Title
Depression and Relationship Dysfunction from Adolescence to Adulthood

Author
Trombello, Joseph Michael

Publication Date
2013

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA

Los Angeles

Depression and Relationship Dysfunction from Adolescence to Adulthood

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Psychology

by

Joseph Michael Trombello

2013

ABSTRACT OF THE DISSERTATION

Depression and Relationship Dysfunction from Adolescence to Adulthood

by

Joseph Michael Trombello
Doctor of Philosophy in Psychology
University of California, Los Angeles, 2013
Professor Thomas Bradbury, Chair

This project employs a developmental framework guided by interpersonal theories of depression and the transmission of intimate relationship dysfunction to offspring. We use two datasets to consider the independent and interactive impact of depression history, parental divorce and conflict, and relationship quality with parents on subsequent intimate relationship functioning from adolescence throughout the first eight years of marriage. The first study, using a longitudinal sample of adolescents, determined that participant/maternal relationship quality and parental marital stability predicted relationship conflict and satisfaction approximately 13 years later. Furthermore, adolescent depression history amplified the effect of some family-of-origin variables on some relationship outcomes. Study 2, using a longitudinal sample of newlywed couples, found that neither depression history nor family-of-origin variables predicted or interacted to enhance risky partner selection (with partner's risk defined through a factor-analyzed construct of emotion dysregulation). Instead, one's own level of risk was a strong predictor of partner's risk, supportive assortative mating theories. Study 3, again using the

longitudinal newlywed sample, examined which components of intimate relationship communication predicted depressive symptoms approximately eight years later. Results demonstrated that participant's post-interaction evaluations of a negative mood were more consistent predictors of future depression than externally-rated communication behaviors, affect or skills, for both men and women. In addition, among men, a history of clinical or subclinical depression amplified the association between participant's negative evaluations of marital interactions and subsequent depressive symptoms. Taken together, these results suggest that factors well before relationship entry (i.e., psychopathology, familial functioning, emotion dysregulation) impact the quality of later intimate relationships, as well as characteristics of selected relationship partners. Furthermore, we provide evidence supporting attending to participant's evaluations and interpretations of marital interactions as predictors of later depressive symptoms beyond the content of this interpersonal communication.

The dissertation of Joseph Michael Trombello is approved.

Constance Hammen

Theodore Robles

Judith Seltzer

Thomas Bradbury, Committee Chair

University of California, Los Angeles

2013

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGMENTS

This research was supported by the UCLA Graduate Division's Graduate Research Mentorship award and a National Institute of Mental Health Grant MH48674. This research also uses data from Add Health, a program project directed by Kathleen Mullan Harris and designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill, and funded by grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 23 other federal agencies and foundations. Special acknowledgment is due Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Information on how to obtain the Add Health data files is available on the Add Health website (http://www.cpc.unc.edu/addhealth). No direct support was received from grant P01-HD31921 for this analysis.

I am grateful for the support of my doctoral chair Thomas Bradbury, as well as committee members Constance Hammen, Theodore Robles, and Judith Seltzer. Statistical and methodological consultation was provided by Christopher Conway, Philip Ender, Jennifer Krull, Lynette Lau, Justin Lavner, Dominik Schoebi, Joyce Tabor, Christine Wells, and Joshua Wiley.

I am also blessed to have received the support of so many family members, friends, and supervisors throughout this process.

JOSEPH MICHAEL TROMBELLO

EDUCATION

2009 M.A. Clinical Psychology, University of California, Los Angeles

Master's Thesis: Stress generation, depressive symptoms and partner behaviors in a longitudinal study of newlywed couples.

2007 M.Sc. Neuroscience, University of Oxford

2006 B.A. *Summa Cum Laude* in Psychology and English, University of Notre Dame

GRANTS, HONORS, AND AWARDS

2009-2012 Psychology Department/Graduate Division Travel Grant, University of California, Los Angeles

2009 NRSA Incentive Award, Department of Psychology, University of California, Los Angeles

2008-2009 Graduate Research Mentorship Award, University of California, Los Angeles

2008, 2009 Graduate Summer Research Mentorship Award, University of California, Los Angeles

