological problems listed above. The dissertation accomplishes this goal using a number of strategies outlined in the following methods chapter.

Chapter 3

Methods

The methods for the dissertation are described below, including details related to the data, sample, and measures. Specific aspects about the sub-samples, variables, analytic strategies, and power—that change based on a particular research question—are described at the beginning of each corresponding chapter, before findings are presented. This chapter begins with a description of Rochester Youth Development Study (RYDS) and the Rochester Intergenerational Study (RIGS).

Data and Sample

RYDS began in 1988 and is an ongoing longitudinal study of a randomly selected community sample of adolescents followed into adulthood. Male adolescents and students from neighborhoods with high arrest rates were oversampled because they are more likely to engage in high-risk behaviors.[13] This strategy resulted in a final panel of 1,000 students and their families, which included 73% (n=729) boys and 27% (n=271) girls. These adolescents were 68% African American, 17% Hispanic, and 15% White.

[13] Although the sample over-represents at-risk youth, the complete spectrum of the urban, adolescent population is represented in the study (see Farnworth, Thornberry, Krohn, and Lizotte, 1994). As such, a means for weighting each case to represent the initial population of seventh and eighth grades in the Rochester Public Schools is available.

Phases. Data from each RYDS focal respondent (G2[14]) and their primary caretaker (G1, who was usually the biological mother) were collected in three phases. In Phase 1, participants were interviewed at six-month intervals, starting in the spring of 1988 (Wave 1) until the spring of 1992 (Wave 9). At the first interview, the average age of students was 13.5. Due to funding issues, data collection stopped for two years but restarted for Phase 2 in 1994 (Wave 10) until 1997 (Wave 12). At Wave 12, the average age of focal respondents was 22 and 846 respondents were still being re-interviewed, yielding a retention rate of 85%. Krohn and Thornberry (1999) compared the participants retained with those not retained, and found no attritional differences. Data collection resumed again for Phase 3 in 2003 (Wave 13) until 2005 (Wave 14) to assess outcomes in adulthood (ages 29-31); 785 respondents were re-interviewed.

RIGS. The Rochester Intergenerational Study was implemented in 1999 to collect data from the third generation (G3) and their primary caregivers—the G2 biological parent and *other* caregiver, OCG. In many cases, the OCG is not the other biological parent. For example, many OCGs are grandparents or other close relatives who help raise the focal respondent's child when the biological parent is absent. Enrollment is ongoing and when original adolescent focal respondents (now adults) have their first biological child that has reached the age of two, they (i.e., G2, G3, and OCG) are eligible to participate in the study.

Combining the two studies, data are collected across three generations. Currently, the G2 parent, G3 child (age eight or greater), and OCG are interviewed annually.[15] In addition, archival data from schools, child protective services, and police are regularly collected. RIGS interview data

---

[14] The notational system of G1, G2, and G3 are used to refer to each successive generation.

[15] In Year 8, the study began interviewing only female OCG respondents.

from Year 1 (1999) through Year 8 (2006) for G2s and OCGs, who either have a biological child with G2 or who are involved in a romantic relationship with G2, are analyzed for the dissertation. In addition, focal respondents' data collected in adolescence (Wave 1 to Wave 9) are also used. Data on OCGs' adolescent problem behaviors were collected retrospectively in Year 2 of the intergenerational study and, given that enrollment is ongoing, a number of OCGs have missing data (30%-39% depending on dyad type).[16]

Eligibility and Participation. Through Year 8, 583 (185 women and 398 men) of the 1,000 original RYDS focal participants had a child who was eligible to participate. Of these eligible participants, 489 (83%; 179 women and 310 men) agreed to participate. Eligible respondents were 74% Black, 15% Hispanic, and 11% White. At respondents' last wave of data collection, mean age was 36 and mean education level was 12 years.

Retention. Focusing on the focal respondents who entered the study in Year 1 (n=370), 97% (359 of 370) were retained in Year 8. Of the 114 families who entered the study between Years 2 and 7, 95% (n=108) were retained at Year 8. So, of the 484 families who entered the study between Years 1 and 7, 96% (n=467) were retained at Year 8.

Dyad type. Within the overall sample, G2 focal respondents and OCGs with whom focal respondents have a child or ongoing relationship (here after referred to as *respective others* for the dissertation) are categorized into three dyad types based on their relationship status (*mates*, *partners*, and *couples)* to explore differences that might result from how dyads are defined. Table 3-1 presents the sample sizes and criteria for the three types of dyads who have at least one wave of data (n=373

[16] Retrospective measures of OCG's adolescent problem behaviors were collected again in Year 10. These data are not yet available.

dyads altogether). Note that dyad types are not mutually exclusive categories. The criteria for the first sub-sample of dyads, *mates,* includes focal respondents and their respective others—if the respective other is the child's other biological parent (i.e., mates in the literal sense). Although the dyads in this sub-sample are the two biological parents of the child respondent, current relationship status is irrelevant; they are not necessarily (but could be) involved in an ongoing relationship. In some cases, these dyads formed a union that resulted in a child but not a stable partnership. The dyads for the second sub-sample, *partners*, include focal respondents and their respective others—if they are involved in an ongoing romantic relationship lasting six months or more. The respective other is not necessarily the child's biological parent (but could be) and includes, for example, stepparents. The third sub-sample, *couples*, consists of dyads where both individuals are the biological parents of the child and they are involved in an ongoing relationship with each other (i.e., the so called 'traditional family'). *Couples* are a subset of both the *mates* and *partners* categories. Ideally, two other dyad types, *just mates* and *just partners*, could be studied but there are not enough cases. (*Just mates* would have consisted of individuals who are the biological parents of the child but who are no longer involved in an ongoing romantic relationship at Year 1. Likewise, *just partners* would have included individuals who are involved in an ongoing relationship but do not have a biological child together.) Although *just mates* and *just partners* are not analyzed, the three other sub-samples, *mates*, *partners*, and *couples*, will be sufficient to explore differences that might result from how dyads are defined.

Over time, changes in who was interviewed as the *other caregiver* did occur. Of the focal respondents eligible for the dissertation analyses, 32 cases involved a change in *other caregiver* during the eight years of data collection. These cases are retained but analyses only include them for the years they met criteria for a given dyad type. Note, for example, that in an analysis examining *mates*, a focal respondent and his or her mate's data (the person with whom he or she had a child) are

analyzed. However, in another analysis on *partners*, that same focal respondent's data may be used but in conjunction with their current partner's data, who was later enrolled as the child's other primary caregiver. This strategy allows for the largest sample size possible.

Measures

Problem Behaviors. To test partner similarity, assortative mating, contagion, and partner influence hypotheses, self-report measures of delinquency and substance use are analyzed because they are valid and reliable, capture a wide range of problem behaviors, and are often predictive of more serious outcomes later in life course (Thornberry, Krohn, & Lizotte, 2003).[17] Questions were administered to assess participants' involvement in a wide range of problem behaviors. From these questions, several indices were created and analyzed to capture the full theoretical construct of crime, which is not one dimensional in structure or severity (Thornberry & Krohn, 2000). In total, 8 problem behaviors and related measures are tested. These data were measured using different: studies (RYDS or RIGS), developmental stages (adolescence or adulthood), methods (prospective or retrospective), and data collection periods (first year data were available or cumulative across waves). However, all measures are based on questions from the same basic inventory, the Self-report Delinquency Interview, are qualitatively similar, and have well-known validity (Thornberry, Krohn, & Lizotte 2003).

Ever-variety scores, which count the number of different types of delinquent acts the respondent reported having committed, are used for several reasons. First and foremost, they are needed to transform focal respondents' and respective others' adolescent measures into comparable

[17] Alternative measures of problem behaviors such as official offending are not used because they measure response to criminal acts rather than actual problem behaviors, much of which is hidden from the criminal justice system (Thornberry and Krohn 2000). In addition, individuals with criminal records are less common (especially for women) and are often located on the extreme end of the problem behavior continuum.

variables. Respective others are enrolled in the intergenerational study during adulthood and, therefore, prospective frequency scores on adolescent problem behaviors are not available for them. Instead, data on problem behaviors that occurred in adolescence were ascertained retrospectively in Year 2. These questions ask if, for example, the respective other had ever used marijuana and their age at first use. Focal respondents' adolescent measures, however, were collected prospectively, as are focal respondents' and respective others' adult measures; questions assess the frequency with which participants committed a wide range of problem behaviors in the interval between the previous and current interview. These problem behavior variables are converted to ever-variety scores to make respective others' and focal respondents' scores equivalent across all analyses. In addition to making variables comparable, ever-variety scores give equal weight to all delinquent acts and are less skewed than frequency scores, which give more weight to minor, more frequently committed crimes and give less weight to serious, less frequently committed crimes (see Krueger et al., 1998). However, a limitation of using ever-variety scores involves aggregating data and, therefore, less information is provided.[18] In addition, natural logarithmic transformations were conducted on all ever-variety scores. Doing so improves skew and better meets the distributional assumptions needed for many analyses (Osgood, Finken, & McMorris, 2002), especially those employing multiple imputation. Table 3-2 lists the study, measurement method, development stage, and data collection wave from which variables were derived for focal participants and their respective others by analysis type. The different indices are described below, and in most cases, they all serve as independent and dependent variables depending on the specific analysis.

---

[18] The original problem behavior variables could have been transformed into prevalence scores (i.e., binary variables) as well, but doing so involves even more loss of information.

Delinquency Measures. The *general offending* index includes 20 questions developed by RYDS about various offenses, ranging from minor (e.g., public rowdiness) to serious offenses (e.g., assault). To consider the severity of problem behaviors, the general delinquency index is broken out into the following three subscales. *Moderate offenses* include seven questions about less severe behaviors (e.g., driving under the influence, forging a check, or destroying property). *Street offenses* are comprised of 11 questions that are associated with urban youth (e.g., carrying a gun or selling drugs). Last, *serious offenses* consist of five questions that are more severe in nature (e.g., attacking someone with a weapon or stealing a car). This subset of measures was chosen because a broad range of problem behaviors can be assessed in terms of severity for both men and women, who often have different offending patterns. Street offenses were included because the Rochester sample is predominantly urban.

Substance Use Measures. Similarly structured are two substance use measures. *Problem drinking* is calculated by adding the responses of eight dichotomous (yes or no) questions (e.g., have you gotten into trouble at work, had problems with your health because of your drinking). *Drug use* measures marijuana and other illicit drug use.

Deviance Measures. Although deviant peers and beliefs are not behaviors per se, they are often highly correlated with a variety of problem behaviors (Matsueda & Anderson, 1998; Thornberry, Lizotte, Farnworth, & Jang, 1994) and are, therefore, included in many analyses. Measuring the extent to which respondents are involved with *deviant peers*, five questions assess how many friends (none, some, few, or most) have: done things that could get them in trouble with the police, carried a hidden gun, hit someone with the idea of hurting them, used drugs, or been drunk in a public place. (Chronbach's alpha averaged crossed each year of data collection for focal respondents is a=.88 for mates, a=.86 for partners, and a=.86 for couples; for respective others a=.82 for mates, a=.78 for partners, and a=.78 for couples.)

Deviant beliefs are examined by asking five questions about it being all right (strongly agree, agree, disagree, and strongly disagree) to: get around the law, cheat on income taxes, smoke marijuana, take things from work if nobody misses them, or hit another person when it will settle a problem. (Chronbach's alpha averaged crossed each year of data collection for focal respondents is a=.85 for mates, a=.85 for partners, and a=.87 for couples; for respective others a=.76 for mates, a=.81 for partners, and a=.81 for couples.) Respective others were not asked about deviant peers and beliefs (retrospectively) in adolescence and, as such, are not included in some analyses. (Note that natural logarithmic transformations are not needed for these variables and they are, at times, referred to in the text as *problem behaviors* but only when broad statements about all the variables are made.)

Control Variables. In many analyses, demographic variables are controlled, including gender, age, education level, and race and ethnicity (recoded into White, Black, Hispanic, and other/multiracial dummy variables). In addition, economic disadvantage in adulthood is assessed using a dichotomous variable indicating whether the adult respondent received public assistance or lived below the federally designated poverty line for a given family size. To measure adolescent economic disadvantage for focal respondents, an identical variable from parent data is used. For respective others, however, adolescent economic disadvantage (measured via parents) is not available and, instead, adult economic disadvantage is used as a proxy. To justify using adult economic disadvantage as a proxy for adolescent economic disadvantage, focal respondents' adult economic disadvantage (M=.66, SD=.47) and their parents' economic disadvantage (for which both measures are available; M=.67, SD=.47) are statistically related, x^2 (1, n=353)=6.96, p=.008).

Table 3-1. Sample Sizes for the Three Dyad Types Using One Wave of Data (N=373 Total Dyads; Men=291, Women=82)

	Dyad Criteria		Sub-sample Sizes		Focal Respondent's Gender	
Dyad Type	Biological Parents	Partners	Individuals	Dyads	Men	Women
Mates	Yes	Sometimes	710	355	290	65
Partners	Sometimes	Yes	434	217	158	59
Couples	Yes	Yes	388	194	153	41

Table 3-2. Problem Behavior Variables: Study, Measurement Method, Developmental Stage, and Data Collection Wave for Focal Respondents and their Respective Others by Analysis

Focal Respondents	Respective Others
Partner Similarity: ■ RIGS Data ■ Prospective Adult Problem Behaviors ■ Cumulative First 2 Waves Ages 25-30	Partner Similarity: ■ RIGS Data ■ Prospective Adult Problem Behaviors ■ Cumulative First 2 Waves Ages 25-30
Assortative Mating: ■ RYDS Data ■ Prospective Adolescent Problem Behaviors ■ Cumulative Waves 3-9	Assortative Mating: ■ RIGS Data ■ Retrospective Adolescent Problem Behaviors Age <18 ■ Measured in Year 2
Contagion (Focal Respondent to Respective Other): ■ RYDS Data ■ Prospective Adolescent Problem Behaviors ■ Cumulative Waves 3-9	Contagion (Focal Respondent to Respective Other): ■ RIGS Data ■ Prospective Adult Problem Behaviors ■ Cumulative First 2 Waves Ages 25-30
Contagion (Respective Other to Focal Respondent): ■ RIGS Data ■ Prospective Adult Problem Behaviors ■ Cumulative First 2 Waves Ages 25-30	Contagion (Respective Other to Focal Respondent): ■ RIGS Data ■ Retrospective Adolescent Problem Behaviors Age <18 ■ Measured in Year 2
Partner Influence (Men to Women): ■ RIGS Data ■ Prospective Adult Problem Behaviors ■ 1st Year Data Available Thru Year 8	Partner Influence (Men to Women): ■ RIGS Data ■ Prospective Adult Problem Behaviors ■ 2nd Year Data Available Thru Year 8
Partner Influence (Women to Men): ■ RIGS Data ■ Prospective Adult Problem Behaviors ■ 1st Year Data Available Thru Year 8	Partner Influence (Women to Men): ■ RIGS Data ■ Prospective Adult Problem Behaviors ■ 2nd Year Data Available Thru Year 8

Chapter 4

Assessing Contemporaneous Partner Similarity

Overview

The overall goal of the first research question is to assess the extent to which dyads are similar on contemporaneous measures, as purported in the literature (e.g., Capaldi & Crobsy, 1997; Krueger et al., 1998; Simon et al., 2002). The resulting analyses serve as a starting point for further investigation into assortative mating and partner influence processes. In addition, this chapter explores various demographic factors, problem behaviors, dyad types, and differences based on focal respondents' gender, as they relate to partner similarity. Note, however, that the term "partner similarity" is used broadly and refers to dyadic similarity among various types of couples. It does not refer specifically to the *partners* sub-sample. As such, the first research question for the dissertation asks the following. *Are focal respondents' demographic factors and adult problem behaviors correlated with their respective others' demographic factors and adult problem behaviors (all measured prospectively after mate or partner selection) and, if so, in what direction and how strongly?*

Method

Sample. To assess contemporaneous partner similarity, all three sub-samples were selected for analysis and two waves of data were used (n=306 for *mates*, n=149 for *partners*, and n=130 for *couples*). Separate analyses of all three dyad types were conducted to explore differences that might result from how dyads are defined, which is rarely studied in the literature. The criteria for these

dyad types are described in the methods' chapter (see Table 3-1) but recall that, due to sample size limitations and operationalized definitions, there is overlap among the dyad types. In addition, dyads were only included in partner similarity analyses if they had two or more waves of consecutive data when the focal respondent was between the ages of 25 and 30. To illustrate, the sample includes focal respondents at ages 25 and 26, 26 and 27, 28 and 29, *or* 29 and 30. For dyads with more than two waves of data, the earliest waves were selected. Although using only one year of data (i.e., the first year of available data due to ongoing enrollment) yielded the largest sub-sample sizes possible, the distribution of ages varied widely. In addition, the single-wave measures were often not significant because the prevalence of offending is generally low in adulthood and, as a result, the measures were less stable. Even though the sample sizes were smaller by using two waves of data, I was able to generate more stable measures and limit the sample to one developmental stage, adulthood, which is less commonly studied in the longitudinal, problem behavior literature. The limitation of this strategy is that the sub-sample sizes are reduced, especially among focal respondents who were young when they enrolled into the study (i.e., they had children early in the life course) and were at high risk for problem behaviors. Nevertheless, I was able to assess contemporaneous, adulthood partner similarity among the different dyad types using a multi-wave measure.

Measures. For this chapter's analyses, 6 measures of problem behaviors, 6 demographic variables, and 2 scales—delinquent beliefs and peers—were examined (for a total of 14 variables analyzed). A cumulative measure for each problem behavior was constructed by summing the respondents' scores across two waves of data. Only serious delinquency, street delinquency and alcohol problems were low in prevalence and, as a result, these variables were dichotomized (to none verse any). Economic disadvantage, originally an annual binary variable, was also summed across the two waves. The resulting variable indicates the number of years a person was

economically disadvantaged (and ranges from zero to two). Age was measured using the first wave of data. For education, delinquent beliefs, and delinquent peers, the highest scores across the two waves were used. The race and ethnicity measure was recoded into White, Black, and Hispanic dummy variables. Descriptive statistics for each dyad type are listed in Table 4-1 by focal respondents' and respective others' gender. The table shows that across all three dyad types, respondents are predominately Black and have approximately 12 years of education. Compared to men, women are younger and are more economically disadvantaged. Men are involved in more problem behaviors than women. Overall, many measures of problem behaviors have non-normal distributions, even though ever-variety scores and logarithmic transformations were used.

Analytic Strategy

To test the hypotheses related to partner similarity, the analyses are presented by focal respondents' gender. The sub-samples are separated this way for several reasons. First, men and women are different in terms of their prevalence and frequency of problem behaviors (Belknap, 2007). Given these baseline differences, women are more likely to pair with more antisocial men while men are more likely to pair with more prosocial women (Sakie et al., 2004). Second, prior analyses using the Rochester data show that focal male and female respondents are different in terms of their involvement in problem behaviors (Bjerregaard & Smith, 1993). Indeed, as Table 4-1 shows, male respondents report more problem behaviors and are older. Third, both types of respondents, focal participants and respective others, include men and women and both groups have measures of adolescent behaviors but focal respondents are measured prospectively whereas respective others are assessed retrospectively. Even though adolescent problem behaviors are not explored until later in the dissertation, separating the sub-samples by focal respondents' gender helps provide consistency to the analytic structure of the dissertation. Fifth, culturally-based power imbalances, which differentially shape men and women's mating preferences (Shackelford, Schmitt,

& Buss, 2005), antisocial behavior (Kandel, 1978), and the context of their romantic relationships (Haynie et al. 2005), should theoretically translate into gender differences in partner similarity and its related mechanisms.

As such, zero-order and partial correlations were run to test for partner similarity, first, between focal male respondents and their respective others and, then, between focal female respondents and their respective others for each of the three dyad types. Correlations were estimated in SAS (Version 9.2.). Demographic variables are included in all partial correlations to control for social homogamy. These analyses involve the primary variable of interest and six additional control variables for each gender.[19] Given that many of the measures are non-normal with relatively small sample sizes, correlations were run using not only Pearson's but also Spearman's and Kendall Tau's correlations. In preliminary analyses of the *partners* sub-sample, comparisons between the three types of correlations revealed that when findings were significant, the Pearson's correlation provided the most conservative estimates. Therefore, findings are presented using the Pearson's correlation, which also enables more direct comparability of findings across studies because it is most commonly used and because it does not require equal means and variances for estimates between men and women, who commit problem behaviors at different rates. Correlations between dummy variables (i.e., race and ethnicity and dichotomized problem behavior sub-scales) were also calculated using Tetrachoric correlations and Chi-Square estimates, but compared to Pearson's correlation they were more liberal. In addition, Tetrachoric correlations assume a latent

[19] Although dyads correlate highly on demographic variables, both individuals' demographic variables are included in all partial correlation analyses (D. Kenny, personal communication, November 11, 2010). Collinearity affects the measurement of the effects of covariates but not the measurement of the correlation between the two individuals.

normal distribution. Last, missing data is minimal (see Tables 4-1) but pairwise deletion is used for bivariate correlations and casewise deletion for partial correlations.

Power. Most analyses had adequate power to detect significant effects. For zero-order correlations with an alpha level at .05, Cohen (1992) suggests that medium effects (.30) can be detected with a sample size of 85 and large effects (.50) can be detected with a sample size of 28. For partial correlations analyses that include two to eight predictors, sample sizes should range between 67 (for two predictors) and 107 (for eight predictors) to detect medium (.15) and large effects (.35). In the analyses of female focal respondents and their respective others, sub-sample sizes ranged from n=34 dyads to n=57 dyads. Although these are small sample sizes, several analyses detected significant effects. Nevertheless, low power is a concern. Therefore, findings for male focal respondent and their respective others are presented first. Their samples sizes are much larger, thus more reliable. Then, findings for female focal respondents and their mates are explored but interpreted with caution. To be safe, general conclusions from this chapter are only based on the male focal subjects and their respective others.

Results

Male Focal Respondents and their Mates. The sub-sample for mates includes dyads that have had a child together; relationship status is irrelevant. The process whereby individuals within similar social groups are more likely to form relationships is referred to as social homogamy (Rhule-Louie & McMahon, 2007). To test the first hypothesis that social homogamy will be evident, zero-order correlations were estimated for demographic variables. Social homogamy findings for male focal respondents and their mates are presented at the top of the first column in Table 4-2. We see

strong evidence for the social homogamy hypothesis. There are significant correlations for all the demographic variables. Correlations by race and ethnicity are the strongest (r=.67 for White, r=.74 for Black, and r=.59 for Hispanic dyads).[20] Similarity based on race and ethnicity appears to be the predominate form of social homogamy and this finding is not surprising; other studies have found similar results (Fu & Heating, 2008; McPherson, Smith-Lovin, & Cook, 2001). Nevertheless, partner similarity for mates is also evident for education (r=.39), age (r=.26) and economic disadvantage (r=.35), as is found in prior studies (Blackwell & Lichter 2004; Kalmijn, 1998).

The second hypothesis for this chapter tests the extent to which partner similarity on problem behaviors is seen, evident by significant and positive partial correlations that control for social homogamy. Starting with the delinquency measures, we see a reasonable degree of partner similarity for focal respondents and their mates for general delinquency (r=.22) and for moderate delinquency (r=.21). Likewise, correlations are significant for deviant beliefs (r=.18) and for associating with deviant peers (r=.13). Interestingly, there is also evidence of heterotypic similarity, which is defined as similarity based on behaviors that appear different but are similarly problematic. The correlation between focal respondents' general delinquency and mates' drug use is significant (r=.14) as is the correlation between focal respondents' drug use and mates' general delinquency (r=.15). In contrast, correlations for the substance use indicators and for the more serious forms of delinquency, as reflected in the street and serious delinquency subscales, are not significant. Altogether, 6 of the 10 problem behavior correlations are significant with about a medium effect size for partial correlations (see Cohen, 1992), revealing a modest degree of partner similarity on general and moderate delinquency, deviant beliefs and peers, and heterotypic behaviors.

---

[20] All correlation coefficients reported in the text are significant at p<.05, unless otherwise reported.

Male Focal Respondents and their Partners. The findings on partner similarity for male focal respondents and their partners are presented in the second column of Table 4-2. Recall that partners are involved in an ongoing relationship; status as a biological parent is irrelevant. Again, the correlations for race and ethnicity are strongest (r=.69 for White, r=.75 for Black, and r=.57 for Hispanic dyads). Correlations are also significant for education (r=.40), age (r=.31), and economic disadvantage (r=.59). In sum, male focal respondents and their partners are similar on all demographic measures, providing support for social homogamy processes.

Turning to the problem behavior indicators for male focal respondents and their partners, only general delinquency (r=.24) and problem drinking (r=.31) are significant. However, several correlations approach significance, including moderate delinquency (r=.20), drug use (r=.20), and associating with deviant peers (r=.21), as well as the heterotypic correlation for male focal respondents' general delinquency and their partners' drug use (r=.18). In contrast, the more serious delinquency subscales, street and serious delinquency, are not significant. Likewise, deviant beliefs and the heterotypic correlation for male focal respondents' drug use and their partners' general delinquency are not significant. Interestingly, the correlation for street delinquency, and the other 4 correlations that approach significance, all have medium effect sizes (ranging from r=.15 to r=21). Altogether, there are 96 male focal respondents with partners. Recall that each partial correlation controls for 12 demographic variables (6 for focal males and 6 for focal females). It is possible that the correlations are not significant but have medium effect sizes because the analyses are slightly underpowered. Nevertheless, 2 of the 10 problem behavior correlations are significant and 6 approach significance which suggests at least partial support for the partner similarity hypothesis, especially for general delinquency and problem drinking.

Couples involving Male Focal Respondents. The findings on partner similarity for couples with male focal respondents are presented in the third column of Table 4-2. Recall that

couples include only the dyads who have had a biological child together and who are involved in a romantic relationship with each other (i.e., the so called traditional family). Again, all of the correlations related to social homogamy are significant. Race and ethnicity measures remain the strongest (r=.68 for White, r=.79 for Black, and r=.62 for Hispanic dyads), followed by education (r=.41), age (r=.39), and economic disadvantage (r=.63). Clearly, there is robust support for social homogamy.

Beginning with significant correlations on problem behaviors, couples with a male focal respondent are similar in terms of their general delinquency (r=.23), problem drinking (r=.32), drug use (r=.22), and heterotypic problem behavior (r=.22 for men's delinquency and women's drug use). Correlations for moderate delinquency (r=.20) and associating with deviant peers (r=.21) only approach significance but are well in the range for medium effect sizes. In total, 4 of the 10 problem behavior correlations are significant and 2 approach significance. Despite controlling for social homogamy, the findings provide reasonable evidence for partner similarity on problem behaviors, particularly for general delinquency, problem drinking, drug use, and heterotypic problem behavior.

Findings involving Male Focal Respondents across Dyad Types. The third hypothesis explores whether partner similarity on problem behaviors is different across the three sub-samples of dyads. Specifically, it was hypothesized that *couples* (i.e., individuals who had a child and stayed together) would have more significant (and, perhaps, stronger) correlations. Finding a statistical test to falsify this hypothesis proved difficult, given the overlap in dyads across the sub-samples (which is needed for power). However, visual inspection of the pattern of findings across the three dyads types reveals little support for this hypothesis—and *couples* do not have more significant correlations. First consider social homogamy. Table 4-2 shows no apparent differences across dyads on demographic correlations. Support for social homogamy is robust regardless of dyad type. Next,

consider problem behaviors. Dyads of all types are similar (if we count correlations that approach significance which seems reasonable given some of the smaller sample sizes) on general and moderate delinquency, deviant peers, and heterotypic behavior (for men's delinquency and women's drug use). Then, consider the correlations that never attain statistical significance. Across all the dyad types, none of the dyads are similar on the more serious forms of delinquency, as reflected in the street and serious delinquency subscales. This finding is not surprising; serious forms of delinquency are rare, and this is especially true in adulthood when involvement in even general offending is low. Last, consider the correlations that seem most different across the three dyad types. Of all the indicators, the greatest contrast is between mates and partners and between mates and couples on the substance use indictors. For focal males and their mates, the problem drinking and drug use indicators never attain statistical significance. In contrast, partners and couples with a male focal respondent have similar correlations for problem drinking (r=.31 and r=.32, respectively) and drug use (r=.20 and r=.22, respectively). Another interesting contrast is found for deviant beliefs. The correlation for male focal respondents and their mates is significant for deviant beliefs (r=.18). However, the correlations for partners and couples with male focal respondents are both near zero. Recall a defining criterion for the dyad types. The mates' sub-sample included dyads that did not always form long lasting unions, whereas the partners and couples sub-samples included only dyads that did form stable romantic relationships. Future research might explore the extent to which stable relationships are disrupted when both individuals are similar in terms of their deviant beliefs and, in contrast, maintained when both individuals are similarly involved in substance use and other addictive behaviors.

To summarize the findings across the dyad types, some differences appear to exist but there is not enough evidence to suggest that partner similarity operates differently for each of the dyad types. In fact, dyads are similar on several indicators regardless of dyad type, including: on social

homogamy, on general delinquency and its subscale, moderate delinquency, on deviant peers, and on heterotypic problem behaviors. Interestingly, mates are similar in terms of their deviant beliefs whereas partners and couples have similar problem drinking and drug use. Note, however, that these findings only apply to male focal respondents and their respective others.

Female Focal Respondents and their Mates. The findings on partner similarity for female focal respondents and their mates are presented in the first column in Table 4-3. To begin, race and ethnicity measures remain the strongest (r=.69 for Black, r=.89 for White, and r=.71 for Hispanic dyads), followed by education (r=.43) and economic disadvantage (r=.50). Note, however, the correlation for age is near zero. It is difficult to understand why female focal respondents and their mates are not similar in age when male focal respondents and their female mates are similar in age. Female focal respondents are younger than their respective others by about three years and, compared to male focal respondents, female focal respondents were significantly younger when they gave birth to their first child but only by about one year (n=306, t=2.33). Perhaps being younger on these two dimensions is related to age homogamy. Nevertheless, all of the other demographic correlations are strong and significant, revealing robust support for social homogamy.

Turning to the problem behavior indicators, there is little support for partner similarity for female focal respondents and their mates. Only one correlation, for deviant peers, even approaches significance (r=.26). None of the correlation coefficients for the other measures attain statistical significance. It is worth nothing, however, that the magnitude of many of the correlations (ranging from r=.12 to r=.20) are comparable to the size of the correlations for focal males and their mates. The smaller sample size for the focal females and their mates, n=57, may suggest problems with statistical power. No statistical support for partner similarity on problem behaviors is found for the female focal respondents and their mates.

Female Focal Respondents and their Partners. Next, consider the correlations for focal females and their partners, starting at the top of the second column in Table 4-3. As expected, most of the correlations related to social homogamy are significant. Race and ethnicity measures remain the strongest (r=.63 for Black, r=.78 for White, and r=.56 for Hispanic dyads), followed by education (r=.47) and economic disadvantage (r=.59). Interestingly, the correlation for age has a medium effect size but is not significant (r=.16). Otherwise, support for social homogamy is consistent.

Despite having a somewhat smaller sample size (n=49), support for partner similarity on problem behaviors for female focal respondents and their partners is evident. For the delinquency indicators, general (r=.48) and moderate (r=.54) delinquency is significant; serious delinquency is marginally significant (r=.29) and street delinquency is not significant but has a medium effect size (r=.25). For the substance use indicators, a correlation coefficient for problem drinking could not be calculated because the prevalence is zero for the focal female respondents. The correlation for drug use is significant and large (r=.43), as is the correlation for deviant peers (r=.46). For heterotypic similarity, the correlation for female focal respondents' delinquency and her partners' drug use is large and significant (r=.39) and the correlation for female focal respondents' drug use and her partners' delinquency is marginally significant (r=.31). Interestingly, all of the correlation coefficients are in the range of medium to large effect sizes, even the correlations that do not attain significance. Despite a small sample size and low power, the findings for focal females and their partners suggests that they are similar in terms of social homogamy and problem behaviors.

Couples with Female Focal Respondents. The findings on partner similarity for couples with a female focal respondent are presented in the last column of Table 4-3. Consistent with the other types of dyads, I find robust support for social homogamy, except on age. A familiar pattern

emerges, with race and ethnicity correlations being the strongest (r=.80 for Black, r=.88 for White, and r=.68 for Hispanic dyads), followed by education (r=.50) and economic disadvantage (r=.68).

For the couples with a female focal respondent, we see partial support for partner similarity on problem behaviors. There are strong significant correlations for moderate delinquency (r=.48) and deviant peers (r=.47). There are also marginally significant correlations for general delinquency (r=.39) and heterotypic problem behavior (r=.38 for women's delinquency and men's drug use). Despite not attaining statistical significance, almost all of the other correlations are in the range of medium to large effect sizes, except serious delinquency which has a correlation near zero. Overall, couples with a female focal respondent make up the smallest of the sub-samples (n=34). The partial correlations would need a large effect size to become significant. Clearly, low power is a problem. Even so, several correlations are significant which suggests that these dyads are probably very similar, especially on social homogamy, moderate delinquency, and associating with deviant peers.

Findings Involving Female Focal Respondents across Dyad Types. Recall that *mates* are biological parents, *partners* are romantically involved but are not necessarily biological parents, and *couples* include only romantically involved biological parents. For social homogamy, I find no apparent differences in correlations across the three dyad types. Social homogamy is evident regardless of the type of dyad. In contrast, for problem behavior indicators, we find differences in the size and significance of the correlation coefficients by dyad type but it is difficult to determine whether the variations are meaningful or whether issues associated with low power are at play. Interestingly, most of the correlations have a medium to large effect size, even when they are not statistically significant. If we consider just the effect size of the correlations, we find few differences across the dyad types. The only indicators that are drastically different are for street and serious delinquency. For these serious forms of delinquency, there is more evidence of similarity for partners than for mates, with couples somewhere in the middle. If we consider statistical

significance alone, there is still more evidence of similarity for partners than for mates and for couples but based on different indicators. Instead of the more serious forms of delinquency, we find that female focal respondents and their partners are statistically similar on general and moderate delinquency, drug use, deviant peers, and heterotypic problem behaviors (women's general delinquency and men's drug use) whereas the mates and couples are not.

To summarize the findings across the dyad types, some differences appear to exist but there is not enough evidence to suggest that partner similarity operates differently for each of the dyad types. In fact, most dyads have similar effect sizes, except on the more serious forms of delinquency. If differences do exist, partners stand out. Tentatively, partners are exhibiting more dyadic similarity than mates or couples. Note, however, that these findings only apply to female focal respondents and their respective others. Furthermore, these findings are purely exploratory and should be interpreted with caution. Additional research is needed using larger samples sizes.

Differences between Male and Female Focal Respondents and their Respective Others. The fourth and last hypothesis tests gender differences between male and female focal respondents and their respective others. Beginning with social homogamy, only one consistent difference is found. The only non-significant findings are for focal female respondents and their respective others on age. Across all three dyad types, correlations for age are not significant. In contrast, male focal respondents and their respective others are consistently and significantly correlated on age. Exploratory analyses were conducted to examine whether low statistical power was responsible. Using random samples of male focal respondents and their respective others, post hoc analyses found that all age correlations remained significant when the sample sizes were reduced (n=58, r=.36 for mates; n=50, r=.31 for partners; and n=35, r=.30, p=.08 for couples). These findings suggest that low power is probably not related to the differences seen in the correlations based on age. Even though correlations for age are not significant for focal females and their

respective others, all of the other correlations related to social homogamy are statistically significant and generally quiet strong, regardless of focal respondents' gender.

Turning to partner similarity, it was hypothesized that no differences would exist in terms of problem behaviors. Visual inspection of these correlations suggests few differences based on focal respondents' gender. The only obvious difference that appears between focal male and focal female respondents is for partners and couples on deviant beliefs. For couples and partners with male focal respondents, dyadic similarity for deviant beliefs is near zero. In contrast, for couples and partner with female focal respondents, correlations for deviant beliefs are larger (r=.27 and r=.29, respectively). Note, however than neither of these correlations attained statistical significance. Overall, the findings related to differences based on the gender of focal respondents leave us unsatisfied. The smaller sample size for female focal respondents and their respective others caused problems with statistical power. As a result, gender comparisons are unreliable.

Discussion

As reported in the literature (e.g., Capaldi & Crobsy, 1997; Krueger et al., 1998; Simon et al., 2002), dyads appear similar on a variety of problem behavior and related measures, which may have important implications for understanding the etiology and consequences of problem behaviors across the life course. The overarching goal of the dissertation is to determine if the similarity seen between dyads is due primarily to selection effects (via assortative mating processes) or socialization effects (via partner influence mechanisms). The purpose of this chapter was to determine if, indeed, dyads are similar in the Rochester sample. Doing so provides a launching point for further investigation into the effects responsible for the similarity often seen between dyads on problem behaviors.

To examine partner similarity, parents in the Rochester sample were disaggregated into three sub-samples, *mates*, *partners*, and *couples*. Zero-order and partial correlations described the degree to

which dyads are similar on a variety of demographic and problem behavior measures, as well as two deviance scales—deviant beliefs and peers. Four hypotheses were explored related to social homogamy, partner similarity, differences in partner similarity among the dyad types, and differences in partner similarity between male and female focal participants and their respective others.

Several important findings emerge. First, consistent with research on social homogamy in general (Blackwell & Lichter, 2004; Fu & Heating, 2008; Kalmijn, 1998; McPherson, Smith-Lovin, & Cook, 2001), demographic variables are strongly correlated in this analysis of the Rochester sample. Dyads of all types are similar in terms of race and ethnicity, education, and economic disadvantage. Similarity based on race and ethnicity is the predominant form of social homogamy, which is also congruent with other studies (Fu & Heating, 2008; McPherson, Smith-Lovin, & Cook, 2001). Most dyads are also similar in age, although female focal respondents tend to be younger than their male counterparts but only by a few years. Given that support for social homogamy is strong, these demographic variables were included as controls in subsequent analyses of partner similarity and will continue to be included in future analyses on assortative mating and partner influence. Doings so will ensure that social homogamy is disaggregated from tests of these effects and that estimates are not inflated. In other words, controlling for social homogamy will make certain that individuals are not just simply selecting into relationships with other individuals who share similar demographic characteristics or social environments that are, in and of themselves, often correlated with a variety of problem behaviors (Sampson and Groves, 1989).

Second, partner similarity is evident even after controlling for social homogamy. This general finding is noteworthy, in and of itself, because few studies of partner similarity control for social homogamy (but see McLeod, 1995, and Sakai et al., 2004, for exceptions). More specifically, however, I find partner similarity for several indicators of problem behaviors, including: general and moderate delinquency, some substance use indicators, deviant peers, and heterotypic problem

behaviors. Dyads are not similar on the more serious forms of delinquency. This finding is not surprising, given that serious forms of delinquency are less common, especially in adulthood when the prevalence for offending is generally low. Nevertheless, support found for partner similarity, overall, justifies exploration of the mechanism responsible for the similarity seen between dyads and the consequences of that concordance over time. Note, however, that these findings are based on male focal respondents and their respective others.

Third, some differences appear to exist across the dyads types but there is not enough evidence to suggest that partner similarity operates differently for each of the dyad types. Statistically testing differences among dyad types is not possible due to the overlap in sub-samples. This is unfortunate because research in this area is sparse. Conceptually, differences among dyad types make sense. Dyads in ongoing romantic relationships should be most similar because, theoretically, they either (1) successfully selected into relationships that have withstood the test of time or (2) have ample time over the life course to influence each other. Interestingly, *mates* are similar on deviant beliefs whereas *partners* are similar on substance use measures. Future research might explore both the extent to which having deviant beliefs disrupts the formation of stable relationships and the extent to which substance use and other addictive behaviors are mutually enabled in long-term unions.

Fourth, gender differences between male and female focal respondents were difficult to test because the sample sizes are much smaller for female focal respondents and their respective others. For many correlations, coefficients are similar in magnitude but different in statistical significance. Clearly, statistical power was a problem when analyses were conducted on just the female focal respondents and their counterparts. As a result, gender comparisons are unreliable. Differences based on focal respondents' gender were expected because the men and women in the Rochester sample are different in prevalence and type of offending, the age of their partners, and whether they

are more or less likely to find a prosocial partner (given general baseline differences in problem behaviors). Subsequent analyses on assortative mating and partner influence will, therefore, continue to be separated by focal respondents' gender because the extent to which these processes operate differently for each gender has yet to be statistically tested and doing so make conceptual sense.

In sum, findings from this chapter on partner similarity demonstrate that future research on selection and socialization effects with the Rochester sample will prove illuminating. Even though some of the hypotheses were difficult to test statistically, results indicate that social homogamy, dyad type, and gender differences need careful consideration in subsequent analyses. Otherwise, analyses may conflate these effects and muddy the findings on assortative mating, contagion, and partner influence. A summary of this chapter's take-home messages is listed below.

Take-home Messages

- Preliminary analyses (available upon request) show that multi-wave, cumulative measures of problem behaviors provide a more stable measure than single wave measures, especially in adulthood when engagement in problem behaviors low.
- Although women are somewhat younger than their respective others, overall support for social homogamy is robust. Controlling for social homogamy in subsequent analyses is warranted.
- The partner similarity hypothesis is supported. Dyads are consistently similar in terms of their general delinquency.
- Significant but less consistent partner similarity is found for: moderate delinquency, substance use, deviant beliefs and peers, and heterotypic problem behaviors.
- Dyads do not appear similar on serious and street delinquency subscales.

- *Mates* are similar on deviant beliefs whereas *partners* and *couples* are similar on substance use but, overall, these findings alone are not enough to suggest strong differences in partner similarity by dyad type.
- Differences based on focal respondents' gender were expected but sample sizes involving just female focal respondents are too small to test statistically. Although visual inspection of the findings found few differences, low power may have yielded unreliable results.
- Findings are primarily based on male focal respondents and their respective others.
- To safeguard against conflating important findings, social homogamy, dyad type, and gender differences will need careful consideration in subsequent analyses.

Table 4-1. Descriptive Statistics for Partner Similarity Analyses

	Mates					Partners					Couples				
	n	Min	Max	Mean	Std	n	Min	Max	Mean	Std	n	Min	Max	Mean	Std	n	Min	Max	Mean	Std
	Black					Moderate					Black					Moderate				
Focal Male	248	0	1	0.69	0.46	348	0	2.77	0.76	0.80	99	0	1.00	0.65	0.48	99	0	2.71	0.70	0.76	95	0	1	0.65	0.48	95	0	2.71	0.69	0.77
Female Other	248	0	1	0.59	0.49	248	0	2.71	0.34	0.59	99	0	1.00	0.49	0.50	99	0	1.79	0.24	0.45	95	0	1	0.49	0.50	95	0	1.79	0.23	0.45
Focal Female	58	0	1	0.78	0.42	58	0	2.20	0.37	0.61	50	0	1.00	0.76	0.43	50	0	2.08	0.32	0.59	35	0	1	0.69	0.47	35	0	1.79	0.28	0.50
Male Other	58	0	1	0.72	0.45	58	0	2.89	0.52	0.75	50	0	1.00	0.74	0.44	50	0	2.89	0.45	0.73	35	0	1	0.71	0.46	35	0	2.89	0.52	0.74
	White					Street					White					Street				
Focal Male	248	0	1	0.12	0.32	248	0	3.56	0.37	0.71	99	0	1.00	0.15	0.36	99	0	3.56	0.30	0.67	95	0	1	0.16	0.37	95	0	3.56	0.31	0.68
Female Other	248	0	1	0.16	0.36	248	0	2.77	0.12	0.37	99	0	1.00	0.24	0.43	99	0	1.61	0.03	0.19	95	0	1	0.23	0.42	95	0	1.61	0.03	0.19
Focal Female	58	0	1	0.09	0.28	58	0	1.95	0.14	0.45	50	0	1.00	0.10	0.30	50	0	1.39	0.11	0.35	35	0	1	0.14	0.36	35	0	1.39	0.07	0.29
Male Other	58	0	1	0.07	0.26	58	0	2.71	0.32	0.69	50	0	1.00	0.10	0.30	50	0	2.48	0.28	0.64	35	0	1	0.11	0.32	35	0	2.48	0.34	0.72
	Hispanic					Serious					Hispanic					Serious				
Focal Male	248	0	1	0.19	0.39	248	0	2.77	0.08	0.33	99	0	1.00	0.20	0.40	99	0	2.77	0.07	0.35	95	0	1	0.19	0.39	95	0	2.77	0.07	0.36
Female Other	248	0	1	0.21	0.40	248	0	1.79	0.04	0.20	99	0	1.00	0.17	0.38	99	0	0.69	0.01	0.10	95	0	1	0.18	0.39	95	0	0.69	0.01	0.10
Focal Female	58	0	1	0.14	0.35	58	0	0.69	0.02	0.13	50	0	1.00	0.14	0.35	50	0	0.69	0.03	0.14	35	0	1	0.17	0.38	35	0	0.69	0.02	0.12
Male Other	58	0	1	0.14	0.35	58	0	1.79	0.07	0.28	50	0	1.00	0.12	0.33	50	0	1.79	0.05	0.27	35	0	1	0.14	0.36	35	0	1.79	0.07	0.32
	Age					Problem Drinking					Age					Problem Drinking				
Focal Male	248	25	29	25.63	0.93	248	0	4.03	0.26	0.64	99	25	29.00	25.91	1.15	99	0	4.02	0.25	0.69	95	25	29	25.88	1.13	95	0	4.03	0.25	0.70
Female Other	248	18	37	24.95	3.02	248	0	1.61	0.06	0.24	99	20	39.00	25.06	3.60	99	0	2.77	0.06	0.32	95	20	39	25.00	3.38	95	0	2.77	0.06	0.33
Focal Female	58	25	28	25.36	0.74	58	0	1.39	0.07	0.25	50	25	28.00	25.58	0.88	50	0	1.00	0.02	0.14	35	25	28	25.71	1.02	35	0	1.00	0.03	0.17
Male Other	58	22	45	28.62	4.02	58	0	2.89	0.17	0.48	50	22	38.00	28.90	3.91	50	0	1.61	0.13	0.38	35	22	38	28.37	3.66	35	0	1.39	0.11	0.33
	Economic Disadvantage					Drug Use					Economic Disadvantage					Drug Use				
Focal Male	241	0	2	0.54	0.70	248	0	2.48	0.53	0.64	97	0	2.00	0.74	0.77	99	0	2.48	0.52	0.65	93	0	2	0.73	0.77	95	0	2.48	0.50	0.64
Female Other	248	0	2	1.44	0.80	248	0	2.20	0.18	0.42	99	0	2.00	1.18	0.87	99	0	1.39	0.11	0.31	95	0	2	1.19	0.88	95	0	1.39	0.09	0.25
Focal Female	58	0	2	1.03	0.90	58	0	1.79	0.25	0.51	50	0	2.00	0.98	0.91	50	0	1.39	0.17	0.42	35	0	2	0.86	0.91	35	0	1.39	0.19	0.44
Male Other	58	0	2	0.69	0.80	58	0	2.08	0.37	0.59	50	1	2.00	0.68	0.74	50	0	2.20	0.31	0.56	35	0	2	0.63	0.81	35	0	1.79	0.34	0.55
	Education					Deviant Beliefs					Education					Deviant Beliefs				
Focal Male	245	8	18	11.78	1.53	230	1	3.60	2.13	0.54	99	8	18.00	11.77	1.55	86	1	3.20	2.01	0.53	95	8	18	11.76	1.55	82	1	3.20	2.01	0.54
Female Other	246	8	14	11.79	1.40	230	1	3.00	1.76	0.50	98	8	14.00	11.82	1.45	86	1	2.60	1.63	0.49	94	8	14	11.82	1.47	82	1	2.60	1.62	0.49
Focal Female	57	10	16	12.35	1.57	50	1	2.60	1.82	0.51	50	10	16.00	12.40	1.60	42	1	2.40	1.80	0.53	35	10	16	12.53	1.65	27	1	2.40	1.65	0.58
Male Other	58	8	18	11.85	1.44	50	1	3.00	2.00	0.53	49	9	18.00	12.20	1.62	42	1	3.00	1.96	0.53	34	9	18	12.10	1.48	27	1	3.00	1.94	0.53
	General Delinquency					Deviant Peers					General Delinquency					Deviant Peers				
Focal Male	248	0	4.76	1.22	1.12	245	1	4.00	2.03	0.87	99	0	4.76	1.06	1.07	98	1	4.00	2.07	0.89	95	0	4.76	1.06	1.08	94	1	4.00	2.09	0.90
Female Other	248	0	3.74	0.48	0.76	248	1	3.20	1.41	0.49	99	0	2.08	0.29	0.52	99	1	3.20	1.33	0.46	95	0	2.08	0.28	0.52	95	1	3.20	1.32	0.46
Focal Female	58	0	2.77	0.52	0.82	58	1	4.00	1.45	0.58	50	0	2.77	0.47	0.75	50	1	2.40	1.29	0.39	35	0	2.20	0.39	0.62	35	1	2.40	1.30	0.41
Male Other	58	0	4.09	1.01	1.06	58	1	3.80	1.94	0.85	50	0	4.09	0.85	1.09	50	1	3.80	1.78	0.78	35	0	4.09	1.00	1.14	35	1	3.80	1.84	0.85

Race and ethnicity dummy variables can be interpreted, for example, as 69% of the male focal respondents in the mates sub-sample are Black, 12% are White, and 19% are Hispanic. Only respective others have an "other" race and ethnicity category of which 5% are mates, 7% partners, and 8% couples.

Table 4-2. Partner Similarity for Male Focal Respondents and their Respective Others by Dyad Type

	Mates	Partners	Couples
Zero-order Correlations:			
Demographic/Social Homogamy			
Black	0.67 **	0.69 **	0.68 **
White	0.74 **	0.75 **	0.79 **
Hispanic	0.59 **	0.57 **	0.62 **
Education	0.39 **	0.40 **	0.41 **
Age	0.26 **	0.31 **	0.39 **
Economic Disadvantage	0.35 **	0.59 **	0.63 **
n =	248	99	95
Partial Correlations:			
Delinquency			
General	0.22 **	0.24 *	0.23 *
Moderate	0.21 **	0.20 †	0.20 †
Street	0.08	0.16	0.16
Serious	-0.06	-0.04	-0.04
Substance Use			
Problem Drinking	0.10	0.31 **	0.32 **
Drug Use	0.09	0.20 †	0.22 *
Deviant Beliefs and Peers			
Beliefs	0.18 **	-0.02	-0.01
Peers	0.13 *	0.21 †	0.21 †
Heterotypic Correlations			
Delinquency & Drug Use	0.14 *	0.18 †	0.22 *
Drug Use & Delinquency	0.15 *	0.15	0.12
n =	237	96	92

†$p \leq .10$, *$p < .05$, **$p < .01$. Partial correlations control for each dyad member's age, education, economic disadvantage, and race and ethnicity. Missing data reduces deviant beliefs and peers to n=211 and n=235 for mates, n=85 and n=95 for partners, and n=80 and n=91 for couples, respectively. Street delinquency, serious delinquency, and problem drinking are dichotomized due to low prevalence.

Table 4-3. Partner Similarity for Female Focal Respondents and their Respective Others by Dyad Type

	Mates	Partners	Couples
Zero-order Correlations:			
Demographic/Social Homogamy			
Black	0.69 **	0.63 **	0.80 **
White	0.89 **	0.78 **	0.88 **
Hispanic	0.71 **	0.56 **	0.68 **
Education	0.43 **	0.47 **	0.50 **
Age	0.06	0.16	0.20
Economic Disadvantage	0.50 **	0.59 **	0.68 **
n =	58	50	35
Partial Correlations:			
Delinquency			
General	0.18	0.48 **	0.39 †
Moderate	0.20	0.54 **	0.48 *
Street	0.03	0.25	0.12
Serious	0.00	0.29 †	0.05
Substance Use			
Problem Drinking	0.14	na	na
Drug Use	0.14	0.43 **	0.32
Deviant Beliefs and Peers			
Beliefs	0.17	0.27	0.29
Peers	0.26 †	0.46 **	0.47 *
Heterotypic Correlations			
Delinquency & Drug Use	0.15	0.39 *	0.38 †
Drug Use & Delinquency	0.12	0.31 †	0.14
n =	57	49	34

†$p \leq .10$, *$p < .05$, **$p < .01$. Partial correlations control for each dyad member's age, education, economic disadvantage, and race and ethnicity. Missing data reduces deviant beliefs to n=49 for mates, n=42 for partners, and n = 27 for couples. Street delinquency, serious delinquency, and problem drinking are dichotomized due to low prevalence.

Chapter 5

Assortative Mating

Overview

The central goal of Chapter 4 was to ensure that dyads are similar in terms of their contemporaneous adult problem behaviors. The findings overall demonstrate consistent evidence across dyad types for partner similarity on general delinquency and less consistent similarity across the different dyad types on moderate delinquency, substance use, deviant beliefs and peers, and heterotypic delinquency—all while controlling for social homogamy. Such support warrants further investigation into the mechanisms responsible for these findings. To that end, this chapter explores selection effects via assortative mating processes. As discussed in Chapter 1, assortative mating is defined as the nonrandom coupling of individuals based on their similarity—measured before having actually met. Theoretically, assortative mating may help explain why some individuals may chose high-risk partners, a choice that is likely to have profound consequences. Chapter 2 summarized the research on assortative mating but the literature is limited. Ultimately, estimating assortative mating is difficult due to a number of methodological issues. A primary goal of the dissertation is to push forward the research on assortative mating by exploiting the unique design of the Rochester study. Focal respondents have been followed from adolescence into adulthood, with a low attrition rate. Respective others are also prospectively studied across the adult years. Of particular importance, it is the only study to have retrospective measures on the respective others' adolescent problem behaviors. Methodologically, the Rochester study has the strongest design

feasible, given the inherent data collection issues associated with the study of assortative mating on problem behavior (e.g., problem behaviors change over time, partners influence each other, partner similarity and assortative mating estimates are conflated). In addition, the sample includes different types of couples—not just marital dyads, which underrepresent individuals high in problem behaviors. Capitalizing on these strengths, the second research question for the dissertation asks the following. *Are focal respondents' adolescent problem behaviors (measured prospectively) positively correlated with their respective others' adolescent problem behaviors (measured retrospectively), controlling for social homogamy (i.e., demographic factors) and, if so, in what direction and how strongly?*

Method

Sample. To assess assortative mating, all three sub-samples were selected for analysis, *mates* (*n*=355), *partners* (*n*=217), and *couples* (*n*=194). The criteria for these dyad types are described in the Methods' chapter (see Table 3-1). Unlike the sample selection criteria for Chapter 3, which required dyads to have at least two waves of data, all possible dyads were included in assortative mating analyses and this yielded the largest sub-sample sizes possible. For these analyses, the variability in the age distribution in adulthood was irrelevant because behaviors were measured during adolescence well before mate selection, when most respondents were in the same developmental stage.

Measures. For focal respondents, a cumulative and prospective ever-variety measure for each problem behavior was constructed by summing the respondents' scores across Waves 3 through Waves 9, which spans 3 ½ years from ages 14 to 18. The respective others enrolled in the intergenerational study during adulthood and, therefore, prospective data collected in adolescence are not available. Instead, problem behaviors that occurred in adolescence were ascertained retrospectively in Year 2. These questions ask if, for example, the respective other had ever used marijuana and their age at first use. Measures of adolescent problem behaviors were then created

when an incident occurred prior to age 18. For respective others the prevalence of street and serious delinquency was low and, as a result, were dichotomized.

Five problem behavior variables—general, moderate, street, serious, and drug use offending—were analyzed to test the assortative mating hypothesis. Unfortunately, the problem drinking, deviant beliefs, and deviant peers scales were not retrospectively collected for respective others, thus, are not included in analyses.

To control for social homogamy, variables for race and ethnicity and economic disadvantage were included in analyses. For focal respondents, parent-reported (G1) economic disadvantage is used to represent focal respondents' economic disadvantage during adolescence, which was measured by assessing whether the parent received public assistance or lived below the federally designated poverty level at any time during Waves 3 through Waves 7 (the last year measured). For respective others, adult economic disadvantage was used as a proxy for their adolescent economic disadvantage, which is not available, and it assessed whether they received public assistance or lived below the federally designated poverty level at anytime during their participation in the study. Education and age are not included because analyses examine variables related to adolescence only but they are included in tables for illustrative purposes. (See methods' chapter for more details about how these measures were created.)

Descriptive statistics are listed in Table 5-1 by focal respondents' and respective others' gender. Respondents are predominantly Black and, depending on dyad type, 58% to 68% of focal respondents' parents received public assistance or lived below the poverty level. Compared to female respondents, male respondents were generally involved in more adolescent problem behaviors (except for street delinquency where both means equal .51). As would be expected, many of the problem behavior variables are zero-inflated creating non-normal distributions.

Analytic Strategy

The analytic strategy to test the assortative mating hypothesis is nearly identical to the analysis plan used to test partner similarity, with just a few exceptions. First, adolescent rather than adult measures are used to examine similarity—before respondents had a chance to meet and, thus, before influencing each other. Second, as discussed above, age and education are not included (but are inherently controlled for) because analyses are isolated to one developmental stage, adolescence. As such, each analysis includes eight control variables. Third, missing data are handled using multiple imputation. Although missing data are minimal for control variables, recall that data on respective others' adolescent problem behaviors were collected retrospectively in Year 2 of the intergenerational study and, given that enrollment is ongoing, a number of respective others have missing data (30% of *mates*, 36% of *partners*, and 39% of *couples*). Multiple imputation is carried out using Proc MI and Proc MIANALYZE procedures in SAS. For each problem behavior analysis, 10 imputed datasets were created. Analyses were performed on each of the imputed datasets; the parameter estimates were then combined using procedures outlined by Yuan (2000).

Despite the differences in analytic strategy (i.e., using adolescent measures, excluding controls for age and education, and employing multiple imputation), as well as having a larger sample (because two waves of data are not needed), the general analysis plan in this chapter is the same as in Chapter 3. For each problem behavior, zero-order and partial correlations are run by dyad type and focal respondents' gender. Recall that Pearson correlations are used because they (1) do not require equal means and variances for men and women, who commit problem behaviors at different rates; (2) are most commonly used in the literature; and (3) provide the most conservative estimates (even for dichotomous variables).

Power. As discussed in the previous chapter, most analyses have adequate power to detect significant effects. In analyses of female focal respondents and their respective others, however, sub-sample sizes range from n=41 dyads to n=65 dyads. Although these are small sample sizes,

several analyses discovered significant effects. Nevertheless, low power is a concern. Therefore, findings for male focal respondents and their respective others are presented first. Their sample sizes are much larger and, thus, are more reliable. Then, findings for female focal respondents and their mates are explored but interpreted with caution. To be safe, general findings from this chapter are based only on the male focal respondents and their respective others.

Results

Male Focal Respondents and their Mates. Strong support for social homogamy was found in Chapter 2. It is assessed again in this chapter because the sample is slightly different and because the developmental stage changes (from adulthood to adolescence). Analyses for mates are presented at the top of the first column in Table 5-2. Recall that the mates sub-sample includes dyads that have had a child together; relationship status is irrelevant. Support for social homogamy is robust. Correlations for race and ethnicity are the strongest (r=.62 for Black, r=.67 for White, and r=.56 for Hispanic dyads)[21]. In contrast, correlations for adolescent economic disadvantage are smaller (r=.16). Recall that for respective others, adolescent economic disadvantage is not assessed retrospectively. Instead, adult economic disadvantage is used as a proxy, which may be reducing the size of the correlation. For comparative purposes only, a correlation for adult economic disadvantage is included in Table 5-2, revealing a stronger correlation (r=.46). Nevertheless, the adolescent economic disadvantage proxy is included in assortative mating analyses to maintain temporal order. Correlations for adult education (r=.26) and age (r=.26) are also significant. Note that the variables used for these correlations are also temporally out of order and are presented for illustrative purposes only. On the whole and regardless of which measures are used, social

[21] All correlation coefficients reported in the text are significant at p<.05, unless otherwise reported.

homogamy is evident for mates. As such, demographic variables are included in all assortative mating analyses to control for social homogamy.

By and large, the assortative mating hypothesis—that adolescent problem behavior would be correlated—is not well supported for mates, except for drug use. The correlations for delinquency, deviant peers and beliefs, and heterotypic problem behaviors are not significant. Note, however, that serious delinquency approaches significance (r=.11), but it was dichotomized due to low prevalence (as was street delinquency). Although support for assortative mating is not found for these measures, the correlation for drug use is significant with a medium effect size (r=.16). These findings indicate that mates do not generally assort on a variety of adolescent problem behaviors, except drug use. Net of social homogamy, male focal respondents and their mates are similar in terms of their drug use, prior to having met. Overall, assortative mating on drug use is evident.

Male Focal Respondents and their Partners. The findings on assortative mating for male focal respondents and their partners are presented in the second column of Table 5-2. Recall that partners are involved in an ongoing relationship; status as a biological parent is irrelevant. Again race and ethnic homogamy are strongest (r=.59 for Whites, r=.65 for Blacks, r=.50 for Hispanic dyads). Also, correlations are significant for education (r=.36), adult economic disadvantage (r=.56), and adult age (r=.55) but, as would be expected, the correlation for adolescent economic disadvantage is smaller (r=.22). Even though adolescent economic disadvantage involves the use of adult economic disadvantage as a proxy variable for respective others, it still has a significant medium effect size. By and large, these findings show that male focal respondents and their partners are assorting on demographic factors, which provides support for social homogamy for partners.

Turning to the problem behavior indicators for male focal respondents and their partners, support for assortative mating on drug use is found (r=.25), net of social homogamy. There is also a significant heterotypic relationship between male focal respondents' delinquency and their female

partners' drug use (r=.23). None of the delinquency correlations are significant. Even so, the size of the correlation for prevalence of serious delinquency is modest whereas the correlations are near zero for general, moderate, and street delinquency. Altogether these findings show that for partners only 2 of the 10 problem behavior correlations are significant, which suggests minimal support for the assortative mating hypothesis, except on drug use.

Couples with a Male Focal Respondent. The findings for couples with a male focal respondent are presented in the last column of Table 5-2. Recall that couples include only the dyads who have had a biological child together and who are involved in a romantic relationship with each other (i.e., the so called traditional family). Again, all of the demographic correlations are significant. Race and ethnicity remain among the strongest (r=.60 for Black, r=.67 for White, and r=.54 for Hispanic dyads) and although adolescent economic disadvantage is smaller, it is still significant (r=.21). Similarly, correlations remain significant for education (r=.42), adult economic disadvantage (r=.56) and adult age (r=.59). Altogether, support for social homogamy is robust for couples.

The correlations for problem behaviors show little support for assortative mating for couples with a male focal respondent. The only significant correlation is for drug use (r=.20) which net of social homogamy has a medium effect size. The effect size for heterotypic assortative mating (men's delinquency and women's drug use) is rather sizable, especially for a partial correlation, but it is only marginally significant (r=.21). All of the other correlations are near zero, except prevalence for serious delinquency (r=.15) which also does not attain statistical significance. In total, only one of the problem behavior correlations is significant and only one is marginally significant. These findings show that support for assortative mating is minimal for couples, except for assortative mating on drug use.

Findings involving a Male Focal Respondent across Dyad Types. A formal hypothesis did not speculate about differences in assortative mating among *mates*, *partners*, and *couples*. Recall

that *mates* are biological parents, *partners* are romantically involved but are not necessarily biological parents, and *couples* include only romantically involved biological parents. Even though these categories overlap, this section compares findings across the different types of dyads. Results show few differences across the three dyad types. Looking at Table 5-2, correlations appear somewhat weaker for mates on education, economic disadvantage, and age but differences in correlation sizes are small and probably trivial because all of the correlations are significant. Overall, consistent support for social homogamy is robust, regardless of dyad type.

Turning to the delinquency indicators, all of them are near zero except for serious delinquency which ranges from r=.11 to r=.19 across the dyad types. Nevertheless, serious delinquency, is low in prevalence and never attains statistical significance. In contrast, correlations for drug use are consistently significant across the different types of dyads. The correlation is slightly smaller for mates than for partners or couples, but the effect size for all three dyad types is in the medium range for partial correlations. Clearly, there is support for assortative mating on drug use, regardless of dyad type. The most notable difference across the dyad types is on heterotypic problem behavior (men's general delinquency and women's drug use). Mates have the smallest correlation of r=.11 which is not significant, partners have a larger correlation of r=.21 but it is only marginally significant, and couples have the only significant correlation of r=.23. The difference between partners and couples is probably trivial because the effect sizes are similar but the sample size for couples is slightly smaller. Altogether, there are few differences across the various types of dyads. When assortative mating is evident, it does not appear to operate differently based on specific types of dyads. Correlations for drug use are all significant and all have a medium effect size. Nevertheless, there is not yet enough evidence to suggest similarities or differences in assortative mating by dyad type. More research is needed to formally test this research question.

Female Focal Respondents and their Mates. The findings on assortative mating for female focal respondents and their mates are presented in Table 5-3. Starting with the results for focal respondents and their mates, we see strong support for social homogamy. Sure enough, race and ethnicity are the predominate forms of homogamy (r=.68 for Black, r=.78 for White, and r=.74 for Hispanic dyads). Interestingly, the correlation for adolescent economic disadvantage is near zero. The finding was unexpected and may be due, in part, to using a proxy variable for respective others (i.e., adult economic disadvantage instead of parents' economic disadvantage) and having a small sample (n=65). In addition, this finding may be related to baseline differences in economic disadvantage by gender. Due to disparities in education and occupational status, Kalmijn (1994) found that, in terms of economic disadvantage, men tend to marry down whereas women tend to marry up. By adulthood, however, mates are more similar in economic disadvantage (r=.43) as well as age (r=.38) and education (r=.39). Despite the non-significant finding for adolescent economic disadvantage, the weight of the evidence suggests substantial social homogamy for mates.

Turning to the problem behavior indicators, all of the correlations for female focal respondents and their mates are not significant except for the street delinquency subscale (r=.30). Note, however, that the prevalence of street delinquency is low and, as a result, was transformed into a dichotomized variable (none verse any) before calculating the correlation coefficient. Confidence in these findings would be improved if the sample size were larger.

Female Focal Respondents and their Partner. Next, consider the correlations for the focal females and their partners, which are presented in the second column in Table 5-3. Partners are involved in an ongoing relationship, but the respective other is not always the biological parent. As expected, most of the correlations related to social homogamy are significant. Racial and ethnic homogamy are the strongest (r=.63 for Black, r=.78 for White, and r=.62 for Hispanic dyads), followed by adult age (r=.52), education (r=.46), and economic disadvantage (r=.41). Again

adolescent economic disadvantage is not significant but, other than this, support for social homogamy remains strong and consistent for partners.

Despite having a smaller sample size (n=59), somewhat more support for assortative mating is found for partners than mates. The correlation for drug use is large and significant (r=.36) and the correlation for heterotypic problem behavior (women's drug use and men's delinquency) has a medium effect size and is marginally significant (r=.27). The effect size for prevalence of street delinquency is modest but does not attain statistical significance (r=.24). The correlation for moderate delinquency is also modest and nonsignificant but, surprisingly, it is in the wrong direction (r=-.22). Overall, however, statistical support for assortative mating for partners is evident for drug use, alone.

Couples with a Female Focal Respondent. The findings on assortative mating for couples with a male focal respondent are presented in the last column of Table 5-3. Consistent with the other types of dyads, I find robust support for social homogamy except on adolescent economic disadvantage. A familiar pattern emerges, with race and ethnicity correlations being the strongest (r=.82 for Black, r=.88 for White, and r=.73 for Hispanic dyads), followed by adult economic disadvantage (r=.55), age (r=.53), and education (r=.47). Other than adolescent economic disadvantage, support for social homogamy is evident for couples.

For couples with a female focal respondent, support for assortative mating is found for two indicators. The correlation for drug use is significant and large (r=.46), and a heterotypic correlation (women's drug use and men's general delinquency) is significant and modest (r=.32). The correlations for the prevalence of street (r=.23) and serious (r=.18) delinquency are also modest but never attain significance. Interestingly, the correlation for moderate delinquency is larger but the relationship is negative and only marginally significant (r=.33). In total, 2 of 10 correlations for problem behaviors are significant despite having the smallest sample size (n=41). Altogether, there

is some support for assortative mating for couples, especially on drug use and heterotypic problem behavior.

Findings involving Female Focal Respondents across Dyads. Recall that *mates* have a biological child together, *partners* are involved in a romantic relationship but do not always have a biological child together, and *couples* have a child together and are romantically involved. Even though these categories overlap, this section compares findings across the different types of dyads. For social homogamy, I find no apparent differences by dyad type. Almost all demographic correlations are significant, except adolescent economic disadvantage but this may be due to methodological issues (such as using a proxy and small sample sizes) and baseline gender differences in economic disadvantage (due to disparities in education and occupation status). Overall, social homogamy is evident across all types of dyads. For the problem behavior indicators, however, there are differences in the size and significance of some correlations by dyad type. Unfortunately, it is difficult to determine whether the variations are meaningful or whether issues associated with small sample sizes and low power are at play. Nevertheless, consider the correlations for drug use. Mates are not assorting on drug use (r=.03, *NS*) whereas partners and couples are exhibiting similar patterns consistent with assortative mating (r=.36 and r=.46, respectively). A similar picture emerges for the correlations on heterotypic behavior (women's drug use and men's general delinquency). Mates are not assorting on this type of heterotypic behavior whereas the correlation for partners is marginally significant (r=.27) and the correlation for couples is significant (r=.32). In contrast to these differences, the general pattern of correlations for general delinquency and its subscales is more similar than different.

To summarize the findings across dyad types, no differences in social homogamy were found, but some variability is apparent for the problem behavior indicators. However, there is not enough evidence to suggest that assortative mating operates differently for each of the dyad types.

If differences do exist, mates stand out because less assortative mating is found for mates on drug use and heterotypic behavior. Note that these findings apply to only female focal respondents and their respective others, are purely exploratory, and should be interpreted with caution. Nevertheless, the pattern of findings indicates that additional research using larger samples is warranted.

Differences between Male and Female Focal Respondents and their Respective Others. Again, a formal hypothesis did not address differences between male and female focal respondents and their respective others in terms of assortative mating. However, some interesting differences emerged. Beginning with social homogamy, one consistent difference is found. Correlations for adolescent economic disadvantage are significant for male focal respondents and their respective others but not for female focal respondents and their respective others. As discussed above, a number of issues may be implicated, including: a proxy variable, small sample sizes, statistical power, and gender disparities in economic disadvantage. Overall, there are more similarities than differences across the social homogamy correlations.

Turning to problem behaviors, first consider the delinquency indicators. There are no substantial differences by focal respondents' gender for the general and serious delinquency correlations. Correlations for prevalence of street delinquency, however, are near zero for male focal respondents and their respective others, whereas correlations are moderate for female focal respondents and their respective others. Moderate delinquency correlations are also near zero for male focal respondents and their respective others but, in contrast, are negative and have medium effect sizes for female focal respondents and their respective others. Note, however, that none of the delinquency correlations attained statistical significance.

Next, consider drug use. Regardless of focal respondents' gender, there are few differences, assortative mating on drug use is evident. However, if differences do exit, female focal respondents and their mates stand out because they are the only group with a near zero correlation on drug use.

In addition, correlations for partners and couples with a female focal respondent are somewhat larger. Last, consider heterotypic problem behaviors. Heterotypic correlations separated by focal respondents' gender are unique because they allow us to examine general gender differences (regardless of the focal respondents' gender). Interesting differences emerge. In adolescence, male delinquency is generally correlated with female drug use. In contrast, female general delinquency is rarely correlated with male drug use. Taken altogether, these findings suggest that, for the most part, women who were involved in drug use during adolescence have a respective other who was also involved in drug use, as well as general delinquency. This finding does not hold for men. They positively assorted with women involved in drugs but these women were not engaging in general delinquency when they were in adolescence. More research is needed to strengthen this argument and to explain why adolescent girls may be using drugs but do not appear to be involved in general delinquency.

To summarize the findings overall, differences in social homogamy and assortative mating based on focal respondents' gender are minimal. Results highlight gender differences in problem behaviors; in adolescence, female respondents were involved in drug use and male respondents were involved in drug use and general delinquency

Discussion

Analyses in Chapter 3 revealed that dyads are similar on some problem behaviors and related measures in adulthood. The aim of subsequent analyses is to determine if partner similarity is due primarily to selection effects (via assortative mating processes) or socialization effects (via partner influence mechanisms). The purpose of this chapter is to decide if, indeed, there is evidence for assortative mating in the Rochester sample, which would help explain at least some of the similarity seen in adult dyads on problem behaviors.

Assortative mating is defined as the nonrandom coupling of individuals based on their similarity—before having actually met. The idea that individuals are similar before having met (and, thus, before they have had a chance to influence each other) is critical to the definition of assortative mating. This is especially true for the study of assortative mating on problem behaviors because problem behaviors are often dynamic, time-varying measures. Studying assortative mating on behaviors that tend to vary across each developmental stage is methodologically challenging and few, if any, studies have done it particularly well. Collecting evidence for assortative mating is complicated, in part, by an inherent design issue—longitudinal research can prospectively study only one member of a dyad across the life course. As discussed in Chapter 1, prior studies on assortative mating have used a number of strategies to compensate for this limitation. However, short of studying an entire population, the best methodological strategy is to prospectively assess one member of a dyad while retrospectively assessing the other (and the validity of the statement is explored in Chapter 5). To my knowledge, no other research using this method has been published. Fortunately, the dissertation is able to capitalize on the Rochester design by combining data from both the original study and the intergenerational study to estimate assortative mating using this strategy; focal respondents' prospective adolescent behaviors are correlated with their respective others' retrospective adolescent behaviors. Consistent with the analytic strategy used in Chapter 3's assessment of partner similarity, social homogamy and assortative mating analyses involved estimating zero-order and partial correlations to examine the degree of similarity between dyads on 12 measures. In addition, results also explored differences in dyad type and focal respondents' gender.

Overall, four findings of particular importance emerged. First, social homogamy is evident. Clearly, social demographic characteristics play an important role in mate selection processes. Therefore, demographic variables related to social homogamy were controlled for by: (1) including

variables for race and ethnicity and economic disadvantage in analyses, (2) running separate analyses by focal respondents' gender, and (3) analyzing problem behaviors that occurred in only one developmental stage, adolescence (well before mate or partner selection took place).

Second, little assortative mating is found, except on drug use. In addition, assortative mating processes do not seem to operate differently for specific types of dyads or by focal respondents' gender. Dyads do not appear to be positively assorting on most problem behaviors, even after examining seven different indicators. Unfortunately, assortative mating on deviant peers and beliefs could not be tested because adolescent measures were not available for respective others.

Third, even though assortative mating on a variety of behaviors is minimal, dyads of all types are selecting into relationships in which both individuals had similar drug use during adolescence. This finding is consistent across most analyses, regardless of dyad type and focal respondents' gender. Dyads may be more likely to assort on drug use than delinquency for several reasons. Drug use is addictive and, for some, it starts early and persists over the life-course (Hser & Longshore, 2007). As a result, it may be imperative for drug users to select into relationships with other drug users who support their addiction. In addition, drug use is associated sexual risk taking (Lanctot & Smith, 2001) and teen pregnancy (Mensch & Kandel, 1992), both of which may have implications for mate selection. More research, however, is needed to understand differences between drug use and delinquency and whether they represent distinct expressions of the same latent trait. This research will help explain why dyads assort on drug use but not delinquency.

Interestingly, support for assortative mating on drug use is more consistent than the support for partner similarity on drug use. In Chapter 3, the only significant correlation for partner similarity on drug use is for *couples* (r=.22). (Note, however, that the correlation for *partners* is marginally significant, r=.20.) Altogether, these findings suggest that there is substantial evidence for assortative mating for drug use, alone. Additionally, if we were to look at partner similarity on adult

drug use as a proxy for assortative mating (as is often the case in the literature), the effect would be less evident.

Fourth, heterotypic correlations separated by focal respondents' gender suggest interesting gender differences. Women who were involved in drug use during adolescence have a respective other who was also involved in drug use, as well as general delinquency. Men also positively assorted with women who used drugs but, in contrast, these women were not involved in general delinquency when they were in adolescence. Given sample size issues with female focal respondents, these findings are purely exploratory. Nevertheless, more research on heterotypic assortative mating is warranted.

The assortative mating analyses are not without their limitations and three specific issues are worth noting. First, sample sizes become very small when disaggregated by dyad type and focal respondents' gender. As a result, most findings are based on samples of male focal respondents and their respective others. Second, retrospective reports of problem behaviors (assessed for the respective others) were collected in Year 2 of the intergenerational study. Respondents who enrolled after that time are missing these data. Measures of retrospective problem behaviors were collected again in Year 10 but are not available in time for the dissertation analyses. Nevertheless, this limitation is minimized by employing multiple imputation. Third, adolescent measures of problem behaviors (which occurred prior to age 18) were used to assess assortative mating. In some cases, problem behaviors occurred years before dyad members selected each other. Measures isolated to the time just before mate selection would have been ideal but inherently difficult to collect (as discussed above). In addition, data related to when mate selection occurred was not available. On average, however, focal respondents were between the ages of 20 and 23 when their child was born, depending on dyad type and focal respondent's gender. In addition, focal respondents and their respective others were often similar in age (see Table 5-1). As a result, age at

child's birth can be used as a proxy for age at mate selection (but not for partner selection, which was less common). The lag time between the end of adolescence and child birth is approximately three to five years, on average, and ensured that problem behaviors occurred well before most members had met each other. Using this strategy, however, means that the estimates of assortative mating are imprecise if respondents' patterns of offending changed over this time. On the one hand, for example, the estimates are conservative if problem behaviors increased between ages 18 and mate selection (for both partners). On the other hand, the estimates are liberal if problem behaviors decreased between these times.

Despite these three limitations (i.e., small analytic sample, missing data, and lag time between problem behaviors and mate selection) combining data from the two Rochester studies to examine assortative mating for problem behaviors will push forward the research currently available in the literature. Taken altogether, the research presented in this chapter will make several contributions. Critics, nonetheless, might ask why assortative mating on drug use is relevant if indeed drug use, in general, and partner similarity on drug use, specifically, tapers off in adulthood. Drug users in the Rochester sample are starting families with other drug users and this phenomenon is likely to have serious implications for the health and well being of their children. Ultimately, however, future research is needed to understand and address the consequences of assortative mating on drug use for the next generation. A summary of this chapter's take-home messages is listed below.

Take-home Messages

- Assortative mating is defined as the nonrandom coupling of individuals based on their similarity—before having actually met.
- Studying assortative mating is methodologically challenging—it is nearly impossible to collect prospective measures on both individuals in a representative sample of dyads, problem behaviors change over the life course, and social homogamy confounds estimates.

- By and large, the assortative mating hypothesis is not supported for various problem behaviors, except for drug use.
- Assortative mating processes do not seem to operate differently for specific types of dyads or by focal respondents' gender.
- For drug use only, assortative mating is more prevalent than partner similarity. If partner similarity is used as a proxy for assortative mating, selection effects may not be found.
- Some support for heterotypic assortative mating emerges. Women who used drugs in adolescence may have a respective other who was involved in drug use and general delinquency during adolescence but more research is needed.
- Although the generalizibility of these findings may be limited—due to small analytic samples, missing data, and lag time between the end of adolescence and mate selection, the methodological approach used in this study is the first of its kind and is an improvement upon past approaches.
- Future research will need to address heterotypic assortment, different types of dyads, and the consequences of assortative mating on drug use for the next generation.

Table 5-1. Descriptive Statistics for Assortative Mating Analyses: Demographic and Adolescent Problem Behavior Variables

	Mates (n=355)						Partners (n=217)						Couples (n=194)					
	n	Min	Max	Mean	Std		n	Min	Max	Mean	Std		n	Min	Max	Mean	Std	
	Black						Moderate						Black					
Focal Male	290	0	1	0.68	0.47		287	0	2.08	0.85	0.66		158	0	1	0.62	0.49	
Female Other	290	0	1	0.57	0.50		199	0	1.61	0.31	0.43		158	0	1	0.51	0.50	
Focal Female	65	0	1	0.78	0.41		65	0	1.61	0.55	0.60		59	0	1	0.78	0.42	
Male Other	65	0	1	0.72	0.45		50	0	1.79	0.65	0.56		59	0	1	0.75	0.44	
	White						Street						White					
Focal Male	290	0	1	0.14	0.35		287	0	2.48	0.88	0.73		158	0	1	0.20	0.40	
Female Other	290	0	1	0.19	0.39		199	0	1.95	0.10	0.33		158	0	1	0.27	0.45	
Focal Female	65	0	1	0.08	0.27	*	65	0	1.61	0.49	0.55		59	0	1	0.08	0.28	
Male Other	65	0	1	0.08	0.27		50	0	2.20	0.58	0.74		59	0	1	0.08	0.28	
	Hispanic						Serious						Hispanic					
Focal Male	290	0	1	0.18	0.39		287	0	2.08	0.47	0.60		158	0	1	0.18	0.38	
Female Other	290	0	1	0.19	0.40		199	0	1.61	0.05	2.15		158	0	1	0.15	0.36	
Focal Female	65	0	1	0.14	0.35	*	65	0	1.10	0.21	0.35		59	0	1	0.14	0.35	
Male Other	65	0	1	0.14	0.35		50	0	1.79	0.28	0.51		59	0	1	0.12	0.33	
	Adult Age						Problem Drinking						Age					
Focal Male	289	23	34	31.26	1.80		na	na	na	na	na		157	24	34	29.57	2.63	
Female Other	290	22	51	31.17	3.75		na	na	na	na	na		158	20	51	29.45	5.15	
Focal Female	65	23	33	29.72	2.07		na	na	na	na	na		59	24	32	29.02	2.40	
Male Other	65	20	47	32.92	4.35		na	na	na	na	na		59	20	43	32.36	4.60	
	Adult Economic Disadvantage						Drug Use						Adult Economic Disadvantage					
Focal Male	283	0	1	0.60	0.49		287	0	2.20	0.35	0.43		155	0	1	0.47	0.50	
Female Other	290	0	1	0.84	0.37		199	0	1.39	0.21	0.36		158	0	1	0.67	0.47	
Focal Female	65	0	1	0.82	0.39		65	0	1.10	0.24	0.35		59	0	1	0.76	0.43	
Male Other	65	0	1	0.68	0.47		50	0	1.39	0.36	0.38		59	0	1	0.69	0.46	
	Parent's Economic Disadvantage						Deviant Beliefs						Parent's Economic Disadvantage					
Focal Male	285	0	1	0.65	0.48		na	na	na	na	na		154	0	1	0.65	0.48	
Female Other	na	na	na	na	na		na	na	na	na	na		na	na	na	na	na	
Focal Female	65	0	1	0.68	0.47		na	na	na	na	na		58	0	1	0.66	0.48	
Male Other	na	na	na	na	na		na	na	na	na	na		na	na	na	na	na	
	General Delinquency						Deviant Peers						General Delinquency					
Focal Male	287	0	3.04	1.37	0.89		na	na	na	na	na		157	0	3.04	1.31	0.90	
Female Other	199	0	2.48	0.40	0.55		na	na	na	na	na		92	0	2.30	0.46	0.56	
Focal Female	65	0	2.40	0.90	0.80		na	na	na	na	na		59	0	2.30	0.89	0.76	
Male Other	50	0	2.77	1.10	0.83		na	na	na	na	na		46	0	2.77	0.99	0.86	

	Couples (n=194)					
	n	Min	Max	Mean	Std	
	Black					
Focal Male	153	0	1	0.63	0.49	
Female Other	153	0	1	0.51	0.50	
Focal Female	41	0	1	0.71	0.46	
Male Other	41	0	1	0.73	0.45	
	White					
Focal Male	153	0	1	0.21	0.41	
Female Other	153	0	1	0.27	0.44	
Focal Female	41	0	1	0.12	0.33	
Male Other	41	0	1	0.10	0.30	
	Hispanic					
Focal Male	153	0	1	0.16	0.37	
Female Other	153	0	1	0.16	0.36	
Focal Female	41	0	1	0.17	0.38	
Male Other	41	0	1	0.15	0.36	
	Age					
Focal Male	152	24	34	29.57	2.62	
Female Other	153	20	51	29.42	5.15	
Focal Female	41	25	32	29.27	2.17	
Male Other	41	20	43	32.00	4.43	
	Adult Economic Disadvantage					
Focal Male	150	0	1	0.47	0.50	
Female Other	153	0	1	0.67	0.47	
Focal Female	41	0	1	0.71	0.46	
Male Other	41	0	1	0.66	0.48	
	Parent's Economic Disadvantage					
Focal Male	149	0	1	0.65	0.48	
Female Other	na	na	na	na	na	
Focal Female	41	0	1	0.59	0.50	
Male Other	na	na	na	na	na	
	General Delinquency					
Focal Male	152	0	3.04	1.30	0.90	
Female Other	89	0	2.30	0.46	0.57	
Focal Female	41	0	2.30	0.86	0.81	
Male Other	30	0	2.77	1.18	0.86	

Race and ethnicity dummy variables can be interpreted, for example, as 68% of the male focal respondents in the mates sub-sample are Black, 14% are White, and 18% are Hispanic. Only respective others have an "other" race and ethnicity category of which 5% are mates, 6% partners, and 6% couples. *In the mate's sub-sample, there are equal numbers of White and Hispanic focal females and male mates. NA=not available.

Table 5-2. Assortative Mating for Male Focal Respondents and their Respective Others by Dyad Type

	Mates	Partners	Couples
Zero-order Correlations:			
Demographic/Social Homogamy			
Black	0.62 **	0.59 **	0.60 **
White	0.67 **	0.65 **	0.67 **
Hispanic	0.56 **	0.50 **	0.54 **
Education	0.26 **	0.36 **	0.42 **
Adol. Economic Disadvantage	0.16 **	0.22 **	0.21 **
Adult Economic Disadvantage	0.46 **	0.56 **	0.56 **
Adult Age	0.26 **	0.55 **	0.59 **
n =	290	158	153
Partial Correlations:			
Delinquency			
General	-0.03	0.01	-0.02
Moderate	-0.05	0.05	0.06
Street	-0.04	-0.01	-0.05
Serious	0.11 †	0.19	0.15
Substance Use			
Problem Drinking	na	na	na
Drug Use	0.16 **	0.25 *	0.20 *
Deviant Beliefs and Peers			
Beliefs	na	na	na
Peers	na	na	na
Heterotypic Correlations			
Delinquency & Drug Use	0.11	0.23 *	0.21 †
Drug Use & Delinquency	-0.01	-0.02	-0.03
n =	290	158	153

†$p \leq .10$, *$p < .05$, **$p < .01$. Partial correlations control for each dyad member's economic disadvantage and race and ethnicity. Street delinquency and serious delinquency are dichotomized due to low prevalence.

Table 5-3. Assortative Mating for Female Focal Respondents and their Respective Others by Dyad Type

	Mates	Partners	Couples
Zero-order Correlations:			
Demographic/Social Homogamy			
Black	0.68 **	0.63 **	0.82 **
White	0.78 **	0.78 **	0.88 **
Hispanic	0.74 **	0.62 **	0.73 **
Education	0.39 **	0.46 **	0.47 **
Adol. Economic Disadvantage	-0.06	-0.02	-0.08
Adult Economic Disadvantage	0.43 **	0.41 **	0.55 **
Adult Age	0.38 **	0.52 **	0.53 **
n =	65	59	41
Partial Correlations:			
Delinquency			
General Delinquency	-0.06	-0.09	-0.03
Moderate	-0.17	-0.22	-0.33 †
Street	0.30 *	0.24	0.23
Serious	0.10	0.08	0.18
Substance Use			
Problem Drinking	na	na	na
Drug Use	0.03	0.36 *	0.46 *
Deviant Beliefs and Peers			
Beliefs	na	na	na
Peers	na	na	na
Heterotypic Correlations			
Delinquency & Drug Use	0.00	0.08	0.12
Drug Use & Delinquency	0.03	0.27 †	0.32 *
n =	65	59	41

†$p \leq .10$, *$p < .05$, **$p < .01$. Partial correlations control for each dyad member's economic disadvantage and race and ethnicity. Street delinquency and serious delinquency are dichotomized due to low prevalence.

Chapter 6

Contagion Proxy

Overview

A contagion proxy involves testing for an association between focal respondents' adolescent behavior and their respective others' adult behavior (see the second section of Figure 1-1). The term contagion is used because behavior appears to be transmitted from one person to another, over time. The term proxy is used because some prior studies have estimated contagion to provide support for selection effects whereas other studies have estimated it to provide support for socialization effects. What is interesting about this method is that it examines what I call *indirect* and *unidirectional* effects. (But, note that I use these terms a bit differently than commonly found in the literature.) First, the contagion proxy measures an indirect effect because behaviors are measured in two different developmental stages (i.e., the predictor is measured in adolescence and the outcome is measured in adulthood). If a focal respondent's adolescent behavior predicts their partner's adult behavior, something must have mediated the effect because partners did not know each other when the adolescent predictor was measured. Second, the contagion proxy assesses, inherently, a unidirectional effect because of the temporal order of the measures. Specifically, behavior in adolescence can affect behavior in adulthood but behavior in adulthood cannot influence behavior in adolescence. Ultimately, findings for the contagion proxy demonstrate that partners are similar in terms of their problem behavior. They do not, however, tell us definitively whether selection or socialization effects are at play.

Nevertheless, life-course studies, in particular, have used this method because focal participants are followed prospectively through adolescence well into adulthood. As discussed in Chapter 2, four studies use contagion as a proxy for assortative mating (Kim & Capaldi, 2004; Moffitt et al., 2001; Quinton et al., 1993; Simons et al., 2002) and two studies used contagion as a proxy for partner influence (Simons et al., 2002; Simon et al., 2008). Overall, they all found support on a number of measures, including delinquency, crime, violence, and physical abuse.

Recall, however, that respective others can join a study only after the relationship has begun and, therefore, can only provide prospective measures of his or her current behavior and retrospective measures of his or her past behavior. Surprisingly, no studies with both types of measures were found in the literature. Without these measures, only one half of the contagion proxy has ever been estimated. That is, the effect of focal respondents on respective others is modeled but the effect that respective others have on focal respondents has not been modeled. Fortunately, the Rochester study did collect retrospective measures of the respective others' adolescent problem behaviors. The dissertation estimates the contagion proxy to (a) explore the method for both men and women, (b) investigate the extent to which findings from other studies can be replicated with the Rochester data, and (c) compare findings to assortative mating (Chapter 4) and partner influence (Chapter 7) effects. As such, the following research questions are addressed. *First, what effect do focal respondents' adolescent problem behaviors (measured prospectively) have on their respective others' adult problem behaviors (measured prospectively)? Second, what effect do respective others' adolescent problem behaviors (measured retrospectively) have on focal respondents' adult problem behaviors (measured prospectively)*

Method

Sample. Only one subsample was selected for analysis, couples with a male focal respondent and female respective other (n=95 dyads, n=190 individuals). First, female focal respondents and their respective others were not analyzed due to problems related to small sample

size and low power (see Chapter 4 for a discussion of this issue). Second, *partners* were not analyzed because without female focal respondents the overlap between the subsample of couples and the subsample of partners is large. There are only four more male focal respondents in the partners subsample than the couples subsample when these subsamples include only male focal respondents. Third, even though the partners' subsample is slightly larger, couples were selected because they represent dyad members who are romantically involved biological parents which will have theoretical implications later in the dissertation. Fourth, despite having the largest subsample size, *mates* were not selected for the contagion analyses because many of them are no longer involved with each other and, thus, there is less reason to suspect that their adolescent behaviors would impact their mates' adult behaviors. Fifth, dyads were only included in contagion analyses if they had two or more waves of consecutive data when the focal respondent was between the ages of 25 and 30. Similar to Chapter 3 (assortative mating), dyads with two waves of data were included to stabilize measures and limit the sample to one developmental stage, adulthood. For these five reasons, only couples with a male focal respondent and female respective other were included in the analyses testing the hypothesis for contagion.

Measures. For this chapter's analyses, measures of both adolescent and adult problem behaviors are needed. For focal respondents, a cumulative and prospective ever-variety measure for each adolescent problem behavior was constructed by summing each respondent's scores across (semi-annual) Waves 3 through Waves 9, which spans 3 ½ years from ages 14 to 18. In adulthood, a cumulative and prospective measure for each adult problem behavior was constructed by summing each focal respondent's scores across two annual waves of data. For respective others, prospective data collected in adolescence are not available. Instead, problem behaviors that occurred in adolescence were ascertained retrospectively in Year 2. These questions ask if, for example, the respective other had ever used marijuana and their age at first use. Measures of adolescent problem

behaviors were then created when an incident occurred prior to age 18. Similar to focal respondents, cumulative and prospective measures for each adult problem behavior were constructed by summing focal respondents' scores across two waves of data. Altogether, five problem behavior variables were analyzed to test hypotheses related to the contagion proxy. Unfortunately, the problem drinking, deviant beliefs, and deviant peers scales were not retrospectively collected for respective others, thus, they are not included in analyses. In addition to ever-variety scores, the prevalence of each problem behavior was also analyzed by transforming measures into binary variables (that were recoded into none versus any).

For each dyad member, control variables include: race and ethnicity (dummy coded; Black dyads are the reference group), adult economic disadvantage (indicates the number of years respondents were economically disadvantaged), education, and age. For couples, descriptive statistics for adolescent problem behaviors are listed in Table 5-1 but note that the sample sizes for contagion analyses are somewhat smaller because, as discussed above, respondents with less than two waves of data were excluded. Descriptive statistics for adult problem behaviors and control variables are listed in Table 4-1 and are the exact sample size. Looking at this table, we see that respondents are predominantly Black and have approximately 12 years of education. Compared to men, women are younger and have lower socio-economic status. Men are involved in more problem behaviors than women, whether measured in adolescence or adulthood.

Analytic Strategy. To test contagion hypotheses, Kenny, Kashy, and Cook (2006)'s actor-partner interdependence models (APIM) were adopted, which (a) uses dyads as the unit of analysis, (b) acknowledges that a respondent's independent variable score affects both his or her own dependent variable score (known as the actor effect) and his or her respective other's dependent variable score (known as the partner effect), and (c) accounts for nonindependence within dyads (Campbell & Kashy, 2002). In traditional regression models, nonindependence due to nesting may

be an issue because it violates the independence assumption. Interestingly, nonindependence does not affect estimates, but standard errors may become too large or too small and significance tests too conservative or too liberal. Nonindependence is tested by calculating a Pearson's correlation between the dyads on the outcome variable of interest.

When nonindependence is found, multilevel modeling (MLM) is needed. Prior to conducting MLM, data are restructured to form a pairwise dataset (see Table 6-1 for a fictional example). In terminology used for the dissertation, each row of the dataset contains data on the male focal respondent and data on his or her female respective other. In addition, each row is transformed into two cases, one for the male focal respondent and another for their female respective other. Using dyadic data terminology, all individuals serve as *actors* for half of the cases and *partners* for the other half. To be clear, male focal respondents are actors and their respective others are partners for half of the dataset; in addition, male focal respondent are partners and their respective others actors for the other half of the dataset. Essentially, data for each individual is entered twice.

Dyads serve as the upper-level unit and individuals as the lower-level unit. MLM is an ideal tool for dyadic data analyses because it can estimate effects for mixed variables which, by definition, vary between and within dyads. Essentially, MLM balances the idea that there is variance between and variance within dyads. In general, MLM allows the coefficients from lower-level analyses (slopes and intercepts) to vary from group to group. With dyadic data, however, there are not enough lower-level units (i.e., dyad members) to allow slopes to vary from dyad to dyad. As a result, slopes are constrained but intercepts are allowed to vary. In addition, interactions are used to examine gender effects. Specifically, a two-intercept model is estimated to assess the effects of predictors on male focal respondents and the effects of predictors on female respective others, separately but simultaneously. Restricted Maximum Likelihood (REML) is used as outlined by

Kenny, Kashy, and Cook (2006). A general example of an actor-partner interdependence model is presented in Figure 5-1. Note that there are two actor effects and two partner effects.

To begin the contagion analyses, nonindependence was tested by calculating a partial correlation between male focal respondents and their respective others on each adult problem behavior outcome. In other words, partner similarity was assessed (see Table 4-2). If nonindependence (i.e., a significant correlation) was found, the Rochester data was restructured to form a pairwise dataset. Altogether, there were 2*n* cases where *n*=the number of dyads (i.e., 2*95=190 cases). When nonindependence was found, multilevel modeling was conducted in SAS Proc Mixed (for logged ever-variety measures) and SAS Glimmix (for prevalence measures) using a pairwise dataset. All ever-variety problem behavior predictors and demographic controls were grand mean centered except for dummy variables. Gender was recoded into two dummy variables and both were interacted with the predictors of interest (i.e., problem behaviors).

If independence between male focal respondents and their respective others on an outcome variable was evident (i.e., a correlation near zero was found), bias in standard errors was not a problem and MLM was not needed. A dyad-level dataset was used for traditional multiple regression modeling in SAS Proc Reg or SAS Proc Logistic (depending on the appropriate link function). Two models were estimated, one testing focal respondents' adolescent problem behavior on their respective others' adult problem behavior (i.e., partner effect) and another testing respective others' adolescent problem behavior on the focal respondents' adult problem behavior (also a partner effect). These models included predictors for adolescent (i.e., actor effects) and adult problem behaviors (which control for contemporaneous partner similarity effects and, for parsimony, are listed in tables but not in figures).

All models include control variables described in the measurement section. Note, however, that only the actors' control variables are included in models (e.g., the effect of being black on one's

own problem behavior. The exception is age, for which both actor and partner effects (e.g., the effect of the age of one's partner on one's own problem behavior) are included because male focal respondents are somewhat older than their respective others. Ultimately, this strategy was used because the number of predictors in the model would have been too large if controls for both actors and partners were included, given the sample size. An alternative strategy would have been to use a difference score to control for social homogamy, but this is not recommended in dyadic data analysis (Kenny, Kashy, & Cook, 2006). Instead, using the actors' control variables was more advantageous because they (a) simultaneously control for both social homogamy and the effects that demographic factors have on problem behaviors in general (b) are highly correlated with the partners' control variables (as seen in Table 4-2), (c) avoid multicollinearity, and (d) do not over-specify the models.

Missing data are handled using multiple imputation. Although missing data are minimal for control variables, recall that data on respective others' adolescent problem behaviors were collected retrospectively in Year 2 of the intergenerational study and, given that enrollment is ongoing, a number of respective others have missing data. Multiple imputation was carried out using Proc MI and Proc MIANALYZE procedures in SAS. For each problem behavior analysis, 10 imputed datasets were created. Analyses were performed on each of the imputed datasets; the parameter estimates were then combined using procedures outlined by Yuan (2000).

Power. Most analyses have adequate power to detect significant effects. As discussed earlier, sub-sample sizes for female focal respondents and their respective others are quite small. Therefore, only findings for male focal respondents and their respective others are presented. These sample sizes are much larger and, thus, are more reliable. In addition, using dyadic data analysis (i.e., MLM with a pairwise dataset) helped improve power because the number of cases was doubled rather than split by gender (Kenny, Kashy, & Cook, 2006).

Results

Below I present the results for general, moderate, serious, and street delinquency, as well as drug use and heterotypic contagion. For each problem behavior indictor, I first estimate the contagion proxy using a binary prevalence measure. Second, I replicate the analyses using an ever-variety measure. The former assesses whether or not respondents are offenders and the latter explores how involved in offending they are. I begin by assessing nonindependence using partial correlations that control for social homogamy. This tells me whether traditional or multilevel regression is needed. Then, I estimate how a respondents' independent variable score affects his or her own dependent variable score (known as the actor effect) and his or her respective other's dependent variable score (known as the partner effect). For each problem behavior measure, a table is provided to help describe the findings. The top of each table outlines the findings for prevalence and the bottom of each table outlines the findings for the ever-variety measure. Within each of these two sections, two models are described if traditional regression was used and one model is described if multilevel regression was used. In addition, each section has a corresponding figure imbedded in it to help delineate the actor and partner effects.

General Delinquency. For general delinquency, findings for the contagion proxy are presented in Table 6-2. Recall that couples include only the dyad members who have had a biological child together and who are involved in a romantic relationship with each other. Beginning with prevalence measures, consider the assessment of nonindependence. Net of social homogamy, the partial correlation for prevalence of adult general delinquency is $r = .07$, NS. We know that the independence assumption is not violated because the correlation is not significant. As a result, logistic regression was used to model partner and actor effects. First consider the actor effects. After adjusting for the partner effect, partners' contemporaneous general delinquency, and demographic factors, male focal respondents' adolescent general delinquency significantly predicts

their later adult general delinquency (b=2.28, SE=0.83, p<.01). In other words, net of controls, the odds of delinquency in adulthood are 9.78 times higher for men with general delinquency in adolescence than for men with no general delinquency in adolescence.[22] This finding does not hold for female respective others; their adolescent general delinquency is not related to their adult general delinquency. These findings lend support for the continuity of general delinquency across the life-course for men but not women. One the one hand, the significant actor effect for men is not surprising given the reinforcing nature of offending described in Chapter 1 (see Thornberry and Krohn, 2005). On the other hand, research shows that most adolescents outgrow normative delinquency in adolescence (Farrington, 1986). Interestingly, for men at about age 26, being involved in a long-term relationship and having a child with their partner (which is something akin to "the good marriage effect") did not promote desistence from general delinquency, at least when measured in terms of prevalence. For women, these findings along with the descriptive statistics in Table 5-1 (on adolescent measures) and Table 4-1 (on adult measures) show that general delinquency was low in adolescence and remained low in adulthood.

Next consider the partner effects. After adjusting for the actor effect, partners' contemporaneous general delinquency, and demographic factors, male focal respondents' adolescent general delinquency is not associated with their female respective others' adult general delinquency. In contrast, after adjusting for all predictors, female respective others' adolescent general delinquency is significantly and positively associated with male focal respondents' adult general delinquency (b=1.47, SE=.64, p<.05). This significant effect provides support for the contagion proxy. The odds of being involved with a man with general delinquency in adulthood are 4.34 times

---

[22] The coefficient b = 2.28 is interpreted as an odds ratio, OR= exp(2.28) = 9.78.

higher for women with general delinquency in adolescence than for women with no general delinquency in adolescence.

Last consider the effects of demographic factors on adult general delinquency, for which there are few significant effects. For men, having an older partner is significantly and positively associated with adult general delinquency (b=.27, SE=.10, p<.05). Also, for men, economic disadvantage is positively but only marginally associated with adult general delinquency (b=.84, SE=.43, p<.10). For women, education is negatively but only marginally associated with adult general delinquency (b=-.37, SE=.19, p<.10). Finding so few statistically significant effects for the demographic controls is not terribly surprising, given the number of predictors in the model.

Turning to the second half of Table 6-2, consider the assessment of nonindependence for ever-variety scores of general delinquency. Net of social homogamy, the partial correlation for adult general delinquency is significant and positive with a medium effect size (r= .23, p<.05). Partners are similar in terms of the amount of general delinquency they are involved in and given this nonindependence, multilevel regression is required. One two-intercept multilevel regression model was run using a pairwise dataset. First, consider the actor effects. After adjusting for predictors, male focal respondents' adolescent general delinquency significantly predicts their later adult general delinquency (b=.43, SE=.12, NS) which is interpreted as follows—a 10% increase in men's adolescent general delinquency is associated with 4.5% increase in their adult general delinquency.[23] Again, this finding does not hold for women; their adolescent general delinquency is not related to their adult general delinquency. Theoretically, and given the findings above related to prevalence, these findings are not surprising.

---

[23] When a predictor and outcome variable are both logged, the regression coefficient is interpreted as "a d percent increase in X is associated with a 100 * (exp(b1 x (ln(1+(d/100)))) – 1) percent change in Y" (Henry, 2010).

Next consider the partner effects. After adjusting for all predictors, male focal respondents' adolescent general delinquency is not associated with their female respective others' adult general delinquency. Likewise, after adjusting for all predictors, female respective others' adolescent general delinquency is not associated with male focal respondents' adult general delinquency. Neither the amount of men nor women's participation in adolescent general delinquency is predictive of their partners' adult general delinquency. These findings do not lend support for the contagion proxy. Last consider the effects of demographic factors on adult general delinquency. Similar to findings in the prevalence section, there is only one significant effect. For men, having an older partner is, again, significantly and positively associated with adult general delinquency (b=.08, SE=.03, p<.05).

Altogether, the contagion hypothesis is not well supported. Men's adolescent behavior did not predict women's adult behavior. Women's adolescent behavior did predict men's prevalence of general delinquency, but this finding was not replicated when the ever-variety measure was used in a multilevel regression model. At best, support for the contagion hypothesis is mixed and more research is needed. Overall, these findings provide an important reminder. Understanding the etiology and consequences of problem behaviors over the life course is complex and, as a result, quality measures are needed, ones that move beyond simple prevalence indicators. For partner effects, prevalence and ever-variety measures yielded different results. Actor effects, however, were robust regardless of which measure was used. Support for the contagion proxy would have been found had findings been based on prevalence alone. Fortunately, the findings in this chapter are based on both prevalence and ever-variety measures and, altogether, it does not appear that couples are having an indirect, unidirectional effect on each other's general delinquency.

Moderate Delinquency. For the subscale, moderate delinquency, findings for the contagion proxy are presented in Table 6-3. Foreshadowing the results, no support for the contagion proxy is evident. Beginning with prevalence measures, consider the assessment of

nonindependence. Net of social homogamy, the partial correlation for prevalence of adult moderate delinquency is not significant (r= .10, NS). Men and women's scores on adult moderate delinquency are independent. As a result, traditional logistic regression was used to model partner and actor effects. First consider the actor effects. Adjusting for the partner effect, partners' contemporaneous moderate delinquency, and demographic factors, male focal respondents' adolescent moderate delinquency is statistically and positively associated with their own adult moderate delinquency (b=1.18, SE=.57, p<.05). Interpreting the coefficient for the actor effect, the odds of delinquency in adulthood are 3.25 times higher for men with moderate delinquency in adolescence than for men with no moderate delinquency in adolescence. A statistically significant actor effect is not found for female respective others. On average, women's moderate delinquency is low in adolescence and stays low in adulthood.

Next, consider the partner effects. Neither men's nor women's adolescent moderate delinquency is related to their partners' adult moderate delinquency. Using a prevalence indicator, the contagion proxy is not supported. Last, consider the effects of demographic factors on moderate delinquency in adulthood. Only one significant effect is found. Being involved with an older woman is significantly and positively associated with adult moderate delinquency (b=.20, SE=.09, p<.05). A one-year increase in women's age increases the odds of men's involvement in adult moderate delinquency by a factor of 1.22.

Turning to ever-variety moderate delinquency scores, consider the assessment of nonindependence. Net of social homogamy, the partial correlation for adult moderate delinquency measured using ever-variety scores approaches significance with a medium effect size (r= .20, p<.10). Technically, adult couples are not concordant on the amount of moderate delinquency they are involved in and, given the independence of their scores, traditional OLS regression was used to model actor and partner effects. First, consider the actor effects. After adjusting for partner effects,

partners' contemporaneous moderate delinquency, and demographic factors, male focal respondents' adolescent moderate delinquency significantly predicts their own adult moderate delinquency (b=.27, SE=.12, p<.05). That is, a 10% increase in men's adolescent moderate delinquency is associated with a 2.61% increase in their adult moderate delinquency. As expected, this finding does not hold for women; their adolescent moderate delinquency is not related to their adult moderate delinquency.

Next consider the partner effects. After adjusting for all predictors, male focal respondents' adolescent moderate delinquency is not associated with their female respective others' adult moderate delinquency. Likewise, after adjusting for all predictors, female respective others' adolescent moderate delinquency is not associated with male focal respondents' adult moderate delinquency. Overall, neither the amount of men's nor the amount of women's participation in adolescent moderate delinquency is predictive of the amount of their partners' involvement in moderate delinquency. These findings provide no support for the contagion proxy. Last, consider the effects of demographic factors on adult moderate delinquency. Similar to previous findings, only one significant effect is found. For men, partner's age is significantly and positively associated with adult moderate delinquency (b=.07, SE=.02, p<.01).

To summarize, support for the contagion hypothesis is not found using measures that assessed the prevalence and the frequency of moderate delinquency. Men's adolescent moderate delinquency did not predict women's adult moderate delinquency. Similarly, women's adolescent moderate delinquency did not predict men's adult moderate delinquency. Although partner effects are not significant, consistent actor effects for men are evident, demonstrating continuity in moderate delinquency from adolescence to adulthood. Likewise, romantic involvement with an older woman and having a child together is associated with an increase in adult moderate delinquency for men. Regardless, the contagion proxy is not supported.

Drug Use. Unfortunately, contagion effects for street delinquency and serious delinquency could not be estimated. The prevalence of these behaviors was too low, especially for women in adulthood. As a result, the models had estimation problems. A larger sample is needed to properly assess the contagion proxy for these measures. Instead, findings for drug use are presented next. Starting with prevalence measures, consider the assessment of nonindependence presented in Table 6-4. Net of social homogamy, the partial correlation for drug use prevalence is marginally significant with a medium effect size (r= .18, NS). Technically, men and women's scores on adult drug use are independent. As a result, logistic regression was used to estimate partner and actor effects. First consider the actor effects. Adjusting for the partner effect, partners' contemporaneous drug use, and demographic factors, male focal respondents' adolescent drug use is statistically and positively associated with their own adult drug use (b=1.41, SE=.58, p<.05). Interpreting this effect, the odds of drug use in adulthood are 4.10 times higher for men with drug use in adolescence than for men with no drug use in adolescence. A statistically significant actor effect is not found for women.

Next, consider the partner effects. After adjusting for the actor effect, partners' contemporaneous drug use, and demographic factors, male focal respondents' adolescent drug use is not associated with their female respective others' drug use. In contrast, after adjusting for all predictors, female respective others' adolescent drug use is significantly and positively associated with male focal respondents' adult drug use (b=2.12, SE=.82, p<.05).[24] This significant effect provides support of the contagion proxy in terms of prevalence for drug use. An indirect, unidirectional effect for drug use is found. Stated differently, the odds of having a male partner with drug use in adulthood are 8.33 times higher for women with drug use in adolescence than for

---

[24] The partial correlation testing nonsignificance for drug use prevalence was marginally significant and, as a result, the model was rerun using MLM; the partner effect in MLM was also significant, b=1.75, SE=.66, p<.01.

women with no drug use in adolescence. Ultimately, however, this finding will be strengthened if it is replicated using the ever-variety measure of drug use, which assesses more than just any involvement in drug use.

Findings for the ever-variety drug use scores are presented in the bottom half of Table 6-4. Consider the assessment of nonindependence. Controlling for social homogamy, the partial correlation for adult drug use is significant with a medium effect size (r= .22, p<.05). Adult couples are concordant on the amount of drug use they are involved in and, given the nonindependence in their scores, multilevel regression was used to estimate the actor-partner interdependence models. Looking at the actor effects, male focal respondents' adolescent drug use significantly predicts their own adult drug use, net of controls (b=.35, SE=.17, p<.05). That is, a 10% increase in men's adolescent drug use is associated with a 3.39% increase in their adult drug use. Consistent with previous results, the actor effect is not significant for women; their adolescent drug use is not predictive of their adult drug use.

Next consider the partner effects. After adjusting for all predictors, male focal respondents' adolescent drug use is not associated with their female respective others' adult drug use. In contrast, female respective others' adolescent drug use is positively and significantly associated with male focal respondents' adult drug use, after adjusting for all predictors (b=.41, SE=.13, p<.05). For women, each 10% increase in adolescent drug use is predictive of a 4% increase in her male partner's adult drug use. Coupled with the contagion effect found above using a drug use prevalence indicator, these findings provide robust support for the contagion proxy with regards to drug use. Women's drug use has an indirect but unidirectional association with their partners' drug use. Technically, however, this finding does not tell us if assortative mating is responsible or if partner influence is at play. Interestingly, assortative mating correlations for drug use are significant, lending support for selection effects. However, findings in the next chapter on partner influence

will provide the additional evidence needed to determine whether selection or socialization effects are primarily responsible for partner similarity on drug use.

Last, consider the effects of demographic factors on adult drug use. For women, none of the predictors are associated with adult drug use. For men, however, being older is significantly and negatively associated with drug use (b=-12, SE=.06, p<.05). In addition, economic disadvantage is positively associated with drug use, but the effect is only marginally significant (b=.15, SE=.09, p<.10)

To summarize the findings related to drug use, partial but robust support for the contagion hypothesis is found using measures that assess both prevalence and frequency (albeit frequency using an ever-variety score). Men's adolescent drug use did not have an indirect effect on women's adult drug use but women's adolescent drug use indirectly predicted men's adult drug use. In addition, actor effects for men are evident, demonstrating continuity in drug use from adolescence to adulthood. Older men, however, are less involved in drug use. Overall, the contagion proxy for drug use is supported, but only for the effect that women have on men, which by definition is an indirect effect. When adolescent drug use was measured it assessed drug use that purportedly occurred prior to mate selection.

Heterotypic Contagion, Part I: Predicting Drug Use. Thus far, support for the contagion proxy is minimal. However, heterotypic offending may actually represent different expressions of the same latent behavior (e.g., delinquency and drug use are both problem behaviors). Therefore, it is important to determine whether or not a contagion effect is found for behaviors that appear different but are similarly problematic. As such, heterotypic contagion was tested by

estimating two sets of models.[25] Each set included a model using prevalence scores and a model using ever-variety scores. In the first set, general delinquency is the predictor and drug use the outcome. Then, in the second set, the models are reversed; drug use is the predictor and general delinquency the outcome. To begin, four tests of nonindependence were conducted—one correlation for each pair of outcomes. Altogether, two correlations were significant, one was marginally significant, and one was not significant. For consistency, MLM was used to estimate all partner and actor effects because, across the models, many of the variables are the same. To foreshow results, partner effects are somewhat inconsistent for female respective others.

The first model estimated the effects of adolescent general delinquency on adult drug use for actors and partners using prevalence measures. Consider the assessment of nonindependence presented in Table 6-5. Net of social homogamy, the partial correlation for drug use prevalence is marginally significant (r= .18, NS, also presented above in the section on drug use). Technically, men and women's scores on adult drug use are independent. However, MLM is used to estimate partner and actor effects, in part, because the correlation is marginally significant but primarily for consistency across all of the heterotypic models. First consider the actor effects. Adjusting for predictors, male focal respondents' adolescent general delinquency is statistically and positively associated with their own adult drug use (b=1.67, SE=.70, p<.05). Interpreting this effect, the odds of drug use in adulthood are 5.31 times higher for men with general delinquency in adolescence than for men with no general delinquency in adolescence. A statistically significant actor effect is also found for women (b=1.53, SE=.51, p<.01). Interesting, this is the first significant actor effect for

[25] In addition, models estimating heterotypic effects that controlled for the adolescent measure of the outcome variable (i.e., models that included general delinquency and drug use predictors) were estimated. No additional effects were found and, for parsimony, are not presented in tables.

women across all the models presented in this chapter. The odds of drug use in adulthood are 4.62 times higher for women with general delinquency in adolescence than for women with no general delinquency in adolescence.

Next, consider the partner effects. After adjusting for all predictors, male focal respondents' adolescent general delinquency is not associated with their female respective others' adult drug use. Likewise, net of all predictors, female respective others' adolescent general delinquency is not associated with male focal respondents' adult drug use. No support for heterotypic contagion is found using prevalence measures. Last, consider the effects of demographic factors on adult drug use prevalence. When general delinquency is included as a predictor, a significant and negative association is found for Hispanic female respective others' adult drug use (b=-1.54, SE=.74, p<.05). In addition, male focal respondents' age is significantly and negatively associated with adult drug use (b=-.58, SE.26, p<.05). Altogether, net of adolescent general delinquency, the odds of adult drug use is lower for older men and Hispanic women (compared to Black women).

Findings for heterotypic contagion using ever-variety drug use scores as the outcome are presented in the bottom half of Table 6-5. Consider the assessment of nonindependence. Controlling for social homogamy, the partial correlation for adult drug use is significant (r=.22, p<.05). Turning to actor effects, male focal respondents' adolescent general delinquency significantly predicts their own adult drug use, net of controls (b=.20, SE=.07, p<.01). That is, a 10% increase in men's adolescent general delinquency is associated with a 1.92% increase in their adult drug use. For women, the actor effect is not significant; their adolescent general delinquency is not predictive of their adult drug use.

Next consider the partner effects, neither of which is significant. After adjusting for all predictors, male focal respondents' adolescent general delinquency is not associated with their female respective others' adult drug use. Female respective others' adolescent general delinquency is

not associated with male focal respondents' adult drug use. Last, consider the effects of demographic factors on adult drug use when an ever-variety score is modeled. For women, none of the predictors are associated with adult drug use. For male focal respondents, age is significantly and negatively associated with their amount of adult drug use (b=-.14, SE=.66, p<.05).

To summarize the findings, the contagion hypothesis is not supported when adolescent general delinquency is used to predict adult drug use. These findings are consistent across models using prevalence and ever-variety scores. Actor effects, however, are evident. For men, their adolescent general delinquency predicts their adult drug use—in terms of prevalence and frequency. For women, prevalence for adolescent general delinquency predicts whether or not they have ever used drugs in adulthood but, using ever-variety scores, the amount of this drug use is not predicted by the amount of their adolescent general delinquency. Overall, there is some evidence for heterotypic continuity in problem behavior within individuals but not much for heterotypic contagion between partners.

Heterotypic Contagion, Part II: Predicting General Delinquency. The second set of contagion models estimated the effects of adolescent drug use on adult general delinquency, which are presented in Table 6-6. There is independence between men and women's adult general delinquency outcomes (r= .07, NS). However, as discussed above, MLM is employed instead of traditional logistic regression to provide consistency across all of the heterotypic models. First consider the actor effects. Net of all other predictors, male focal respondents' adolescent drug use is statistically and positively associated with their own adult general delinquency (b=1.59, SE=.54, p<.01). Interpreting this effect, the odds of general delinquency in adulthood are 4.90 times higher for men with drug use in adolescence than for men with no drug use in adolescence. This effect does not hold for female respective others; women's drug use in adolescence does not predict their general delinquency in adulthood.

Next, consider the partner effects. After adjusting for all other predictors, male focal respondents' adolescent drug use is not associated with their female respective others' adult general delinquency. In contrast, after adjusting for all predictors, female respective others' adolescent drug use is significantly and positively associated with male focal respondents' adult general delinquency (b=1.91, SE=.67, p<.01). This significant effect provides support for heterotypic contagion—when men's general delinquency prevalence is the outcome. Stated somewhat differently, the odds of being in a relationship and having a child with a man with general delinquency in adulthood are 6.75 times higher for women with drug use in adolescence than for women with no drug use in adolescence (who also have a child and are in a relationship). Last, consider the effects of demographic factors on adult prevalence of general delinquency. When drug use is included as the predictor of interest, for male focal respondents, economic disadvantage is significantly and positively associated with adult general delinquency (b=.87, SE=.36, p<.05). In addition, for men, having an older partner is significantly and positively associated with adult general delinquency (b=.23, SE=.09, p<.05). None of the predictors were significant for women.

Findings for heterotypic contagion using ever-variety general delinquency scores as the outcome are presented in the bottom half of Table 6-6. The test of nonindependence is not significant. Controlling for social homogamy, the partial correlation for adult general delinquency is significant (r=.23, NS). Turning to actor effects, male focal respondents' adolescent drug use significantly predicts their own adult general delinquency, net of controls (b=.76, SE=.22, p<.01). Interpreting this effect, a 10% increase in men's adolescent drug use is associated with a 7.51% increase in their adult general delinquency. For women, this effect does not hold; their adolescent drug use is not predictive of their adult general delinquency.

Next consider the partner effects. After adjusting for all predictors, male focal respondents' adolescent drug use is not associated with their female respective others' adult general delinquency.

However, female respective others' adolescent drug use is marginally significant and positively associated with male focal respondents' adult general delinquency (b=.58, SE=.31, p=.06). That is, a 10% increase in women's adolescent drug use is associated with a 5.68% increase in men's adult general delinquency. Last, consider the effects of demographic factors of which only one is marginally significant. When drug use is the predictor of interest, for men, economic disadvantage is marginally associated with adult general delinquency (b=.24, SE=.15, p<.10).

To summarize the findings, the contagion hypothesis is partially supported when adolescent drug use is used to predict adult general delinquency. For couples, women's adolescent drug use is predictive of men's adult general delinquency. These findings are consistent across models using prevalence and ever-variety scores. For these same couples, however, men's adolescent drug use never predicted women's adult drug use. In contrast, actor effects for men remain significant but actor effects for women do not. Overall, there is support for heterotypic continuity in problem behaviors for men. In addition, there is support suggesting that men also experience heterotypic contagion from female partners. That it, in terms of predicting men's adult general delinquency, it seems that their own adolescent drug use is a risk factor, as well as their partner's adolescent drug use. Interestingly, neither of these factors put women at risk for adult drug use.

Discussion

The contagion proxy is defined here as an association between focal respondents' adolescent behavior and their respective others' adult behavior (see the second section of Figure 1-1). It is a method that has been used to provide support for assortative mating (Kim & Capaldi, 2004; Moffitt et al., 2001; Quinton et al., 1993; Simons et al., 2002) and partner influence (Simons, 2002; Simon et al., 2008). Regardless of how the contagion proxy is applied, it assesses what I call a *unidirectional* and *indirect* effect. These terms are used because the adolescent predictor is measured before partners have met. This method has advantages and disadvantages. Capitalizing on temporal order, the advantage of using the contagion proxy is that it measures a unidirectional effect and, thus, can examine who is influencing whom. At the same time, the disadvantage of the technique is that it assesses an indirect effect of partner influence—behaviors are measured in two distinct developmental stages.

Ultimately, findings using the contagion proxy do not tell us definitively whether selection or socialization effects are at play. This chapter, however, is dedicated to estimating contagion for several reasons. First, the Rochester data collected retrospective adolescent measures and prospective adult measures of problem behaviors for respective others, which I use to explore contagion for both men *and* women. To date, no other studies have published similar data and, as a result, assess contagion using measures from only male adolescents and measures from only female adults. Until now, the full story has never been published. Second, by the end of the dissertation, I will be able to compare findings based on the contagion proxy to findings based on assortative mating (Chapter 4) and partner influence (Chapter 7). It will be interesting to see whether contagion effects align with selection or socialization effects. These comparisons will provide clues as to the accuracy of prior research.

To estimate both sides of the contagion proxy (i.e., the effects of men on women and the effects of women on men), I employed actor-partner interdependence models as outlined by Kenny, Kashy, and Cook (2006). When nonindependence between dyad members was evident, I used multilevel modeling to estimate actor and partner effects, net of demographic factors. In total, five sets of analyses were conducted (on general, moderate, drug use, and two related types of heterotypic offending). For each set of analyses, two indicators of these measures were explored. Prevalence investigated whether or not respondents were offenders and ever-variety scores assessed the extent to which they were involved in offending.

Altogether the analyses provided interesting results related to the etiology and consequences of problem behaviors across the life course. Table 6-7 summarizes the findings related to the contagion proxy hypothesis which, at best, is only partial supported. The table is divided into two sections. The left side condenses the results for the prevalence measures and the right side for the ever-variety scores. The actor and partner effects are listed for each gender in terms of whether or not the findings are significant.

First consider the actor effects. For men, adolescent problem behavior predicts adult problem behavior, regardless of offending type or indicator. This finding is consistent across ten separate models. Clearly, there is robust support for continuity in problem behaviors across the life course for men. As discussed earlier, this finding is somewhat perplexing given that problem behaviors are often limited to adolescence (Farrington, 1986). In addition, all of the men are involved in long-term relationships and have at least one child. Despite having a family (which is something akin to the "good marriage effect"), it appears that these men are experiencing the cumulative consequences of adolescent offending (Thornberry & Krohn, 2005). For women, few of the actor effects are significant. Adolescent problem behavior rarely predicts adult problem behavior. The only except is for heterotypic effects—women's general delinquency in adolescence

is predictive of their own drug use in adulthood. It appears that general delinquency in adolescence has consequences for girls in adulthood. However, the effect is only significant for adult drug use prevalence and is not predictive of the amount of drugs women use. Overall, the gender differences in actor effects are stark. In general, women are involved in fewer problem behaviors than men across the life course. When women engage in adolescent general offending, the odds of being involved in adult drug use increase but the odds of being involved in adult general delinquency do not.

Stark gender differences are evident for partner effects, as well. No partner effects are found for men across all ten models. That is, men's adolescent problem behavior did not predict their partner's adult problem behavior. In contrast, the partner effects for women are less consistent. For women's prevalence, partner effects on men are evident for general delinquency and drug use, as well as a heterotypic association between women's adolescent general delinquency and men's adult drug use. For women's ever-variety scores, however, partner effects are only significant for drug use and marginally significant for a heterotypic association between women's adolescent general delinquency and men's adult drug use. Overall, women who participate in problem behaviors in adolescence increase their risk of being involved with men who engage in problem behaviors in adulthood. This finding is particularly robust for drug use.

Altogether, there is only partial support for the contagion hypothesis and the overall findings can be interpreted in two ways. As just stated, for women, problem behavior in adolescence is associated with having a partner with problem behavior in adulthood. In addition, men's adolescent problem behavior and their partner's adolescent problem behavior are both risk factors for their own problem behavior in adulthood. These findings are not without their limitations and several are worth mentioning. For women, adolescent measures are retrospective and subject to recall bias, e.g., under-reporting problem behaviors (Yarrow, Campbell, and Burton 1970). Nevertheless, significant

contagion effects are found using these measures. Another problem with retrospective data of behaviors is that they can be influence by current levels of behavior. In other words, if a respondent is using drugs he or she may be more apt to say that he or she used them as an adolescent. If so, then retrospective measures may be picking up some contemporaneous influences (i.e., partner influence), and that may be why significant contagion effects are found for women. That cannot happen to male focal respondents because their data is prospective. As reported in the previous chapter, additional limitations include a relatively small sample and missing data. To mitigate these issues, dyadic data analyses using MLM were used when appropriate to maintain the largest dataset possible and thus to retain power (rather than running separate analyses for men and women). Multiple imputation techniques were also applied.

Despite these limitations, the goals of this chapter were attained. The hypothesis for the contagion proxy is tested. Partial support is evident and substantial gender differences are found. Prior studies using this method did not find these effects because none of them simultaneously assessed actor and partner effects for both men *and* women. Interestingly, if the Rochester study had not collected retrospective measures of respective others' adolescent behaviors and, as a result, if only half of a given model was estimated (i.e., the association between men's adolescent behavior and women's adult behavior), no support for the contagion proxy would have been found. As it turns out, results from the Rochester study could not replicate and, instead, contradicted the findings of the other life-course studies mentioned earlier. Even though partial support for the contagion proxy is found, it is only evident through the association between women's adolescent behavior and men's adult behavior. Nevertheless, by definition, this method yields somewhat muddy results—selection and socialization effects remain conflated. The next chapter on partner influence, however, will help clarify these effects. This chapter's take-home messages are presented below.

Take-home messages

- The contagion proxy is defined as an association between focal respondents' adolescent behavior and their respective others' adult behavior.
- This method has advantages and disadvantages. Temporal order establishes unidirectional but indirect effects. Ultimately, selection and socialization processes remain conflated.
- Nevertheless, the hypothesis for the contagion proxy is tested to estimate effects for both men and women, to try to replicate findings from past research, and to eventually compare findings with assortative mating and partner influence effects.
- Actor-partner interdependence models simultaneously estimated actor and partner effects while accounting for the nonindependence between dyad members' scores.
- Actor effects measured the association between respondents' adolescent and adult behaviors, and they are evident for men but not women. For men, continuity in problem behaviors is apparent.
- Partner effects measure the association between respondents' adolescent behavior and their respective others' adult behavior, and they are evident for women but not for men. For women, problem behavior in adolescence is associated with having a partner with problem behavior in adulthood.
- Stated somewhat differently, men's adolescent problem behavior and their partner's adolescent problem behavior are both risk factors for their problem behavior in adulthood.
- Limitations include retrospective measures, small samples, and missing data. Nevertheless, the study improves upon previous research.
- The contagion hypothesis is, at best, only partial supported and the direction of the effect is only from women to men, not men to women.

- Given that the effect from men to women is not significant, findings using the Rochester data contradict previous results published by other life-course studies.

Figure 6-1. General Example of Actor-partner Interdependence Model

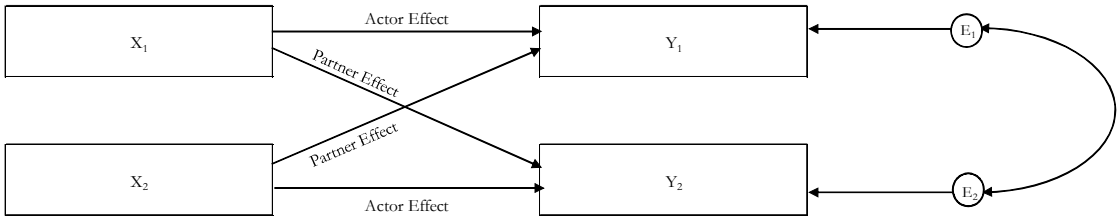


Table 6-1. Example of a Pairwise Dataset

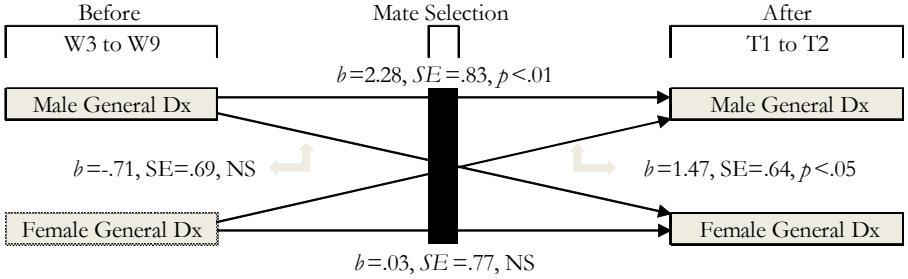
Dyad	Men	Women	Actor X1	Partner X2	Actor Y1	Partner Y2
1	1	0	5	2	9	8
1	0	1	2	5	8	9
2	1	0	6	4	3	6
2	0	1	4	6	6	3
3	1	0	3	9	6	7
3	0	1	9	3	7	6

Table 6-2. General Delinquency: Testing Nonindependence and Contagion Proxies

Prevalence of General Delinquency

Partial r=.07, NS

n=95	Female Adult Dx Outcome			n=95	Male Adult Dx Outcome		
Predictors	b	SE		Predictors	b	SE	
Intercept	9.37	8.05		Intercept	-0.15	9.85	
Male Adol Dx	-0.71	0.69		Female Adol Dx	1.47	0.64	*
Female Adol Dx	0.03	0.77		Male Adol Dx	2.28	0.83	**
Male Adult Dx	0.70	0.65		Female Adult Dx	0.73	0.70	
Female White	0.27	0.64		Male White	0.34	0.79	
Female Hispanic	0.51	0.72		Male Hispanic	0.31	0.71	
Female Age	0.02	0.09		Male Age	-0.48	0.44	
Female Eco Dis	0.31	0.34		Male Eco Dis	0.84	0.43	†
Female Education	-0.37	0.19	†	Male Education	0.26	0.22	
Male Age	-0.27	0.34		Female Age	0.27	0.10	*



Ever-Variety General Delinquency

Partial r=.23*

n=190	Female Adult Dx Outcome			n=na	Male Adult Dx Outcome		
Predictors	b	SE		Predictors	b	SE	
Intercept	0.29	0.09		Intercept	1.03	0.17	
Male Adol Dx	0.07	0.06		Female Adol Dx	0.18	0.20	
Female Adol Dx	0.07	0.09		Male Adol Dx	0.46	0.12	**
Female White	0.00	0.14		Male White	0.00	0.30	
Female Hispanic	0.01	0.15		Male Hispanic	0.21	0.27	
Female Age	0.00	0.02		Male Age	-0.11	0.10	
Female Eco Dis	0.09	0.07		Male Eco Dis	0.21	0.15	
Female Education	-0.05	0.04		Male Education	0.03	0.08	
Male Age	-0.07	0.05		Female Age	0.08	0.03	**

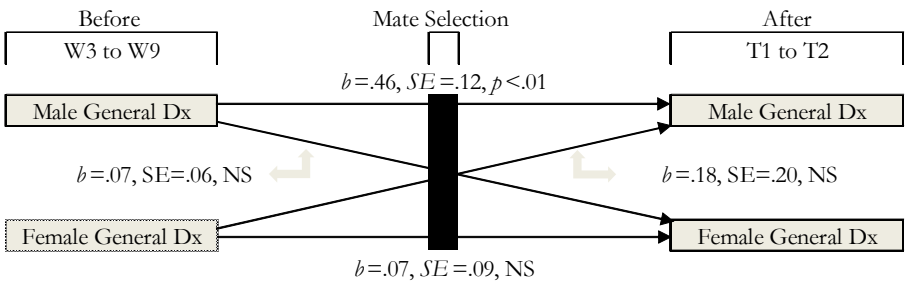
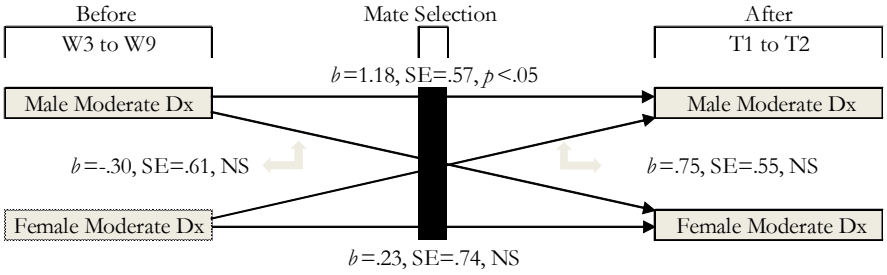


Table 6-3. Moderate Delinquency: Testing Nonindependence and Contagion Proxies

Prevalence of Moderate Delinquency

Partial r=.10, NS

n=95	Female Adult Dx Outcome			n=95	Male Adult Dx Outcome		
Predictors	b	SE		Predictors	b	SE	
Intercept	12.26	8.66		Intercept	-1.27	7.53	
Male Adol Dx	-0.30	0.61		Female Adol Dx	0.75	0.55	
Female Adol Dx	0.23	0.74		Male Adol Dx	1.18	0.57	*
Male Adult Dx	0.69	0.58		Female Adult Dx	0.66	0.59	
Female White	0.28	0.66		Male White	0.79	0.72	
Female Hispanic	0.56	0.72		Male Hispanic	0.39	0.65	
Female Age	-0.05	0.10		Male Age	-0.21	0.34	
Female Eco Dis	0.34	0.34		Male Eco Dis	0.58	0.37	
Female Education	-0.27	0.20		Male Education	-0.01	0.19	
Male Age	-0.38	0.36		Female Age	0.20	0.09	*



Ever-variety Moderate Delinquency

Partial r=.20†

n=95	Female Adult Dx Outcome			n=95	Male Adult Dx Outcome		
Predictors	b	SE		Predictors	b	SE	
Intercept	2.58	1.44	†	Intercept	-0.37	1.98	
Male Adol Dx	0.00	0.08		Female Adol Dx	0.05	0.17	
Female Adol Dx	0.20	0.12		Male Adol Dx	0.27	0.12	*
Male Adult Dx	0.10	0.07		Female Adult Dx	0.27	0.17	
Female White	0.10	0.14		Male White	0.18	0.22	
Female Hispanic	0.08	0.13		Male Hispanic	0.21	0.20	
Female Age	-0.09	0.07		Male Age	-0.04	0.09	
Female Eco Dis	0.07	0.07		Male Eco Dis	0.13	0.11	
Female Education	0.00	0.04		Male Education	-0.02	0.06	
Male Age	-0.01	0.02		Female Age	0.07	0.02	**

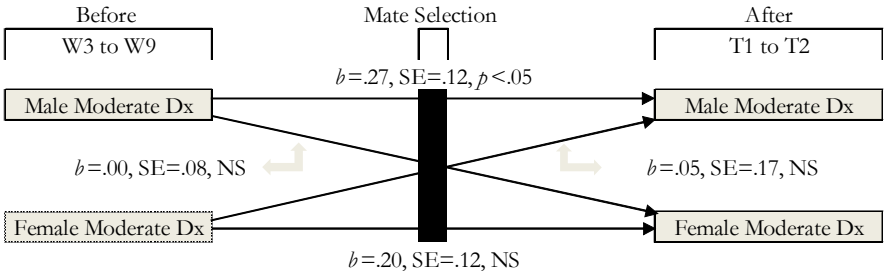
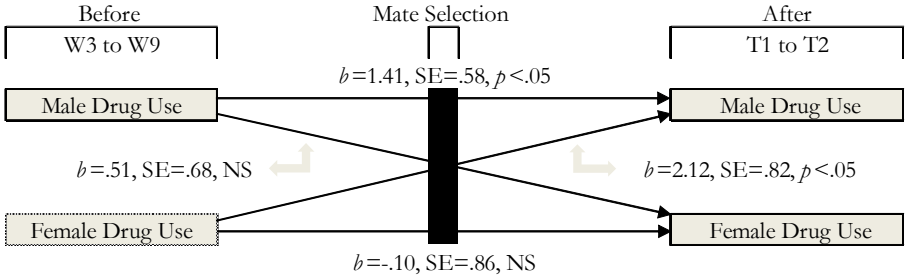


Table 6-4. Drug Use: Testing Nonindependence and Contagion Proxies

Prevalence of Drug Use

Partial r=.18†

n=95	Female Adult Dx Outcome			n=95	Male Adult Dx Outcome		
Predictors	b	SE		Predictors	b	SE	
Intercept	1.01	8.31		Intercept	10.54	8.66	
Male Adol Dx	0.51	0.68		Female Adol Dx	2.12	0.82	
Female Adol Dx	-0.10	0.86		Male Adol Dx	1.41	0.58	*
Male Adult Dx	0.87	0.76		Female Adult Dx	1.26	0.90	*
Female White	0.54	0.83		Male White	-1.74	1.03	
Female Hispanic	-2.01	1.50		Male Hispanic	-0.12	0.76	†
Female Age	-0.04	0.10		Male Age	-0.41	0.35	
Female Eco Dis	0.08	0.43		Male Eco Dis	0.64	0.43	
Female Education	-0.37	0.27		Male Education	-0.11	0.24	
Male Age	0.06	0.32		Female Age	-0.02	0.09	



Ever-variety Drug Use

Partial r=.22*

n=190	Female Adult Dx Outcome			n=na	Male Adult Dx Outcome		
Predictors	b	SE		Predictors	b	SE	
Intercept	0.08	0.04	*	Intercept	0.59	0.08	**
Male Adol Dx	-0.02	0.09		Female Adol Dx	0.41	0.13	*
Female Adol Dx	0.03	0.06		Male Adol Dx	0.35	0.17	*
Female White	0.07	0.07		Male White	-0.15	0.18	
Female Hispanic	-0.08	0.07		Male Hispanic	0.08	0.15	
Female Age	0.00	0.01		Male Age	-0.12	0.06	*
Female Eco Dis	0.02	0.03		Male Eco Dis	0.15	0.09	†
Female Education	-0.02	0.02		Male Education	-0.01	0.05	
Male Age	-0.01	0.03		Female Age	0.00	0.02	

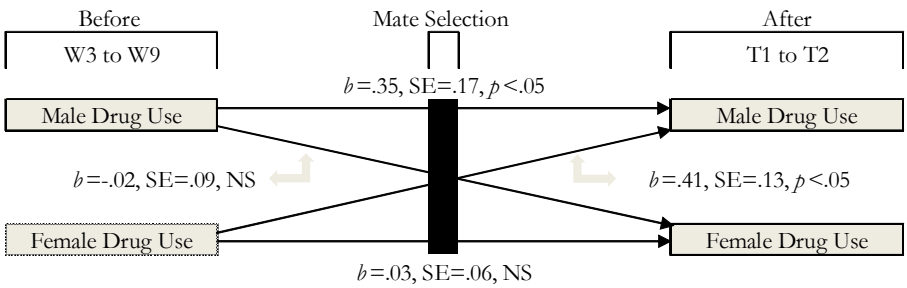
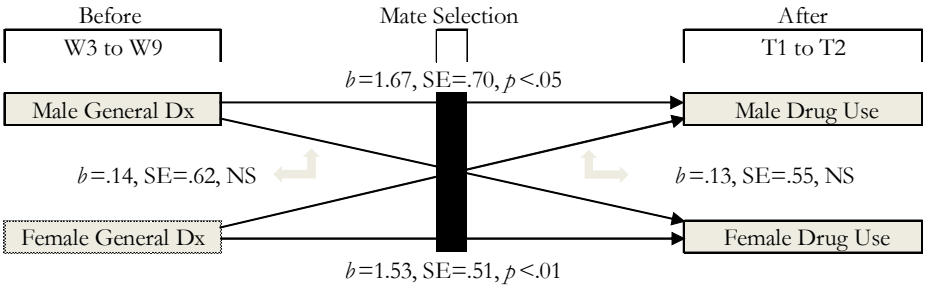


Table 6-5. Heterotypic Contagion, Part I: Testing Nonindependence and Contagion Proxies

General Delinquency Prevalence Predicting Drug Use Prevalence

Partial r=.18†

n=190	Female Adult Outcome			n=na	Male Adult Outcome		
Predictors	b	SE		Predictors	b	SE	
Intercept	-2.98	0.64	**	Intercept	-1.31	0.69	*
Male Adol Dx	0.14	0.62		Female Adol Dx	0.13	0.55	
Female Adol Dx	1.53	0.51	*	Male Adol Dx	1.67	0.70	*
Female White	0.48	0.55		Male White	-0.43	0.72	
Female Hispanic	-1.54	0.74	*	Male Hispanic	-0.29	0.64	
Female Age	-0.01	0.08		Male Age	-0.58	0.26	*
Female Eco Dis	0.12	0.29		Male Eco Dis	0.65	0.37	†
Female Education	-0.29	0.17	†	Male Education	-0.26	0.21	
Male Age	-0.21	0.25		Female Age	0.05	0.08	



General Delinquency Ever-variety Score Predicting Drug Use Ever-variety Score

Partial r=.22*

n=190	Female Adult Outcome			n=na	Male Adult Outcome		
Predictors	b	SE		Predictors	b	SE	
Intercept	0.10	0.04	**	Intercept	0.50	0.10	**
Male Adol Dx	0.02	0.03		Female Adol Dx	-0.02	0.11	
Female Adol Dx	0.05	0.05		Male Adol Dx	0.20	0.07	**
Female White	0.06	0.07		Male White	0.00	0.18	
Female Hispanic	-0.08	0.07		Male Hispanic	0.09	0.16	
Female Age	0.00	0.01		Male Age	-0.14	0.06	*
Female Eco Dis	0.02	0.03		Male Eco Dis	0.15	0.09	†
Female Education	-0.02	0.02		Male Education	-0.04	0.05	
Male Age	-0.02	0.03		Female Age	0.02	0.02	

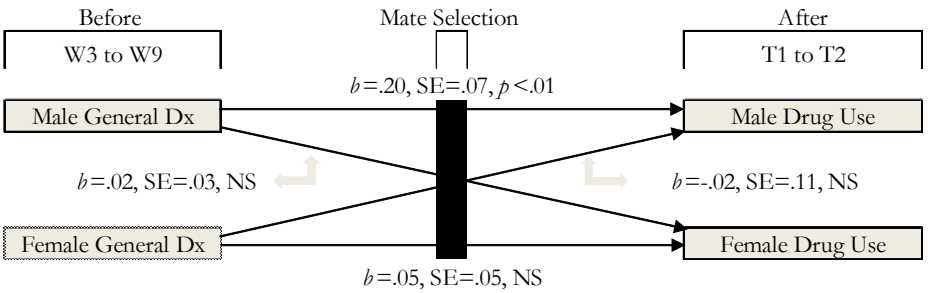
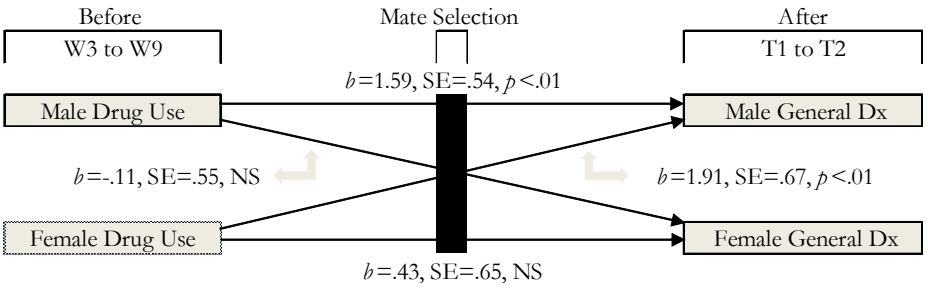


Table 6-6. Heterotypic Contagion, Part II: Testing Nonindependence and Contagion Proxies

Drug Use Prevalence Predicting General Delinquency Prevalence

Partial r=.07, NS

n=190	Female Adult Outcome			n=na	Male Adult Outcome		
Predictors	b	SE		Predictors	b	SE	
Intercept	-1.29	0.49	*	Intercept	-0.23	0.39	
Male Adol Dx	-0.11	0.55		Female Adol Dx	1.91	0.67	**
Female Adol Dx	0.43	0.65		Male Adol Dx	1.59	0.54	**
Female White	0.12	0.67		Male White	0.41	0.74	
Female Hispanic	0.37	0.71		Male Hispanic	0.34	0.62	
Female Age	0.03	0.09		Male Age	-0.11	0.26	
Female Eco Dis	0.35	0.33		Male Eco Dis	0.87	0.36	*
Female Education	-0.33	0.21		Male Education	0.31	0.19	
Male Age	-0.21	0.26		Female Age	0.23	0.09	*



Drug Use Ever-variety Score Predicting General Delinquency Ever-variety Score

Partial r=.23*

n=190	Female Adult Outcome			n=na	Male Adult Outcome		
Predictors	b	SE		Predictors	b	SE	
Intercept	0.29	0.08	**	Intercept	1.13	0.14	**
Male Adol Dx	-0.02	0.12		Female Adol Dx	0.58	0.31	†
Female Adol Dx	0.13	0.16		Male Adol Dx	0.76	0.22	**
Female White	-0.03	0.15		Male White	-0.16	0.32	
Female Hispanic	0.02	0.15		Male Hispanic	0.20	0.27	
Female Age	0.00	0.02		Male Age	-0.06	0.10	
Female Eco Dis	0.10	0.07		Male Eco Dis	0.24	0.15	†
Female Education	-0.05	0.04		Male Education	0.07	0.08	
Male Age	-0.05	0.05		Female Age	0.05	0.03	

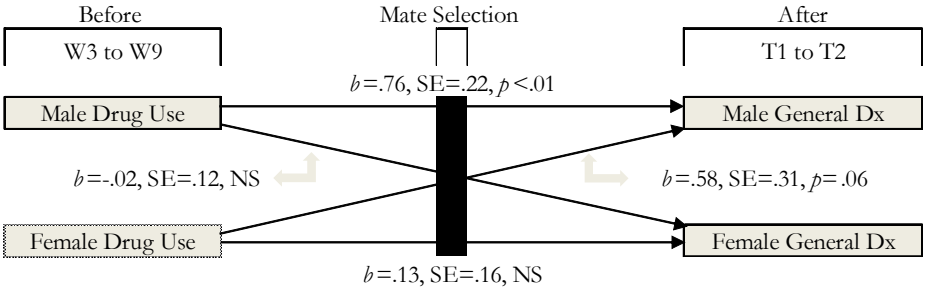


Table 6-7. Summary of Contagion Findings

		Prevalence					Ever-Variety			
Effect:		Actor	Actor	Partner	Partner		Actor	Actor	Partner	Partner
Gender:		Men	Women	M to F	F to M		Men	Women	M to F	F to M
	PS *r*=					PS *r*=				
General Delinquency	*ns*	S	NS	NS	S	*s*	S	NS	NS	NS
Moderate Delinquency	*ns*	S	NS	NS	NS	*m*	S	NS	NS	NS
Drug Use	*m*	S	NS	NS	S	*s*	S	NS	NS	S
Heterotypic Contagion (Dx on Drug Use)	*m*	S	S	NS	NS	*s*	S	NS	NS	NS
Heterotypic Contagion (Drug Use on Dx)	*ns*	S	NS	NS	S	*ns*	S	NS	NS	M

Abbreviations: PS *r*=Partner Simirity Correlation (testing nonindependence), NS=Not Signficant, M=Marginally Significant ($p \leq .10$), S=Signficant ($p < .05$), M=Men, W=Women.

Chapter 7

Partner Influence

Overview

To review the findings for the dissertation thus far, partner similarity is evident but the assortative mating hypothesis is not well supported (except for drug use). The hypothesis for the contagion proxy is partially supported, but only through a unidirectional association between women's adolescent behavior and men's adult behavior. Recall, however, that this method yields somewhat muddy results because an indirect effect is estimated and, as a result, selection and socialization mechanisms remain conflated. The purpose of this chapter is to explore partner influence to help clarify findings. Partner influence is defined here as the direct and bidirectional effect that both partners can have on each other once their union begins (see the fourth section of Figure 1-1). By and large, the literature suggests that assortative mating, rather than partner influence or social homogamy, is the primary mechanism responsible for partner similarity. However, as discussed earlier, a number of methodological limitations affect the validity of this finding. Therefore, the goal of this chapter is to push forward the research on partner similarity by addressing the following research questions. *After mate or partner selection, what effect do male respondents' adult problem behaviors (measured at Time + 1) have on their female partners' adult problem behaviors (measured at Time + 2), controlling for both respondents' prior problem behaviors and demographic factors (measured at Time + 1)? Conversely, after mate or partner selection, what effect do female respondents' adult problem behaviors (measured*

at Time + 1) have on their male partners' adult problem behaviors (measured at Time + 2), controlling for both respondents' prior problem behaviors and demographic factors (measured at Time + 1)?

Method

Sample. The couples subsample was selected for the partner influence analyses (n=130 dyads, n=260 individuals). Recall that these dyads are involved in a romantic relationship and have a child together. The criteria used to select this subsample are fully described in Chapter 6. In short, the mates subsample is not analyzed because not all of the dyads are involved in an ongoing relationship and the partners subsample is not analyzed because the overlap between partners and couples is large. For this chapter however both male and female focal respondents, and their respective others, are included in all analyses because all measures were collected prospectively and in adulthood. As a result, the dataset described in Chapter 6 was transformed such that male focal respondents and male respective others formed the sample of men and female focal respondents and female respective others formed the sample of women. In this chapter, the distinction between focal respondents and respective others is no longer necessary.[26]

Measures. Prospective adult problem behaviors were analyzed. Recall that when focal respondents have their first biological child (and that child has reached the age of two), they become eligible to participate in the study. As a result, enrollment is ongoing. The first two waves of data collected for each dyad were analyzed, problem behavior measures collected at Time 1 and these measures collected again at Time 2. As discussed in earlier chapters, problem behaviors in adulthood are less common than in adolescence. To address this issue, cumulative measures were

---

[26] Partner influence analyses limited to male focal respondents and female respective others were conducted and yielded similar results.

analyzed for tests of partner similarity and contagion. However, this strategy is not appropriate for partner influence analyses. Single-wave measures are needed to isolate temporal order. In the end, none of the ever-variety scores (i.e., frequency) were used because only a small proportion of respondents had a score higher than zero. Likewise, prevalence scores of problem drinking, serious delinquency, and street delinquency were too low for analyses. Altogether, five problem behavior variables were analyzed to test hypotheses related to partner influence (i.e., general, moderate, and drug use offending, as well as deviant peers and beliefs).

For each dyad member, control variables include: race and ethnicity (dummy coded; Black dyads are the reference group), economic disadvantage (a binary variable indicating whether the respondent received public assistance or lived below the federally designated poverty level for a given family size), education, and age. Descriptive statistics for control variables and ever-variety measures of adult problem behaviors are listed in Table 7-1. Looking at this table, we see that respondents are predominantly Black, have approximately 12 years of education, and are approximately 26 years old. Compared to men, more women are economically disadvantaged than their male counterparts (55% and 29% at Time 1 and 55% and 42% at Time 2, respectively). This finding is particularly interesting considering that these women and men are involved in long-term relationships with each other and share a child together. As expected, men are involved in more problem behaviors and have more deviant beliefs and peers than their partners, whether measured at Time 1 or Time 2.

Analytic Strategy

Similar to Chapter 6, Kenny, Kashy, and Cook's (2006) actor-partner interdependence models were adopted to test partner influence hypotheses. For these models, recall that actor effects (how a respondent's independent variable score affects his or her own dependent variable score) and partner effects (how a respondent's independent variable score affects his or her partner's

dependent variable score) are simultaneously estimated but, first, nonindependence is tested between dyad members on outcomes scores. If nonindependence is evident, multilevel regression should be used to estimate effects. If scores are independent, traditional regression can be applied.[27] In this chapter, however, only multilevel modeling is used to test partner influence. This strategy is more parsimonious (one model is estimated rather than two) and is more consistent (because I am not switching back and forth between traditional and multilevel regression).[28] SAS Proc Mixed was used for deviance scales and SAS Glimmix was used for prevalence measures. Actors' Time 1 demographic variables are included in all models and were grand mean centered, except for dummy variables. Gender was recoded into two dummy variables and both were interacted with the predictors of interest.[29]

Although missing data are minimal, multiple imputation was carried out using Proc MI and Proc MIANALYZE procedures in SAS. For each problem behavior analysis, 10 imputed datasets were created. Analyses were performed on each of the imputed datasets; the parameter estimates were then combined using procedures outlined by Yuan (2000).

Power. Most analyses have adequate power to detect significant effects. As discussed earlier, the dataset included focal male and female respondents. As a result, the sample size is larger than in previous chapters. In addition, dyadic data analyses (i.e., MLM with a pairwise dataset) help retain power because the number of cases is doubled rather than split by gender (Kenny, Kashy, & Cook, 2006).

---

[27] A more detailed discussion of actor-partner interdependence models is presented in Chapter 6.
[28] All models were estimated using both traditional and multilevel regression. When nonindependence was evident, nearly identical results were found.
[29] Models (limited to couples with a male focal respondent) that included an adolescent measure of the outcome variable were estimated, as well. Results suggested that these controls were unnecessary because findings were nearly identical to models with these controls.

Results

Below I present the results for general, moderate, and drug use offenses, as well as deviant peers and beliefs. Then, findings related to heterotypic partner influence are presented. I begin by assessing nonindependence using partial correlations that control for social homogamy. Then I estimate, net of demographic factors, how a respondents' Time 1 independent variable score affects his or her own Time 2 dependent variable score (known as the actor effect) and his or her partner's Time 2 dependent variable score (known as the partner effect). For each problem behavior measure, a table is provided to help describe the findings. The top of each table outlines the findings and the bottom of each table presents a corresponding figure to help delineate the actor and partner effects. Note that delinquency models also control for the actor and partner's drug use at Time 1. Conversely, drug use models control for the actor and partner' delinquency at Time 1. For parsimony, these coefficients are not always presented unless relevant.[30]

General Delinquency. Beginning with general delinquency prevalence, findings for actor and partner effects are presented in Table 7-2. First, consider the assessment of nonindependence. Net of social homogamy, the partial correlation for general delinquency prevalence is not significant (r= .10, NS). Partners do not appear similar in terms of their Time 2 general delinquency prevalence. Second, consider the actor effects. Adjusting for the partner effect and demographic factors, male respondents' Time 1 general delinquency is statistically and positively associated with their own Time 2 general delinquency (b=1.81, SE=.54, p<.01). Interpreting this effect, the odds of general delinquency at Time 2 are 6.11 times higher for men with general delinquency at Time 1 than for men with no general delinquency at Time 1. A statistically significant actor effect is also found

[30] Additional models without these controls were estimated; findings were similar but less conservative.

for female respondents (b=1.47, SE=.52, p<.01). That is, for women, the odds of general delinquency at Time 2 are 4.35 times higher for women with general delinquency at Time 1 than for women with no general delinquency at Time 1. For both men and women, there is continuity in general delinquency across a two-year period.

Next, consider the effects for partner influence. After adjusting for the actor effect and demographic factors, male respondents' Time 1 general delinquency is not associated with their female partners' Time 2 general delinquency. Likewise, after adjusting for all predictors, female respondents' Time 1 general delinquency is not predictive of their male partners' Time 2 general delinquency. These nonsignificant findings do not provide support for the partner influence hypothesis in terms of prevalence for general delinquency in adulthood. This finding is not entirely surprising because prevalence at each wave is generally low and only two waves of data are modeled. The validity of this nonsignificant finding would be strengthened if partner influence effects could be tested across several waves of data. Unfortunately, length of participation in the intergenerational study varies across respondents. This is due to ongoing enrollment—a necessary but sometimes unfortunate design feature of intergenerational research. As a result, the sample size is too small to use three or more waves of data.

Last, consider the effects of demographic factors on general delinquency at Time 2, none of which are significant. This is not surprising considering the number of predictors in the model. However, one marginally significant effect is found for women. The odds of general delinquency at Time 2 are 2.41 times higher for White women than for Black women (b=.88, SE=.53, p<.10).

Moderate Delinquency. For the subscale, moderate delinquency, findings for actor and partner influence effects are presented in Table 7-3. First, consider the assessment of nonindependence. Net of social homogamy, the partial correlation for moderate delinquency prevalence is not significant (r= .09, NS). Partner similarity is not evident on moderate delinquency

at Time 2. Next, consider the actor effects. Adjusting for the partner effect and demographic factors, male respondents' Time 1 moderate delinquency is statistically and positively associated with their own Time 2 moderate delinquency (b=1.01, SE=.48 p<.05). In other words, the odds of moderate delinquency at Time 2 are 2.75 times higher for men with moderate delinquency at Time 1 than for men with no moderate delinquency at Time 1. A statistically significant actor effect is also found for female respondents (b=1.43, SE=.51, p<.01). That is, for women, the odds of moderate delinquency at Time 2 are 4.18 times higher for women with moderate delinquency at Time 1 than for women with no moderate delinquency at Time 1. Stability in prevalence for moderate delinquency is evident across a two-year period for men and women.

Next, consider the effects of partner influence. After adjusting for the actor effect and demographic factors, male respondents' Time 1 moderate delinquency is not associated with their female partner's Time 2 moderate delinquency. For women, after adjusting for all predictors, female respondents' Time 1 moderate delinquency is moderately and positively associated with male respondents' Time 2 moderate delinquency (b=.99, SE=.56, p=.08). Interpreting this marginally significant effect, the odds of men's prevalence for moderate delinquency at Time 2 are 2.69 times higher for women with moderate delinquency at Time 1 than for women with no moderate delinquency at Time 2. More research, however, is needed to support the validity of this effect.

Last consider the effects of demographic factors on Time 2 moderate delinquency, which are not surprising. For men, an additional year of education reduces their odds of moderate delinquency prevalence at Time 2 by a factor of 1.43 (b=-.36, SE=.17, p<.05). For women, two demographic factors approached significance. The odds of moderate delinquency at Time 2 are 3.00 times higher for Hispanic women (b=1.10, SE=.59, p<.10) and 2.39 times higher for economically disadvantaged women (b=.87, SE=.50, p<.10).

Drug Use. Results for actor and partner effects on drug use are presented in Table 7-4. First, consider the assessment of nonindependence. Net of social homogamy, the partial correlation for drug use prevalence is significant (r= .20, p<.05). That is, partner similarity for drug use is evident. Adjusting for the partner effect and demographic factors, male respondents' Time 1 drug use is statistically and positively associated with their own Time 2 drug use (b=3.61, SE=.44, p<.01). In other words, the odds of drug use at Time 2 are 36.97 times higher for men with drug use at Time 1 than for men with no drug use at Time 1. This actor effect is evident for female respondents, as well (b=1.60, SE=.62, p<.01). As such, the odds of drug use at Time 2 are 4.90 times higher for women with drug use at Time 1 than for women with no drug use at Time 1. During their first two years of enrollment in the intergenerational study, continuity in drug use is evident for men and women.

Next, consider the tests of partner influence. After adjusting for the actor effect and demographic factors, male respondents' Time 1 drug use is not associated with their female partners' Time 2 drug use. Likewise, after adjusting for all predictors, female respondents' Time 1 drug use is not predictive of their male partners' Time 2 drug use. This nonsignificant effect is surprising considering that couples assorted on drug use. After selecting into relationships with other drug user, I expected partners to influence and, perhaps, even amplify each other's drug use over time. Overall, stability in drug use is evident but partner influence in not. Combined, these findings provide some support for selection rather than socialization effects—at least on drug use.

Last consider the effects of demographic factors on Time 2 drug use. For men, age (b=-.21, SE=.08, p<.05) and education (b=-.30, SE=.15, p<.05) are significantly and negatively associated with drug use. That is, the odds of drug use drop for older (by a factor of .81) and more education (by a factor of .74) men. None of the demographic controls are significant for women.

Heterotypic Partner Similarity, Part I: Predicting Drug Use. Thus far, there is virtually no support for partner influence effects. Perhaps, heterotypic partner influence is more likely given that men and women's involvement in offending may be different. As such, heterotypic partner influence was tested by estimating two sets of models. In the first set, general delinquency at Time 1 is the predictor and drug use at Time 2 the outcome. Then, in the second set, the models are reversed; drug use at Time 1 is the predictor and general delinquency at Time 2 the outcome. Together, the models assess the evidence for heterotypic actor and partner influence effects.

The first heterotypic model estimated the effects of Time 1 general delinquency on Time 2 drug use for actors and partners using prevalence measures. Consider the assessment of nonindependence presented in Table 7-5. As already discussed in the section above, partner similarity on drug use is evident. Net of social homogamy, the partial correlation for drug use prevalence is r= .20, NS. Next, consider the actor effects. Adjusting for the partner effect and demographic factors, male respondents' general delinquency at Time 1 is not statistically associated with their drug use at Time 2. Recall that the model controls for drug use at Time 1 which, reported above, is significant. Ultimately, drug use—not delinquency—is predictive of later drug use for men. A somewhat different effect is found for women. Female respondents' general delinquency at Time 1 is statistically and positively associated with their drug use at Time 2, after adjusting for all predictors including their drug use and their partners' drug use at Time 1 (b=1.07, SE=.50, p<.05). Interpreting this effect, the odds of drug use at Time 2 are 3.92 times higher for women with general delinquency at Time 1 than for women with no general delinquency at Time 1. Overall, general delinquency and drug use are both risk factors for women's later drug use.

Next, consider the effects of partner influence. After adjusting for the actor effect and demographic factors, male respondents' general delinquency at Time 1 is not associated with their female partners' drug use at Time 2. In contrast, after adjusting for all predictors, female

respondents' general delinquency at Time 1 is significantly and positively associated with their male partners' drug use at Time 2 (b=2.16, SE=.46, p<.01). That is, the odds of men's drug use at Time 2 are 8.67 times higher when their female partners are involved in general delinquency at Time 1 than when their female partners are not involved in general delinquency at Time 1.[31] This significant effect provides support for heterotypic partner influence—on men's drug use. For men, it seems that their prior general delinquency (and prior drug use) is a risk factor, as well as their partner's prior general delinquency, for their later drug use. This finding is surprising considering that homotypic partner influence on general delinquency and homotypic partner influence on drug use is not evident. Perhaps, for women, general delinquency is higher than drug use on the problem behavior spectrum and, as result, has more consequences for their male partners in terms of their subsequent drug use. The effects of demographic factors on drug use are already reported above—both men's age and education are statistically and positively associated with their drug use at Time 2.

Heterotypic Partner Similarity, Part II: Predicting General Delinquency. Conversely, the second heterotypic model estimates the effects of drug use at Time 1 on general delinquency at Time 2 for actors and partners using prevalence measures. Consider the assessment of nonindependence presented in Table 7-6. As already discussed, partner similarity on general delinquency is not significant. Net of social homogamy, the partial correlation for general delinquency is r= .10, NS.

Next consider the actor effects. Adjusting for the partner effect and demographic factors, male respondents' drug use at Time 1 is statistically and positively associated with their own Time 2 general delinquency (b=1.34, SE=.53, p<.01). That is, the odds of general delinquency at Time 2 are

---

[31] The model controls for the drug use of actors and partners at Time 1.

3.82 times higher for men with drug use at Time 1 than for men with no drug use at Time 1. The actor effect does not hold for female respondents. For women, drug use at Time 1 is not predictive of general delinquency at Time 2 (but recall that general delinquency is predictive). To summarize the findings across both the heterotypic models in terms of actor effects, an interesting albeit perplexing gender difference is apparent. For men, delinquency at Time 1 does not predict drug use at Time 2 but drug use at Time 1 is predictive of their delinquency at Time 2. In contrast, for women, delinquency at Time 1 is predictive of drug use at Time 2 but drug use at Time 1 is not predictive of their delinquency at Time 2.

Now consider partner influence. After adjusting for all other predictors, male respondents' drug use at Time 1 is not associated with their female partners' general delinquency at Time 2. Likewise, after adjusting for all other predictors, female respondents' drug use at Time 1 is not associated with their male partners' general delinquency at Time 2. Altogether, there is no support for heterotypic partner influence on general delinquency.

Last consider the effects of demographic factors on Time 2 drug use, few of which are significant. The odds of drug use at Time 2 are higher by a factor of 4.18 for Hispanic women than for Black women (b=1.43, SD=.70, p<.05).

To summarize the findings from both heterotypic models, there is support for stability in heterotypic problem behaviors in adulthood but there are apparent gender differences. For men, earlier drug use predicts their own later delinquency but earlier delinquency does not predict later drug use. Conversely, for women, earlier delinquency predicts their own later drug use but earlier drug use does not predict later delinquency. Altogether the findings suggest that drugs get men into trouble, whereas trouble gets women into drugs. In addition, there is some support for heterotypic partner influence. Women's earlier general delinquency predicts men's later drug use. Interestingly,

for men, it is only their partner's delinquency and not their own that predicts their later drug use. Ultimately, more research is needed to unpack these effects.

Deviant Peers. The next two models explore deviance—in terms of associating with deviant peers and having deviant beliefs. These measures are often correlated with a variety of problem behaviors (Matsueda & Anderson, 1998; Thornberry, Lizotte, Farnworth, & Jang, 1994). The first model considers actor and partner effects on associating with deviant peers, which are presented in Table 7-7. First consider the assessment of nonindependence which, after controlling for social homogamy, is significant (r= .26, p<.01). Couples appear similar in terms of their deviant peer associations. Next, consider the actor effects. Adjusting for predictors, male respondents' Time 1 associations with deviant peers statistically predict an increase their in associations with deviant peers at Time 2 (*b=.53, SE=.08, p<.01*, on a scale from 1 to 4). A statistically significant actor effect is also found for female respondents. That is, for women, deviant peers at Time 1 are significantly and positively associated with deviant peers at Time 2 (b=.39, SE=.07, p<.01). Overall, these findings show that there is continuity in deviant peer associations across a two-year period for men and women.

Next, consider partner influence effects on deviant peer associations. After adjusting for the actor effect and demographic factors, male respondents' deviant peer associations at Time 1 do not predict their female partners' deviant peer associations at Time 2. Likewise, after adjusting for all predictors, female respondents' deviant peer associations at Time 1 do not predict their male partners' deviant peer associations at Time 2. Altogether, the partner influence hypothesis is not supported when deviant peers are considered.

Last consider the effects of demographic factors on Time 2 deviant peer associations. Only one predictor is significant. For men, education is statistically and positively associated with deviant peer associations (b=.09, SE=.04, p<.05).

Deviant Beliefs. The final model for this chapter considers actor and partner effects on deviant beliefs, which are presented in Table 7-8. Note, however, that missing data are high and, thus, findings should be interpreted with caution. Specifically, 60% of responses are missing this measure at Time 2.[32] Nevertheless, the use of multiple imputation is technically valid under this condition (i.e., when the dependent variable is imputed, see von Hippel, 2007) and interesting exploratory partner influence effects are found.

First, consider the assessment of nonindependence which, after controlling for social homogamy, is significant (r= -.16, NS). Couples are not similar in terms of their deviant beliefs. Next, consider the actor effects. Adjusting for predictors, male respondents' Time 1 deviant beliefs are positively and statistically associated with their deviant beliefs at Time 2 (b=.61, SE=.10, p<.05). Interpreting this effect, for men, having deviant beliefs at Time 1 predicts a .61 increase in deviant beliefs at Time 2 (on a scale from 1 to 4). A statistically significant actor effect is also found for female respondents. That is, for women, deviant beliefs at Time 1 are statistically and positively associated with deviant beliefs at Time 2 (b=.69, SE=.08, p<.01). Overall, these findings show that there is stability in deviant beliefs for both men and women.

Next, consider partner influence on deviant beliefs. After adjusting for the actor effect and demographic factors, male respondents' deviant beliefs at Time 1 are statistically and positively associated with their female partners' deviant beliefs at Time 2 (b=.17, SE=.08, p<.05). That is, when men have more deviant beliefs at Time 1, their partners have more deviant beliefs at Time 2. In contrast, after adjusting for all predictors, female respondents' deviant beliefs at Time 1 are not associated their male partners' deviant beliefs at Time 2. Overall, these findings provide partial

---

[32] The deviant beliefs scale was only asked in Year 1 and Year 2, and in Years 3 through Years 6 if a respondent's child was two years of age.

support for the partner influence hypothesis in regards to deviant beliefs, specifically. The association, however, is only significant for the influence of men's deviant beliefs on women's deviant beliefs, and this finding should be interpreted with caution because missing data are high. More research is needed to support the validity of this finding. Last, none of the demographic factors are predictive of deviant beliefs at Time 2.

Discussion

This chapter is the last analytic chapter of the dissertation and its goal was to explore partner influence on problem behaviors. Prior research has shown that peers are quite influential in terms of offending in adolescence (Weerman, 2011). Theoretically, these same socialization (i.e., social control and social learning) mechanisms are plausible in adulthood within the context of romantic relationships. Earlier research has attempted to assess the extent to which partners influence each other but, as described in Chapter 2, studies reported in the literature are wrought with a number of methodological limitations. The primary aim of the dissertation is to improve upon this research and explore the mechanisms responsible for partner similarity—in terms of selection and socialization processes. The analyses conducted for this chapter provide the last set of key finding needed to attain this goal.

Partner influence is defined as the direct and bidirectional effect that both partners have on each other once their union begins (see the fourth section of Figure 1-1). Actor-partner interdependence models (Kenny, Kashy, & Cook, 2006) were estimated using two waves of prospective data from the couples' subsample and multilevel modeling techniques. The advantages of this method include establishing temporal order, simultaneously estimating both actor and partner effects, and accounting for the potential nonindependence (i.e., partner similarity) between dyad members. In total, seven models were estimated to explore general, moderate, and drug use offending, two related types of heterotypic problem behaviors, and deviant peers and beliefs. Table

7-9 summarizes the findings related to the partner influence hypothesis which, overall, is not supported. The table lists actor and partner effects for each gender in terms of whether or not the findings are significant. Altogether, the analyses for this chapter revealed interesting results related to the stability and reciprocality of problem behaviors over time.

First consider the actor effects. For men and women, problem behaviors at Time 1 are predictive of problem behaviors at Time 2, regardless of the type of offending. This finding is consistent across all the models, except one heterotypic model. Clearly, there is robust support for stability of problem behaviors over a two-year period in adulthood, when respondents are approximately 26 years of age. This finding is not entirely surprising. Problem behaviors in adulthood are rare but past research shows that they can be stable across the life course (Moffitt, 1997). The findings related to gender differences in heterotypic actor effects are unexpected. For men, drug use is related to later delinquency but delinquency is not related to later drug use. For women, delinquency is related to later drug use but drug use is not related to later delinquency. Drug use has consequences for men's offending whereas offending has consequences for women's drug use. Ultimately, more research is needed to explore these subtle but interesting gender differences.

Now consider the influence of partners on each other's problem behaviors. For men, no statistically significant effects on female partner effects are found for across all models, except for the model assessing deviant peer associations. The estimate for deviant beliefs is questionable, however, because 60% of the data are imputed. [33] Overall, men's delinquency and drug use do not have consequences for women—at least in terms of their problem behaviors. For women, one

[33] The deviant beliefs scale was only asked in Year 1 and Year 2, and in Years 3 through Years 6 if a respondent's child was two years of age.

partner effect is significant—a heterotypic association. In the end, the only support for the partner influence hypothesis is for the heterotypic association between women's general delinquency at Time 1 and men's drug use at Time 2. This effect is significant net of controls for actor and partner predictors of drug use. Perhaps, women's general delinquency is more problematic than their drug use, at least for men, as it has consequences for men's subsequent drug use. Interestingly, for men, it is only their partner's delinquency and not their own delinquency that predicts their later drug use. Altogether, these findings may align somewhat with Kreager, Matsueda, and Erosheva's (2010) research showing that among disadvantaged inner-city women who are not at severe risk of incarceration, motherhood is associated with fewer problem behaviors. Perhaps, this "motherhood effect" buffers the negative impact that antisocial men can potentially have on their partners. Likewise, the same can be said of the men in the sample in terms of a "fatherhood effect." In line with social control theory (Hirschi, 1971), these couples have a lot to lose—their children—by participating in problem behaviors. Ultimately, a replication of this study using a sample of couples who do not have children would prove illuminating.

Overall, the Rochester study does not find support for partner influence. Several important methodological limitations may be contributing to this finding. First, as stated earlier, the sample is relatively small. To mitigate this issue, dyadic data analyses exploited multilevel modeling, which retains the largest dataset possible. Second, partner effects are generally small and, thus, analyses need substantial power to detect subtle but theoretically meaningful effects (Ackerman, Donnellan, & Kashy, 2011). Third, length of participation in the intergenerational study varies across respondents, limiting the analysis to two annual waves of data and to focal respondents between the ages of 25 and 29 at Time 1. Results would be strengthened if effects could be tested across several waves of data. In addition, prevalence of problem behaviors in adulthood is low. Cumulative measures are not used in order to preserve temporal order and the direction of effects. Combined,

these issues—sample size, potentially subtle partner effects, varying lengths of participation, and low prevalence—may have masked small but important partner influence effects. That being said, few extant studies have better designs.

Although studying dyadic problem behavior is challenging, the analyses yielded several interesting findings which can be interpreted in three ways. First, the "good marriage effect" (or something akin to it) does not seem to apply to couples in the Rochester study. By and large, continuity—not discontinuity—in problem behaviors is evident. Second, "the good parent effect" may buffer the impact of partners on each other's problem behaviors. Fortunately, escalation in problem behaviors is not apparent. Third, when women are delinquent, their delinquency may be more problematic than their drug use as this seems to have consequences for men's subsequent drug use. Ultimately, the goal of this chapter was to estimate partner influence effects to better understand the similarity seen between partners on their problem behaviors. Having accomplished this goal, the next chapter pulls together all of the findings from the dissertation—on social homogamy, assortative mating, contagion, and partner influence—to assess which, if any, of these mechanisms best explain partner similarity. This chapter's take-home messages are presented below.

Take-home Messages

- Partner influence is defined as the direct and bidirectional effect that both partners have on each other after their union begins.
- Theoretically, partner influence can be explained by the same socialization (i.e., social control and social learning) mechanisms responsible for the influence of peers on adolescent offending.
- Actor-partner interdependence models simultaneously estimate actor and partner effects while maintaining temporal order and accounting for the potential nonindependence between dyad members' behaviors.
- Actor effects measured the association between respondents' problem behavior at Time 1 and respondents' problem behavior at Time 2. Support for continuity in problem behaviors is robust.
- Partner effects measured the association between respondents' problem behavior at Time 1 and their partners' problem behavior at Time 2. Women's general delinquency at Time 1 is predictive of men's drug use at Time 2. No other partner influence effects are found.
- Overall, the partner influence hypothesis is not supported.
- Findings should be interpreted in light of several methodological challenges—small sample size, potentially subtle partner effects, varying lengths of participation that limited the analyses to two waves of data, and low prevalence of problem behaviors in adulthood.

Table 7-1. Partner Influence: Descriptive Statistics for Couples with a Male Focal Respondent

	Time 1					Time 2				
	n	Min	Max	Mean	Std	n	Min	Max	Mean	Std
			Black					Black		
Men	130	0	1	0.67	0.47	na	na	na	na	na
Women	130	0	1	0.55	0.50	na	na	na	na	na
			White					White		
Men	130	0	1	0.15	0.35	na	na	na	na	na
Women	130	0	1	0.21	0.41	na	na	na	na	na
			Hispanic					Hispanic		
Men	130	0	1	0.18	0.38*	na	na	na	na	na
Women	130	0	1	0.18	0.38*	na	na	na	na	na
			Education					Education		
Men	124	8	18	11.89	1.58	na	na	na	na	na
Women	114	8	18	12.29	1.64	na	na	na	na	na
			Age					Age		
Men	130	22	38	26.55	2.39	130	23	39	27.58	2.44
Women	130	20	39	25.19	2.95	130	20	40	26.17	3.04
			Economic Disadvantage					Economic Disadvantage		
Men	127	0	1	0.29	0.46	126	0	1	0.42	0.50
Women	130	0	1	0.55	0.50	130	0	1	0.55	0.50
			General Delinquency					General Delinquency		
Men	130	0	2.89	0.58	0.66	130	0	2.56	0.47	0.60
Women	130	0	1.79	0.17	0.37	130	0	1.39	0.14	0.33
			Moderate Delinquency					Moderate Delinquency		
Men	130	0	1.79	0.38	0.50	130	0	1.61	0.27	0.42
Women	130	0	1.10	0.13	0.29	130	0	1.10	0.12	0.29
			Drug Use					Drug Use		
Men	128	0	1.10	0.26	0.35	128	0	1.39	0.21	0.34
Women	128	0	1.10	0.06	0.21	130	0	0.69	0.05	0.19
			Deviant Peers					Deviant Peers		
Men	128	1	4.00	1.80	0.80	127	1	4.00	1.73	0.84
Women	129	1	3.20	1.24	0.41	129	1	3.00	1.18	0.33
			Deviant Beliefs					Deviant Beliefs		
Men	109	1	3.20	1.92	0.56	53	1	3.20	1.95	0.54
Women	109	1	2.60	1.55	0.50	52	1	2.40	1.56	0.53

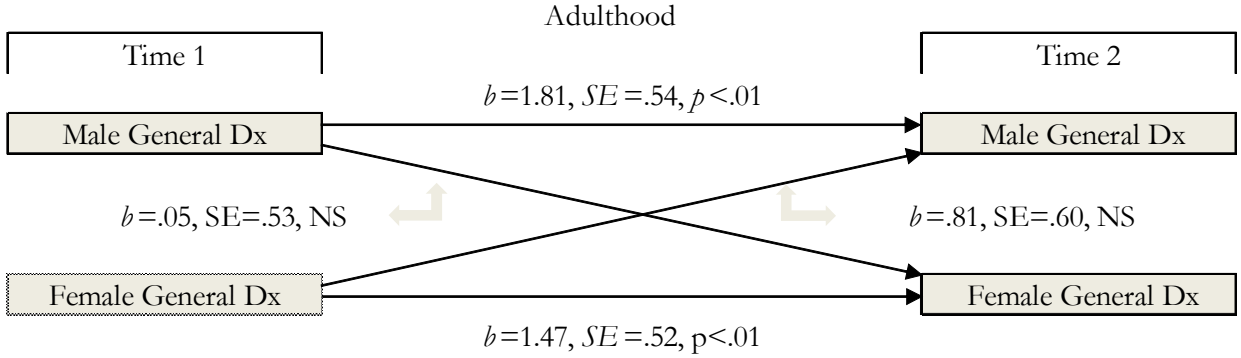
Race and ethnicity dummy variables can be interpreted, for example, as 67% of the men in the couples subsample are Black, 15% are White, and 18% are Hispanic. Only women (and those who are respective others) have an "other" race and enthnicity category, accounting for 6% of the female sample. *There are equal numbers of Hispanic men and women. NA=not applicable.

Table 7-2. General Delinquency: Testing Nonindependence and Partner Influence Effects

Prevalence of General Delinquency

Partial r=.10, NS

n=260	Female Time 2 Dx Outcome			Male Time 2 Dx Outcome		
Predictors:	*b*	SE		Predictors:	*b*	SE	
Intercept	-2.68	0.43	**	Intercept	-2.13	0.45	**
Male Time 1 Dx	0.05	0.53		Female Time 1 Dx	0.81	0.60	
Female Time 1 Dx	1.47	0.52	**	Male Time 1 Dx	1.81	0.54	**
Female White	0.88	0.53	†	Male White	0.44	0.64	
Female Hispanic	0.95	0.61		Male Hispanic	0.68	0.63	
Female Age	-0.02	0.09		Male Age	0.08	0.10	
Female Eco Dis	0.78	0.51		Male Eco Dis	-0.57	0.52	
Female Education	-0.09	0.18		Male Education	-0.25	0.17	
Male Age	0.05	0.10		Female Age	-0.02	0.08	



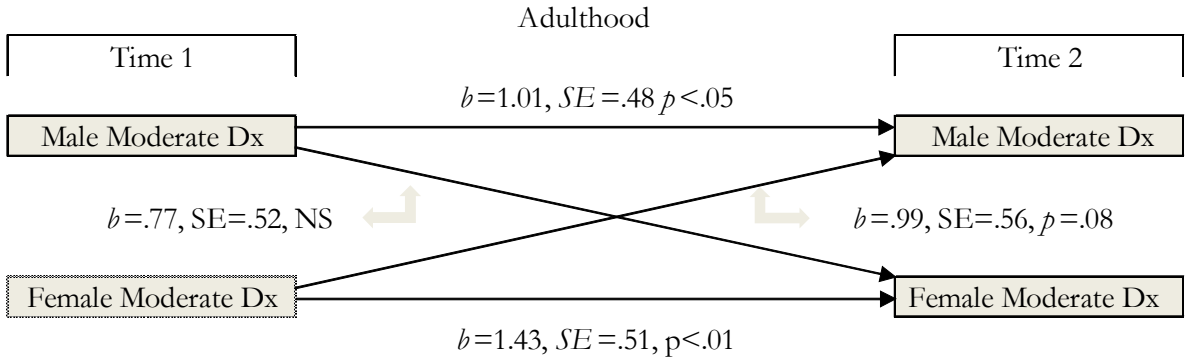
†p ≤ .10, *p < .05, **p < .01.

Table 7-3. Moderate Delinquency: Testing Nonindependence and Partner Influence Effects

Prevalence of Moderate Delinquency

Partial r=.09, NS

n=260	Female Time 2 Dx Outcome			Male Time 2 Dx Outcome		
Predictors:	*b*	SE		Predictors:	*b*	SE	
Intercept	-2.72	0.42	**	Intercept	-2.43	0.41	**
Male Time 1 Dx	0.77	0.52		Female Time 1 Dx	0.99	0.56	†
Female Time 1 Dx	1.43	0.51	**	Male Time 1 Dx	1.01	0.48	*
Female White	0.67	0.53		Male White	0.46	0.60	
Female Hispanic	1.10	0.59	†	Male Hispanic	0.35	0.56	
Female Age	-0.02	0.09		Male Age	0.14	0.09	
Female Eco Dis	0.87	0.50	†	Male Eco Dis	-0.11	0.47	
Female Education	-0.07	0.17		Male Education	-0.36	0.17	*
Male Age	-0.06	0.10		Female Age	-0.05	0.07	



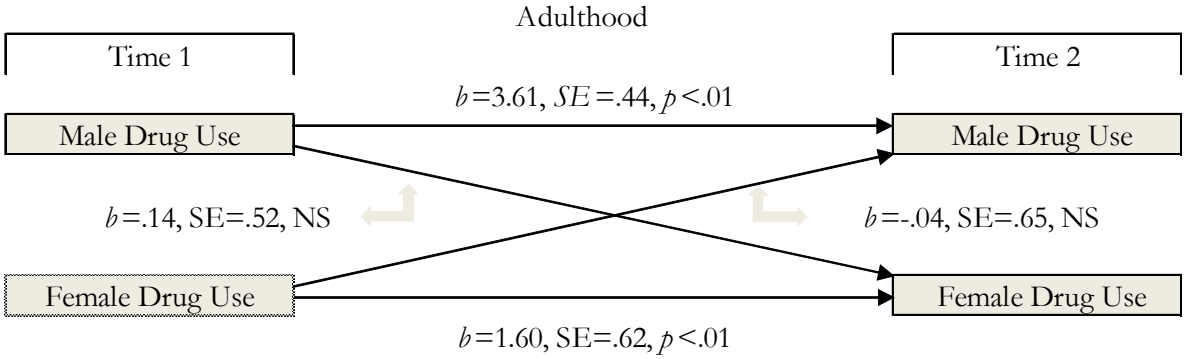
†p ≤ .10, *p < .05, **p < .01.

Table 7-4. Drug Use: Testing Nonindependence and Partner Influence Effects

Drug Use Prevalence

Partial r=.20*

n=260	Female Time 2 Dx Outcome			Male Time 2 Dx Outcome		
Predictors:	*b*	SE		Predictors:	*b*	SE	
Intercept	-2.74	0.38	**	Intercept	-3.33	0.35	**
Male Time 1 Dx	0.14	0.52		Female Time 1 Dx	-0.04	0.65	
Female Time 1 Dx	1.60	0.62	**	Male Time 1 Dx	3.61	0.44	**
Female White	0.63	0.47		Male White	0.81	0.53	
Female Hispanic	-0.99	0.62		Male Hispanic	0.25	0.45	
Female Age	0.08	0.07		Male Age	-0.21	0.08	*
Female Eco Dis	0.09	0.46		Male Eco Dis	-0.25	0.42	
Female Education	-0.13	0.16		Male Education	-0.30	0.15	*
Male Age	0.07	0.08		Female Age	-0.07	0.06	



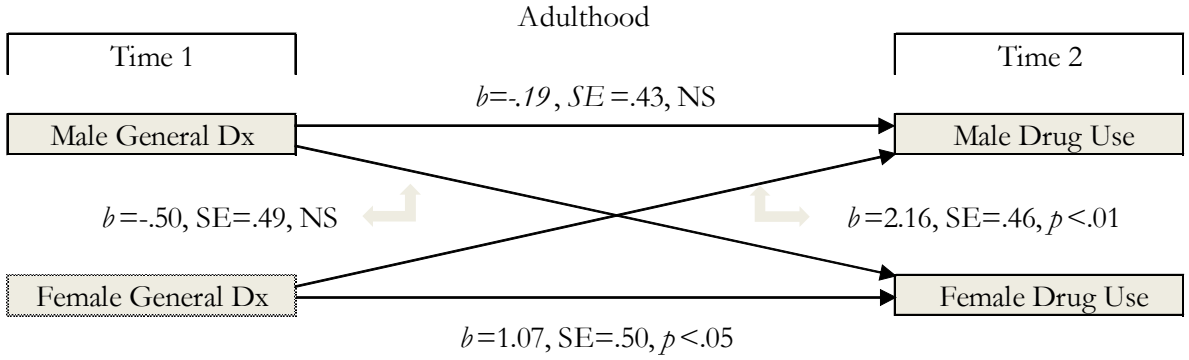
†p ≤ .10, *p < .05, **p < .01.

Table 7-5. Heterotypic Effects, Part I: Testing Nonindependence and Partner Influence

General Delinquency Prevalence Predicting Drug Use Prevalence

Partial r=.20*

n=260	Female Time 2 Dx Outcome			Male Time 2 Dx Outcome		
Predictors:	*b*	SE		Predictors:	*b*	SE	
Intercept	-2.74	0.38	**	Intercept	-3.33	0.35	**
Male Time 1 Dx	-0.50	0.49		Female Time 1 Dx	2.16	0.46	**
Female Time 1 Dx	1.07	0.50	*	Male Time 1 Dx	-0.19	0.43	^
Female White	0.63	0.47		Male White	0.81	0.53	
Female Hispanic	-0.99	0.62		Male Hispanic	0.25	0.45	
Female Age	0.08	0.07		Male Age	-0.21	0.08	**
Female Eco Dis	0.09	0.46		Male Eco Dis	-0.25	0.42	
Female Education	-0.13	0.16		Male Education	-0.30	0.15	*
Male Age	0.07	0.08		Female Age	-0.07	0.06	



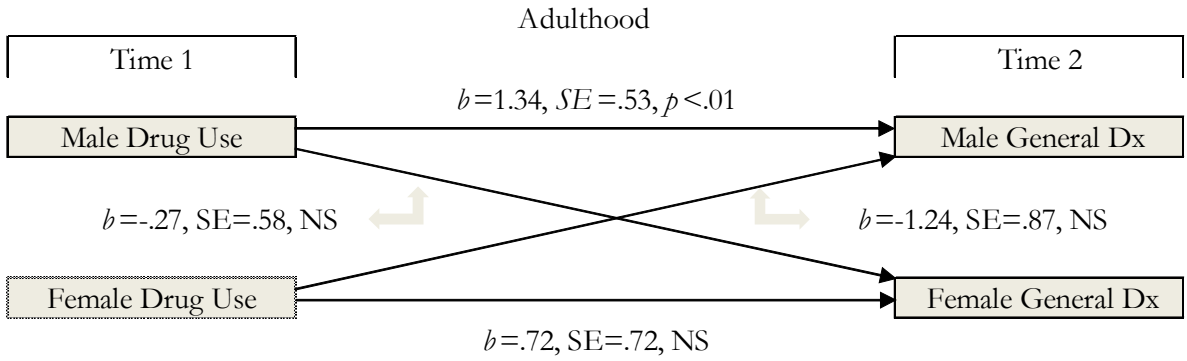
†p ≤ .10, *p < .05, **p < .01. ^Time 1 Drug Use *b*=3.61, SE=.44, *p*<.01.

Table 7-6. Heterotypic Effects, Part II: Testing Nonindependence and Partner Influence

Drug Use Prevalence Predicting General Delinquency Prevalence

Partial r=.10, NS

n=260	Female Time 2 Dx Outcome			Male Time 2 Dx Outcome		
Predictors:	b	SE		Predictors:	b	SE	
Intercept	-2.58	0.45	**	Intercept	-2.11	0.45	**
Male Time 1 Dx	-0.27	0.58		Female Time 1 Dx	-1.24	0.87	
Female Time 1 Dx	0.72	0.72	^	Male Time 1 Dx	1.34	0.53	**
Female White	0.85	0.54		Male White	0.42	0.64	
Female Hispanic	0.92	0.61		Male Hispanic	0.66	0.63	
Female Age	-0.03	0.09		Male Age	0.08	0.10	
Female Eco Dis	0.80	0.51		Male Eco Dis	-0.62	0.53	
Female Education	-0.08	0.18		Male Education	-0.27	0.17	
Male Age	0.05	0.10		Female Age	-0.03	0.08	



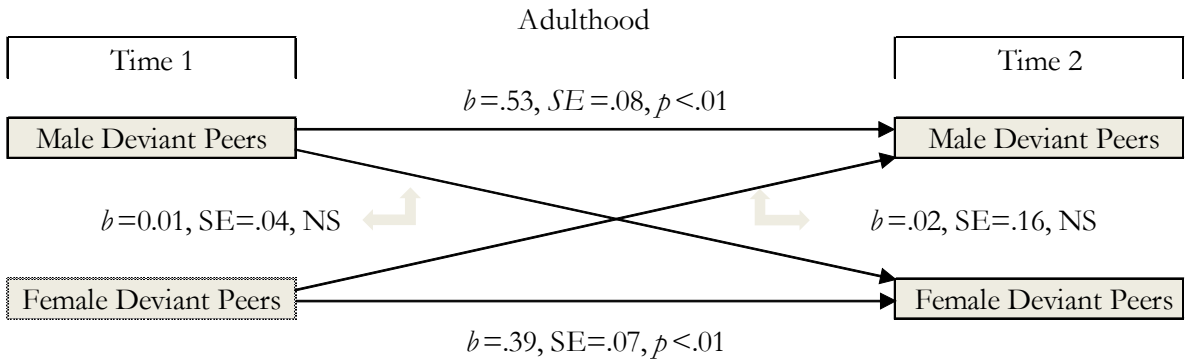
†p ≤ .10, *p < .05, **p < .01. ^Time 1 General Delinquency b=1.52, SE=.53, p<.01.

Table 7-7. Deviant Peers: Testing Nonindependence and Partner Influence Effects

Deviant Peers

Partial r=.26**

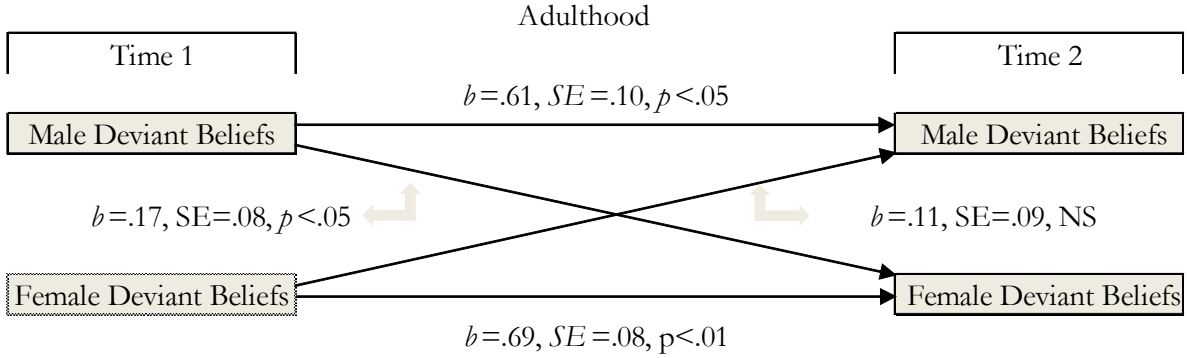
n=260	Female Time 2 Dx Outcome			Male Time 2 Dx Outcome		
Predictors:	b	SE		Predictors:	b	SE	
Intercept	1.28	0.05	**	Intercept	1.61	0.10	**
Male Time 1 Dx	0.01	0.04		Female Time 1 Dx	0.02	0.16	
Female Time 1 Dx	0.39	0.07	**	Male Time 1 Dx	0.53	0.08	**
Female White	0.12	0.07	†	Male White	-0.08	0.17	
Female Hispanic	-0.03	0.07		Male Hispanic	0.10	0.16	
Female Age	0.02	0.01	†	Male Age	-0.04	0.03	
Female Eco Dis	0.00	0.06		Male Eco Dis	0.22	0.14	
Female Education	0.00	0.02		Male Education	-0.09	0.04	*
Male Age	-0.01	0.01		Female Age	-0.03	0.02	



†p ≤ .10, *p < .05, **p < .01.

Table 7-8. Deviant Beliefs: Testing Nonindependence and Partner Influence Effects

Deviant Beliefs					
Partial r=-.16, NS					
n=260	Female Time 2 Dx Outcome			Male Time 2 Dx Outcome	
Predictors:	b	SE	Predictors:	b	SE
Intercept	1.54	0.08 **	Intercept	1.91	0.09 **
Male Time 1 Dx	0.17	0.08 *	Female Time 1 Dx	0.11	0.09
Female Time 1 Dx	0.69	0.08 **	Male Time 1 Dx	0.61	0.10 *
Female White	0.14	0.15	Male White	0.05	0.17
Female Hispanic	0.13	0.18	Male Hispanic	0.07	0.14
Female Age	0.00	0.03	Male Age	0.00	0.04
Female Eco Dis	0.22	0.13	Male Eco Dis	0.17	0.12
Female Education	0.04	0.04	Male Education	0.01	0.05
Male Age	0.02	0.03	Female Age	0.02	0.03



†p ≤ .10, *p < .05, **p < .01

Table 7-9. Summary of Partner Influence Findings

		Prevalence			
Effect:		Actor	Actor	Partner	Partner
Gender:		Men	Women	M to F	F to M
	PS *r*=				
General Delinquency	*ns*	S	S	NS	NS
Moderate Delinquency	*ns*	S	S	NS	M
Drug Use	*s*	S	S	NS	NS
Heterotypic Influence (Dx on Drug Use)	*ns*	NS*	S	NS	S
Heterotypic Influence (Drug Use on Dx)	*ns*	S	NS*	NS	NS
Deviant Peers	*s*	S	S	NS	NS
Deviant Beliefs	*ns*	S	S	S	NS

Abbreviations: PS *r*=Partner similarity correlation (testing nonindependence), NS=Not significant, M=Marginally significant and positive, S=Significant and positive, M=Men, W=Women, *Homotypic actor effect is significant.

Chapter 8

Discussion

It is unclear why individuals select high-risk partners, a choice that is likely to have unfortunate consequences. One explanation is assortative mating and, indeed, couples do appear similar in terms of their problem behaviors. However, the mechanisms responsible for partner similarity are unclear. Theoretically, assortative mating and partner influence are both plausible explanations for partner similarity. The confluence of selection (i.e., assortative mating via structural, individual, and genetic factors) and socialization (i.e., partner influence via social learning and social control mechanisms), coupled with the developmental consequences of problem behavior over time (as proposed by interactional theory) may help explain the similarity seen between mates. Simply put, similarity may arise from a number of reinforcing factors. For instance, selection into a relationship with a similarly antisocial person may be partly a result of the developmental consequences of participating in problem behaviors (e.g., when prosocial ties are no longer available). In addition, similarity may increase from the socialization that occurs once a relationship has been established and problem behavior is reinforced over time, not by peers, but by partners.

Although assortative mating and partner influence mechanisms both make theoretical sense, it is methodologically challenging to disaggregate and assess these processes. A review of the literature found that the research is split in terms of finding support for these competing hypotheses. Differences in findings likely result from a number of methodological limitations that, despite best intentions, can be improved upon. The ideal research design involves a large sample representative

of the general population, one that follows both members of a dyad from adolescence well into adulthood, collecting several waves of prospective, longitudinal data on a variety of problem behaviors and related correlates. However, it is nearly impossible to design a study that follows both members of a couple from adolescence into adulthood because, at the initiation of a study, few adolescents know with whom they are going to partner. Given this issue, the best research design would involve relying on retrospective data for the mate's adolescent measures (collected after mate selection). Surprisingly, no such studies have been published. In addition, a well designed study would pay special analytic attention to developmentally-specific measures that distinguish selection from socialization effects (i.e., behaviors that occurred before and after mate selection). It would also define distinct dyad types, avoid the under-representation of antisocial individuals (as is evident in marital samples), control for social homogamy, and examine gender differences and heterotypic effects.

The aim of the dissertation was to combine data from the Rochester Youth Development Study (RYDS) and the Rochester Intergenerational Study (RIGS) to conduct research that comes closer to this ideal research design than have previous studies. As such, problem behaviors assessed across 19 years were analyzed to explore partner similarity, social homogamy, assortative mating, a contagion proxy, and partner influence. A series of analyses were conducted each of which are discussed below—in terms of analytic strategy, findings, and limitations. In addition, Table 8-1 summarizes the general support for the hypotheses. For parsimony, findings related to delinquency subscales are not listed. In addition, findings are condensed significantly. Please refer to individual chapters for a more refined explanation of the support for each hypothesis.

Summary of Findings

First, as discussed in Chapter 4, participants in the Rochester sample were disaggregated into three sub-samples, *mates*, *partners*, and *couples*. Zero-order and partial correlations were conducted to

described the degree to which dyads are similar on a variety of demographic and problem behavior measures, as well as two deviance scales—deviant beliefs and peers. Four hypotheses were explored related to social homogamy, partner similarity, differences in partner similarity among the dyad types, and differences in partner similarity between male and female focal participants and their respective others.

Overall, findings showed that *the partner similarity hypothesis is supported*, evidenced by significant and positive partial correlations between focal respondents and their respective others on problem behaviors that controlled for social homogamy. Dyads are consistently similar in terms of their general delinquency. Significant but less consistent partner similarity is found for: moderate delinquency, substance use, deviant beliefs and peers, and heterotypic problem behaviors. Dyads do not appear similar on serious and street delinquency subscales. Mates are similar on deviant beliefs whereas partners and couples are similar on substance use but, overall, these findings alone are not enough to suggest strong differences in partner similarity by dyad type. Differences based on focal respondents' gender were expected but sample sizes involving just female focal respondents were too small to test statistically. Although visual inspection of the findings found few differences, low power may have yielded unreliable results. Findings are primarily based on male focal respondents and their respective others. To safeguard against conflating important findings, social homogamy, dyad type, and gender differences were considered carefully in subsequent analyses.

The second set of analyses, presented in Chapter 5, examined assortative mating which, if evident, would help explain at least some of the similarity seen in adult dyads on problem behaviors. Assortative mating is defined as the nonrandom coupling of individuals based on their similarity—before having actually met. Consistent with the analytic strategy used in the assessment of partner similarity, social homogamy and assortative mating analyses involved estimating zero-order and

partial correlations to examine the degree of similarity between dyads on 12 measures. In addition, results also explored differences in dyad type and focal respondents' gender.

Overall, several findings of particular importance emerged. By and large, *the assortative mating hypothesis is not supported for various problem behaviors, except for drug use.* Assortative mating processes do not seem to operate differently for specific types of dyads or by focal respondents' gender. For drug use only, assortative mating based on adolescent measures is more apparent than partner similarity based on adult measures. If partner similarity is used as a proxy for assortative mating, selection effects may not be found. *Support for heterotypic assortative mating also emerged.* Women who used drugs in adolescence may have a respective other who was involved in drug use and general delinquency during adolescence but more research is needed. The generalizibility of these findings may be limited—due to small analytic samples and missing data. The methodological approach used in this study, however, is the first of its kind and is an improvement upon past research designs.

The third set of analyses, presented in Chapter 6, explored what I refer to as a contagion proxy, which is defined as an association between focal respondents' adolescent behavior and their respective others' adult behavior. Temporal order established unidirectional but indirect effects. Actor-partner interdependence models simultaneously estimated actor and partner effects while accounting for the nonindependence between dyad members' scores. Actor effects measured the association between respondents' adolescent and adult behaviors, and they are evident for men but not women. For men, continuity in problem behaviors is apparent. Partner effects measured the association between respondents' adolescent behavior and their respective others' adult behavior, and they are evident for women but not for men. *For women, problem behavior in adolescence is associated with having a partner with problem behavior in adulthood.* Stated somewhat differently, men's adolescent problem behavior and their partner's adolescent problem behavior are both risk factors for men's problem behavior in adulthood. Limitations include retrospective measures, small samples, and

missing data. Nevertheless, these limitations are mitigated and the study improves upon previous research. Overall, *the contagion hypothesis is, at best, only partial supported and the direction of the effect is only from women to men.* Given that the effect from men to women is not significant, findings using the Rochester data contradict previous results published by other life-course studies.

The last and fourth set of analyses, presented in Chapter 7, explore partner influence on problem behaviors, which is defined as the direct and bidirectional effect that both partners have on each other after their union begins. In total, seven models were estimated to test *the partner influence hypothesis which, overall, is not supported.* Actor-partner interdependence models simultaneously estimated actor and partner effects while maintaining temporal order and accounting for the potential nonindependence between dyad members' behaviors. Actor effects measured the association between respondents' problem behavior at Time 1 and respondents' problem behavior at Time 2. Support for continuity in problem behaviors is robust. Partner effects measured the association between respondents' problem behavior at Time 1 and their partners' problem behavior at Time 2. Women's general delinquency at Time 1 is predictive of men's drug use at Time 2. No other partner influence effects are found. Findings should be interpreted in light of several methodological challenges—small sample size, potentially subtle partner effects, varying lengths of participation that limited the analyses to two waves of data, and low prevalence of problem behaviors in adulthood.

Problem Behavior across the Life Course: Assortative Mating and Partner Influence

Although, there is evidence for partner similarity in adulthood, support for the dissertation's three primary hypotheses is not found (i.e., assortative mating, contagion, and partner influence). An aggregate interpretation of the overall findings is somewhat disappointing in terms of being able to explain the mechanisms responsible for partner similarity. That being said, interesting findings begin to emerge when each problem behavior is considered separately across the life course.

Examining the pattern of results for each indicator of problem behavior across all of the analyses helps to illuminate the extent to which, through assortative mating processes, an individual's problem behavior in adolescence and young adulthood influences his or her mate selection and, in turn, whether that individual's mate selection influences his or her later problem behavior. Consider the following results, beginning with a discussion on general delinquency. Unfortunately, these first findings are the least telling.

Delinquency. As discussed earlier, the dissertation finds support for partner similarity but not for assortative mating on general delinquency. Contagion analyses provide evidence for the continuity of general delinquency from adolescence to adulthood but only for men. In addition, women's adolescent general delinquency prevalence predicted men's adult general delinquency prevalence. In adulthood, earlier delinquency predicted later delinquency for men and women but partners did not influence each other—at least not within the two-year period under examination. Altogether, these findings suggest that assortative mating is not the mechanism responsible for partner similarity on delinquency. In addition, evidence for partner influence is not found. Clearly, the mechanisms responsible for partner similarity on general delinquency are not apparent using the Rochester data. Ultimately, more research is needed to better understand the effects of romantic relationships on problem behaviors during the time period between late adolescence (around age 18) and mid adulthood (around age 25).

Drug Use. The mechanisms responsible for partner similarity on drug use are more apparent. The data provide evidence for assortative mating on drug use as an explanation for partner similarity. In addition, cross-developmental analyses find support for continuity in drug use from adolescence to adulthood but for men only. Support for contagion is found in that women's adolescent drug use predicts men's adult drug use, in terms of prevalence and frequency. In additional analyses isolated to the adult years, drug use remains stable but it is not affected by

partner influence. Altogether, the weight of the evidence suggests that assortative mating rather than partner influence is responsible for the concordance seen between couples on their drug use.

Heterotypic Associations, Part I: Predicting Drug Use. A sound explanation of partner similarly, however, may require a more refined look at individual indicators of heterotypic problem behaviors. In terms of partner similarity, men's adult delinquency is correlated with their respective others' adult drug use. A similar relationship is found for dyads in adolescence except for the mates' subsample which, altogether, provides evidence for heterotypic assortative mating among couples in an ongoing relationship. In addition, delinquency in adolescence predicts drug use in adulthood for men and women both. In the adult years, men's delinquency did not predict their later drug use nor did it influence their partners' later drug use. In contrast, women's delinquency predicts women's later drug use and their partners' later drug use.

Heterotypic Associations, Part II: Predicting Delinquency. The dissertation also explored what happens when the heterotypic model described above is reversed. Men's adult drug use is moderately correlated with their respective others' adult delinquency. Overall, however, this type of heterotypic partner similarity is not evident among couples in a lasting relationship. In addition, dyads did not assort on men's adolescent drug use and women's adolescent delinquency. Men's adolescent drug use predicts their adult delinquency. Continuity is not evident for women. Women with drug use in adolescence, however, are more likely to have a partner with delinquency in adulthood. For men, their own adolescent drug use and their partner's adolescent drug use is a risk factor for delinquency in adulthood. Additional analyses confined to adulthood also showed that men's drug use predicted their later delinquency.

Combining all of the findings related to heterotypic associations, the Rochester data suggest that couples are similar in terms of having problem behaviors. This similarity can be explained by heterotypic assortative mating, which is evident. In addition, problem behaviors have consequences

for couples—in terms of the continuity in their own offending, women's mate selection, and the effects of women's adult delinquency on men's subsequent drug use. Altogether, these refined but intricate findings suggest that adult partner similarity on heterotypic problem behavior stems, in part, from assortative mating and possibly from the influence that women's delinquency has on men's drug use.

Deviant Peers and Beliefs. Unlike the findings related to heterotypic problem behaviors, the results for deviant peer associations are more straightforward. Partner similarity on deviant peer associations is likely. Unfortunately assortative mating and contagion effects could not be tested because adolescent measures were not collected retrospectively from respective others. Support is found for continuity but not for partner influence in adulthood. Overall, partner influence does not appear to be the mechanism responsible for partner similarity. Couples may have assorted on deviant peer associations, but more research is needed.

Similar to the measures for deviant peers, retrospective adolescent measures of deviant beliefs were not collected for respective others. As a result, assortative mating and contagion effects could not be tested. In addition, missing data are high because data collection procedures changed during the third year of the study. Despite these limitations, support for partner similarity is found—but only for the mates subsample. Interestingly this subsample includes, in part, the dyad members who did not remain together. Of the couples that did remain in a relationship, support for continuity in deviant beliefs during adulthood is evident, as is partner influence. Specifically, men's deviant beliefs predicted women's later deviant beliefs, but this finding should be interpreted with caution because missing data are high and more research is needed to support its validity.

Comparing Findings to the Literature

As discussed earlier, previous research is split in terms of finding support for assortative mating and partner influence. To review, the literature overall suggests that assortative mating,

rather than partner influence or social homogamy, is the primary mechanism responsible for partner similarity. However, methodological limitations—namely the need to assess the behaviors of both individuals before mate selection and the reliance on retrospective, cross-sectional measures—affect the validity of this finding. When each study's methodology was considered, I found that all of the cross-sectional, retrospective studies except one supported assortative mating over influence. In contrast, I found that all of the prospective studies supported partner influence. As a result, for the dissertation, I hypothesized that support for partner influence would be found because prospective data are generally better than retrospective data and, thus, should be given more weight.

Furthermore, partner influence processes can influence retrospective reports that have been used to find support for assortative mating which may have made assortative mating effects appear stronger than partner influence effects. Conversely, influence processes cannot affect prospective data when collected before mate selection because mates have yet to meet. Although Rhule-Louie and McMahon (2007) found support in the literature for assortative mating, I argued that partner influence, too, is an important mechanism responsible for the concordance found between partners. I further argued that the effects of partner influence may have been largely hidden or discounted by the literature because of a historical reliance on retrospective, cross-sectional designs.

When considering the results of the dissertation, overall, I find minimal support for assortative mating and virtually no support for partner influence. Clearly, socialization mechanisms are difficult to test empirically, especially within the context of interpersonal relationships. This is evident in my discussion in Chapter 7 on the methodological limitation of the dissertation to test partner influence. Theoretically, assortative mating can explain partner similarity, as well. Recall, however, that the dissertation finds little support for it which, in and of itself, is an important contribution and has theoretical implications. The dissertation was able to capitalize on a unique dataset that collected prospective and retrospective measures on two types of respondents—focal

respondents and their respective others—and, yet, the assortative mating hypothesis, by and large, remains unsupported. Findings do indicate, however, that a comprehensive explanation of partner similarly requires a refined consideration of heterotypic problem behaviors across the life course.

Theoretical Implications and Future Research

Clearly, understanding and explaining the mechanisms for partner similarity is difficult. This is not a surprise. Studying the problem behaviors of just focal respondents over their life course is challenging enough and adding another person to the equation exponentiates an already difficult task. Despite the obstacles of conducting life-course research, future studies on partner similarity will continue to be an important theoretical and empirical endeavor. The goal of many studies (including this one) has been to ascertain evidence, in and of itself, for assortative mating and partner influence. By and large, research has been unable to model these processes *causally*. In addition, research has yet to empirically test theoretical explanations for assortative mating and partner influence. Barring the inclusion of basic demographic variables to examine social homogamy (which has received little attention in the literature but is well supported in the dissertation), virtually no studies explored, for example, whether structural (e.g., socioeconomic status, ethnic heterogeneity) or individual (e.g., self-control, intelligence, decision making) factors best explain assortative mating on behavior. McLeod (1995) did examine childhood and adult risk factors but found little explanatory support for assortative mating, ultimately arguing that the mechanisms are diverse and complex. Theoretical tests of partner influence are a bit more prevalent, showing some support for both social learning and social control mechanisms (Capaldi et al., 2008; Haynie et al., 2005; Simons, Stewart et al., 2002) but, overall, this area of study is theoretically underdeveloped. In addition, very little research has explored the theoretical and empirical links between addiction (and its possible genetic associations) and assortative mating and partner influence. The dissertation is an initial step in that direction.

Ultimately, future research on partner similarity will push forward our understanding of the etiology and consequences of problem behaviors over the life course. Research has shown that marriage and other types of romantic bonds promote desistance from crime and other forms of antisocial behavior (Maume, Ousey, & Beaver, 2005; McCarthy & Casey, 2008; Meeus, Branje, & Overbeek, 2004; Sampson & Laub, 1990, 1993). However, the mechanisms responsible for "the good marriage effect" are not clear (Giordano, Cernkovich, & Holland, 2003; Simons, Stewart et al., 2002; Warr, 1998), and the conventionality or deviance of the spouse usually has not been examined. Future research that examines processes related to partner concordance in their models will clarify the marriage–crime relationship. In addition, research points to the protective effects of parenting on problem behaviors. Kreager, Matsueda, and Erosheva's (2010) find that, among disadvantaged inner-city women who are not at severe risk of incarceration, motherhood is associated with fewer problem behaviors. It is plausible that parenting buffers the negative impact that antisocial individuals can potentially have on their partners but more research is needed.

In addition, further research on partner similarity will help bring about a better understanding of the role of gender in problem behaviors. Theoretically, power imbalances which differentially shape men's and women's mating preferences (Shackelford, Schmitt, & Buss, 2005), antisocial behavior (Caspi, Lynam, Moffitt, & Silva, 1993) and the context of their romantic relationships (Haynie et al., 2005) should translate into gender disparities in assortative mating and partner influence. In the literature, such studies are minimal. This dissertation, however, provides some initial support for gender differences in problem behaviors and their consequences on partners and future behavior.

Overall, research designed to further our understanding of the onset, persistence, and change in problem behavior across the life course has shown that several factors help explain its variability. Individual, family, school, employment, community, and structural factors all play an important role

in predicting the probability that an individual will become involved in problem behavior (Thornberry & Krohn, 2005; U.S. Department of Health and Human Services, 2001). In addition, the importance of peers during adolescence has been a significant focus of criminological research (Haynie et al., 2005; Weerman, 2011). The dissertation pushes forward the field of criminology by acknowledging that research needs to account for the selection and socialization of not only peers but also partners, who play an increasingly significant role as individuals grow older. The current findings combined with future research will aid our understanding of the effects of partner similarity on problem behaviors for couples and their children who, unfortunately, are at heightened risk because they are more likely to have not one, but two, parents with problem behaviors.

Table 8-1. Summary of General Support for Hypotheses

	Partner Similarity	Assortative Mating	Contagion Proxy		Partner Influence	
			Actor Effects	Partner Effects	Actor Effects	Partner Effects
Demographic Factors	Yes	NA	NA	NA	NA	NA
General Delinquency	Yes	No	Yes - Men only	No	Yes	No
Drug Use	Yes	Yes	Yes - Men only	Yes (W to M)	Yes	No
Heterotypic Associations for Dx to Drug	Yes	Mixed	Yes	No	Yes - Women only	Yes (W to M)
Heterotypic Associations for Drug to Dx	Mixed	No	Yes - Men only	Yes (W to M)	Yes - Men only	No
Deviant Peers	Yes	NA	NA	NA	Yes	No
Deviant Beliefs	Mixed	NA	NA	NA	Yes	Yes (M to W)

Abbreviations: M=Men, W=Women, NA=Not Applicable.

References

Ackerman, R. A., Donnellan, M. B., & Kashy, D. A. (2011). Working with dyadic data in studies of emerging adulthood: Specific recommendations, general advice, and practical tips. In F. D. Fincham, & M. Cui (Eds.), (pp. 67-97). New York, NY, US: Cambridge University Press.

Agrawal A., Heath, A. C., Grant, J. D., Pergadia, M. L., Statham, D., Bucholz, K. K., Martin, N. G., & Madden, P. A. F. (2006.) Assortative Mating for Smoking and for Alcohol Consumption in Female Australian Twins and their Spouses. *Behavior Genetics*, 36(4), 553-566.

Bandura, A. (1977). *Social learning theory.* Oxford, England: Prentice-Hall.

Belknap, J. (2007). The Invisible Woman: Gender, Crime, and Justice, 3rd Edition. Belmont, CA: Thomson Wadsworth Publishing Company.

Bereczkei, T., Gyuris, P., Koves, P., & Bernath, L. (2002). Homogamy, genetic similarity and imprinting: Parental influence on mate choice preferences. *Personality and Individual Differences, 33*(5), 677-690.

Bjerregaard, B., & Smith, C. (1993). Gender differences in gang participation, delinquency, and substance use. *Journal of Quantitative Criminology, 9*(4), 329-355.

Blackwell, D. L., & Lichter, D. T. (2004). Homogamy among dating, cohabiting, and married couples. *The Sociological Quarterly, 45*(4), 719-737.

Boye-Beaman, J., Leonard, K. E., & Senchak, M. (1991). Assortative mating, relationship development, and intimacy among offspring of alcoholics. *Family Dynamics of Addiction Quarterly, 1*(2), 20-33.

Buchanan, A. (1996). *Cycles of child maltreatment: Facts, fallacies, and interventions.* West Sussex, England: John Wiley & Sons.

Campbell, L., & Kashy, D. A. (2002). Estimating actor, partner, and interaction effects for dyadic data using PROC MIXED and HLM: A user-friendly guide. *Personal Relationships, 9*(3), 327-342.

Capaldi, D. M., & Crosby, L. (1997). Observed and reported psychological and physical aggression in young, at-risk couples. *Social Development, 6*(2), 184-206.

Capaldi, D. M., Kim, H. K., & Owen, L. D. (2008). Romantic partners' influence on men's likelihood of arrest in early adulthood. *Criminology, 46*(2), 267-299.

Caspi, A., & Herbener, E. S. (1990). Continuity and change: Assortative marriage and the consistency of personality in adulthood. *Journal of Personality and Social Psychology, 58*(2), 250-258.

Caspi, A., & Herbener, E. S. (1993). Marital assortment and phenotypic convergence: Longitudinal evidence. *Social Biology, 40*(1-2), 48-60.

Caspi, A., Lynam, D., Moffitt, T. E., & Silva, P. A. (1993). Unraveling girls' delinquency: Biological, dispositional, and contextual contributions to adolescent misbehavior. *Developmental Psychology, 29*(1), 19-30.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155-159.

Elder, G. H. (1998). The life course and human development. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (5th ed.) (pp. 939-991). Hoboken, NJ: John Wiley & Sons.

Farnworth, M., Thornberry, T. P., Krohn, M. D., & Lizotte, A. J. (1994). Measurement in the study of class and delinquency: Integrating theory and research. *Journal of Research in Crime and Delinquency, 31*(1), 32-61.

Farrington, D. P. (1986). Age and crime. *Crime and Justice, 7*, 189-250.

Fergusson, D. M., Horwood, L. J., & Lynskey, M. T. (1994). The comorbidities of adolescent problem behaviors: A latent class model. *Journal of Abnormal Child Psychology, 22*(3), 339-354.

Fields, J. (2004). America's families and living arrangements. *2003 Current Population Reports P20-553*. Washington, DC: U.S. Census Bureau.

Foley, D. L., Pickles, A., Simonoff, E., Maes, H. H., Silberg, J. L., Hewitt, J. K., & Eaves, L. J. (2001). Parental concordance and comorbidity for psychiatric disorder and associate risks for current psychiatric symptoms and disorders in a community sample of juvenile twins. *Journal of Child Psychology and Psychiatry, 42*(3), 381-394.

Fu, X., & Heaton, T. B. (2008). Racial and educational homogamy: 1980 to 2000. *Sociological Perspectives, 51*(4), 735-758.

Furman, W., & Simon, V. A. (2008). Homophily in adolescent romantic relationships. In M. J. Prinstein & K. A. Dodge (Eds.), *Understanding peer influence in children and adolescents* (pp. 203-224). New York, NY: Guilford Press.

Galbaud du Fort, G., Boothroyd, L. J., Bland, R. C., Newman, S. C., & Kakuma, R. (2002). Spouse similarity for antisocial behaviour in the general population. *Psychological Medicine, 32*(8), 1407-1416.

Giordano, P. C., Cernkovich, S. A., & Holland, D. D. (2003). Changes in friendship relations over the life course: Implications for desistance from crime. *Criminology, 41*(2), 63-89.

Gleiberman, L., Harburg, E., DiFranceisco, W., & Schork, A. (1992). Familial transmission of alcohol use: V. drinking patterns among spouses. *Behavior Genetics, 22*(1), 63-79.

Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. Stanford, CA: Stanford University Press.

Haynie, D. L., Giordano, P. C., & Manning, W. D. (2005). Adolescent romantic relationships and delinquency involvement. *Criminology, 43*(1), 177-210.

Henry, K. (2010). *Unit 3: Evaluating and meeting assumptions in simple linear regression.* PowerPoint Presentation.

Herrera, V. M., Wiersma, J. D., & Cleveland, H. H. (2008). The influence of individual and partner characteristics on the perpetration of intimate partner violence in young adult relationships. *Journal of Youth and Adolescence, 37*(3), 284-296.

Hicks, B. M., Krueger, R. F., Lacono, W. G., McGue, M., & Patrick, C. J. (2004). Family transmission and heritability of externalizing disorders: A twin-family study. *Archives of General Psychiatry, 61*(9), 922-928.

Hirschi, T. (1971). *Causes of delinquency.* Oxford, England: University of California Press.

Hser, Y., & Longshore, D. (2007). The life course perspective on drug use: A conceptual framework for understanding drug use trajectories. *Evaluation Review, 31*(6), 515-547.

Ireland, T. O., Smith, C. A., & Thornberry, T. P. (2002). Developmental issues in the impact of child maltreatment on later delinquency and drug use. *Criminology, 40*(2), 359-396.

Jussim, L., & Osgood, D. W. (1989). Influence and similarity among friends: An integrative model applied to incarcerated adolescents. *Social Psychology Quarterly, 52*(2), 98-112.

Kalmijn, M. (1994). Assortative mating by cultural and economic occupational status. *American Journal of Sociology, 100*(2), 422-452.

Kalmijn, M. (1998). Intermarriage and homogamy: Causes, patterns, trends. *Annual Review of Sociology 24*, 395-421.

Kandel, Denise B. 1978. "Homophily, Selection, and Socialization in Adolescent Friendships." *American Journal of Sociology* 84:427-36.

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis.* New York, NY, US: Guilford Press.

Kim, H. K., & Capaldi, D. M. (2004). The association of antisocial behavior and depressive symptoms between partners and risk for aggression in romantic relationships. *Journal of Family Psychology, 18*(1), 82-96.

Kreager, D. A., Matsueda, R. L., & Erosheva, E. A. (2010). Motherhood and criminal desistance in disadvantaged neighborhoods. *Criminology: An Interdisciplinary Journal, 48*(1), 221-258.

Krohn, M. D., & Thornberry, T. P. (1999). Retention of minority populations in panel studies of drug use. *Drugs & Society, 14*(1-2), 185-207.

Krueger, R. F., Moffitt, T., Caspi, A., Bleske, A., & Silva, P. A. (1998). Assortative mating for antisocial behavior: Development and methodological implications. *Behavior Genetics, 28*(3), 173-186.

Lanctot, N., & Smith, C. A. (2001). Sexual activity, pregnancy, and deviance in a representative urban sample of african american girls. *Journal of Youth and Adolescence, 30*(3), 349-372.

Leonard, K. E., & Mudar, P. (2003). Peer and partner drinking and the transition to marriage: A longitudinal examination of selection and influence processes. *Psychology of Addictive Behaviors, 17*(2), 115-125.

Lorenz, F. O., Conger, R. D., Simon, R. L., Whitbeck, L. B., & Elder, G. H., Jr. (1991). Economic pressure and marital quality: An illustration of the method variance problem in the causal modeling of family processes. *Journal of Marriage and the Family, 53*(2), 375-388.

Low, N., Cui, L., & Merikangas, K. R. (2007). Spousal concordance for substance use and anxiety disorders. *Journal of Psychiatric Research, 41*(11), 942-951.

Lykken, D. T., & Tellegen, A. (1993). Is human mating adventitious or the result of lawful choice? A twin study of mate selection. *Journal of Personality and Social Psychology, 65*(1), 56-68.

Lynam, D., Moffitt, T., & Stouthamer-Loeber, M. (1993). Explaining the relation between IQ and delinquency: Class, race, test motivation, school failure, or self-control? *Journal of Abnormal Psychology, 102*(2), 187-196.

Maes, H. H., Neale, M. C., Kendler, K. S., Martin, N. G., Heath, A. C., & Eaves, L. J. (2006). Genetic and cultural transmission of smoking initiation: An extended twin kinship model. *Behavior Genetics, 36*(6), 795-808.

Maes, H. H., Silberg, J. L., Neale, M. C., & Eaves, L. J. (2007). Genetic and cultural transmission of antisocial behavior: An extended twin parent model. *Twin Research and Human Genetics, 10*(1), 136-150.

Mathews, T. J., & Hamilton, B. E. (2002). Mean age of mother, 1970-2000. *National Vital Statistics Report 51*(1), 1-16. Hyattsville, MD: National Center for Health Statistics.

Matsueda, R. L., & Anderson, K. (1998). The dynamics of delinquent peers and delinquent behavior. *Criminology, 36*(2), 269-308.

Matsueda, R. L., & Heimer, K. (1997). A symbolic interactionist theory of role-transitions, role-commitments, and delinquency. In T. P. Thornberry (Ed.), *Developmental theories of crime and delinquency* (pp. 163-213). New Brunswick, NJ: Transaction Publishers.

Maume, M. O., Ousey, G. C., & Beaver, K. (2005). Cutting the grass: A reexamination of the link between marital attachment, delinquent peers and desistance from marijuana use. *Journal of Quantitative Criminology, 21*(1), 27-53.

McCarthy, B., & Casey, T. (2008). Love, sex, and crime: Adolescent romantic relationships and offending. *American Sociological Review, 73*(6), 944-969.

McLeod, J. D. (1995). Social and psychological bases of homogamy for common psychiatric disorders. *Journal of Marriage and the Family, 57*(1), 201-214.

McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology, 27*, 415-444.

Meeus, W., Branje, S., & Overbeek, G. J. (2004). Parents and partners in crime: A six-year longitudinal study on changes in supportive relationships and delinquency in adolescence and young adulthood. *Journal of Child Psychology and Psychiatry, 45*(7), 1288-1298.

Mensch, B., & Kandel, D. B. (1992). Drug use as a risk factor for premarital teen pregnancy and abortion in a national sample of young white women. *Demography, 29*(3), 409-429.

Moffitt, T. E. (1997). Adolescence-limited and life-course-persistent offending: A complementary pair of developmental theories. In T. P. Thornberry (Ed.), *Developmental theories of crime and delinquency* (pp. 11-54). New Brunswick, NJ: Transaction Publishers.

Moffitt, T. E., Caspi, A., Rutter, M., & Silva, P. A. (2001). *Sex differences in antisocial behaviour: Conduct disorder, delinquency, and violence in the Dunedin longitudinal study*. New York, NY: Cambridge University Press.

Osgood, D. W., Finken, L. L., & McMorris, B. J. (2002). Analyzing multiple-item measures of crime and deviance II: Tobit regression analysis of transformed scores. *Journal of Quantitative Criminology, 18*(4), 319-347.

Patterson, G. R., Capaldi, D., & Bank, L. (1991). An early starter model for predicting delinquency. In D. J. Pepler & K. H. Rubin (Eds.), *Earlscourt symposium on childhood aggression* (pp. 139-168). Hillsdale, NJ: Erlbaum.

Price, R. A., & Vandenberg, S. G. (1980). Spouse similarity in American and Swedish couples. *Behavior Genetics, 10*(1), 59-71.

Quinton, D., Pickles, A., Maughan, B., & Rutter, M. (1993). Partners, peers, and pathways: Assortative pairing and continuities in conduct disorder. *Development and Psychopathology, 5*(4), 763-783.

Raine, A., Moffitt, T. E., Caspi, A., Loeber, R., Stouthamer-Loeber, M., & Lynam, D. (2005). Neurocognitive impairments in boys on the life-course persistent antisocial path. *Journal of Abnormal Psychology, 114*(1), 38-49.

Reynolds, C. A., Baker, L. A., & Pedersen, N. L. (2000). Multivariate models of mixed assortment: Phenotypic assortment and social homogamy for education and fluid ability. *Behavior Genetics, 30*(6), 455-476.

Rhule-Louie, D. M., & McMahon, R. J. (2007). Problem behavior and romantic relationships: Assortative mating, behavior contagion, and desistance. *Clinical Child and Family Psychology Review, 10*(1), 53-100.

Rosenfeld, M. J. (2007). *The age of independence: Interracial unions, same-sex unions, and the changing American family*. Cambridge MA: Harvard University Press.

Rushton, P. J. (1989). Genetic similarity, human altruism, and group selection. *The Behavioral and Brain Sciences, 12*(3), 503-518.

Sakai, J. T., Stallings, M. C., Mikulich-Gilbertson, S. K., Corley, R. P., Young, S. E., Hopfer, C. J., & Crowley, T. J. (2004). Mate similarity for substance dependence and antisocial personality disorder symptoms among parents of patients and controls. *Drug and Alcohol Dependence, 75*(2), 165-175.

Sampson, R. J., & Groves, W. B. (1989). Community structure and crime: Testing social-disorganization theory. *American Journal of Sociology, 94*(4), 774-802.

Sampson, R. J., & Laub, J. H. (1990). Crime and deviance over the life course: The salience of adult social bonds. *American Sociological Review, 55*(5), 609-627.

Sampson, R. J., & Laub, J. H. (1993). Crime in the making: Pathways and turning points through life. *Crime & Delinquency, 39*(3), 396-396.

Schuckit, M. A., Smith, T. L., Eng, M. Y., & Kunovac, J. (2002). Women who marry men with alcohol-use disorders. *Alcoholism: Clinical and Experimental Research, 26*(9), 1336-1343.

Shackelford, T. K., Schmitt, D. P., & Buss, D. M. (2005). Universal dimensions of human mate preferences. *Personality and Individual Differences, 39*(2), 447-458.

Simon, V. A., Aikins, J. W., & Prinstein, M. J. (2008). Romantic partner selection and socialization during early adolescence. *Child Development, 79*(6), 1676-1692.

Simons, R. L., Gordon Simons, L., & Ebert Wallace, L. (2004). *Families, delinquency, and crime: Linking society's most basic institution to antisocial behavior*. Los Angeles, CA: Roxbury Publishing.

Simons, R. L., Stewart, E., Gordon, L. C., Conger, R. D., & Elder, G. H. (2002). A test of life-course explanations for stability and change in antisocial behavior from adolescence to young adulthood. *Criminology, 40*(2), 401-434.

Sutherland, E. H. (1947). *Principles of criminology* (4th ed.). Oxford, England: Lippincott.

Sweeney, M. M., & Cancian, M. (2004). The changing importance of white women's economic prospects for assortative mating. *Journal of Marriage and Family, 66*(4), 1015-1028.

Taylor, J., McGue, M., & Iacono, W. G. (2000). Sex differences, assortative mating, and cultural transmission effects on adolescent delinquency: A twin family study. *Journal of Child Psychology and Psychiatry, 41*(4), 433-440.

Thornberry, T. P., & Krohn, M. D. (2000). Self-report method for measuring delinquency and crime. In D. Duffee (Ed.), *Measurement and analysis of crime and justice: Criminal justice 2000* (pp. 33-83). Washington, DC: National Institute of Justice.

Thornberry, T. P., & Krohn, M. D. (2005). Applying interactional theory to the explanation of continuity and change in antisocial behavior. In D. P. Farrington (Ed.), *Integrated developmental and life-course theories of offending* (pp. 183-209). New Brunswick, NJ: Transaction Publishers.

Thornberry, T. P., Freeman-Gallant, A., & Lovegrove, P. J. (2009). The impact of parental stressors on the intergenerational transmission of antisocial behavior. *Journal of Youth and Adolescence, 38*(3), 312-322.

Thornberry, T. P., Krohn, M. D., & Lizotte, A. J. (2003). *Taking stock of delinquency: An overview of findings from contemporary longitudinal studies*. New York: Kluwer Academic/Plenum Publishers.

Thornberry, T. P., Krohn, M. D., Lizotte, A. J., & Smith, C. A. (Eds.). (1998). *Taking stock: An overview of findings from the Rochester youth development study*. New York, NY: Kluwer Academic / Plenum.

Thornberry, T. P., Lizotte, A. J., Krohn, M. D., Farnworth, M., & Joon Jang, S. (1991). Testing interactional theory: An examination of reciprocal causal relationships among family, school, and delinquency. *Journal of Criminal Law and Criminology, 82*, 3-35.

Thornberry, T. P., Lizotte, A. J., Krohn, M. D., Farnworth, M., & Jang, S. J. (1994). Delinquent peers, beliefs, and delinquent behavior: A longitudinal test of interactional theory. *Criminology, 32*(1), 47-83.

U.S. Department of Health and Human Services. (2001). *Youth violence: A report of the surgeon general.* Rockville, MD: U.S. Department of Health and Human Services.

von Hippel, P. T. (2007). Regression with missing ys: An improved strategy for analyzing multiply imputed data. *Sociological Methodology, 37*(1), 83-117.

Warr, M. (1998). Life-course transitions and desistance from crime. *Criminology, 36*(2), 183-216.

Watson, D., Klohnen, E. C., Casillas, A., Nus Simms, E., Haig, J., & Berry, D. S. (2004). Match makers and deal breakers: Analyses of assortative mating in newlywed couples. *Journal of Personality, 72*(5), 1029-1068.

Weerman, F. M. (2011). Delinquent peers in context: A longitudinal network analysis of selection and influence effects. *Criminology: An Interdisciplinary Journal, 49*(1), 253-286.

Yamaguchi, K., & Kandel, D. (1993). Marital homophily on illicit drug use among young adults: Assortative mating or marital influence? *Social Forces, 72*(2), 505-528.

Yamaguchi, K., & Kandel, D. B. (1997). The influence of spouses' behavior and marital dissolution on marijuana use: Causation or selection. *Journal of Marriage and the Family, 59*(1), 22-36.

Yarrow, M. R., Campbell, J. D., & Burton, R. V. (1970). Recollections of childhood: A study of the retrospective method. *Monographs of the Society for Research in Child Development, 35*(5), 83.

Yuan, Y. (2000). Multiple Imputation for Missing Data: Concepts and New Development (P267-25). Rockville: SAS Institute Inc.