2008 Honorable Mention, National Science Foundation Graduate Research Fellowship

2008 Chair's Prize, University of California, Los Angeles

2007-2008 University Graduate Fellowship, University of California, Los Angeles

2006-2007 Clarendon Scholarship, Oxford University

PUBLICATIONS

Robles, T. F., Slatcher, R. B., **Trombello, J. M.,** & McGinn, M. (in press). Marital quality and health: A meta-analytic review. *Psychological Bulletin.*

Trombello, J. M., Schoebi, D., & Bradbury, T. N. (2011). Relationship functioning moderates the association between depressive symptoms and life stressors. *Journal of Family Psychology, 25, 58-67.*

PRESENTATIONS

Robles, T. F., Slatcher, R. B., **Trombello, J. M.,** & McGinn, M. M. (2012, November). *Marital*

quality and health. Paper presented at the 65th Annual Convention of the Gerontological Society of America, San Diego, CA.

Trombello. J. M., Schoebi, D., & Bradbury, T. N. (2012, November). *How do aspects of intimate relationships affect depression across the newlywed period?* Poster presented at the 46th Annual Convention of the Association for Behavioral and Cognitive Therapies, National Harbor, MD.

Trombello, J. M., & Bradbury, T. N. (2011, October). *Depression history and parental divorce/conflict as predictors of risky marital partners*. Poster presented at the New Scholars Workshop at the International Association for Relationship Research Mini-Conference on Health, Emotions and Relationships, Tucson, AZ.

Trombello. J. M., & Bradbury, T. N. (2010, November). *Pre-marital cohabitation and partner's characteristics as predictors of major depression in a longitudinal sample of newlyweds.* Poster presented at the 44th Annual Convention of the Association for Behavioral and Cognitive Therapies, San Francisco, CA.

Trombello, J. M., Schoebi, D., & Bradbury, T. N. (2009, November). *Family-of-origin factors as predictors of psychopathology, marital dissatisfaction and marital instability in newlyweds.* Poster presented at the 43rd Annual Convention of the Association for Behavioral and Cognitive Therapies, New York, NY.

Trombello, J. M., & Bradbury, T. N. (2008, November). *Stress generation, depressive symptoms and partner behaviors in a longitudinal study of newlywed couples*. Poster presented at the 42nd Annual Convention of the Association for Behavioral and Cognitive Therapies, Orlando, FL.

Trombello, J. M., & Smith, D. A. (2005, November). *Subclinical depression, marital interactions, and perceptual versus expressive components of interspousal criticism.* Poster presented at the 39th Annual Convention of the Association for Behavioral and Cognitive Therapies, Washington, DC.

Haislup, C. A., **Trombello, J. M.,** & Smith, D. A. (2004, November*). Reassurance-seeking, empathic accuracy and marital adjustment*. Poster presented at the 38th Annual Convention of the Association for the Advancement of Behavior Therapy, New Orleans, LA.

Haislup, C. A., **Trombello, J. M.,** & Smith, D. A. (2004, October). *Reassurance-seeking, empathic accuracy and marital adjustment*. Poster presented at the 19th Annual Convention of the Society for Research in Psychopathology, Saint Louis, MO.

Committed intimate relationships are a powerful force, with partnerships through either marriage or cohabitation a generally universal phenomenon (Fisher, 1989). Marriage promotes personality consistency across the life-span (Caspi, 1987; Caspi, Bem, & Elder, 1989) and mental and physical health benefits, especially among men (Dush & Amato, 2005; Schoenborn, 2004). Married individuals are generally happier and healthier than their unmarried counterparts, but the quality of intimate relationships affects general well-being (Prolux, Helms, & Buehler, 2007). There are clear benefits to intimate relationships when they are stable and when partners are satisfied, but also negative consequences when such relationships involve chronic stress and distress, implying that enhancing relationship functioning and optimizing partner selection may yield important benefits.

Relationship outcomes have therefore been a focus of considerable theoretical and empirical work in order to understand what factors explain the variability in these outcomes. Some theories assign great significance to interpersonal factors and reject individual differences. For example, distressed marital relationships are proposed to be primarily due to deficits in seeking/providing support or in solving relationship problems (e.g., Markman, 1981; Markman, Renick, Floyd, Stanley, & Clements, 1993). These perspectives emphasize aspects of current relationship functioning, such as communication, over individual difference variables that are brought to relationships. Other models, however, focus on individual difference variables beyond current relationship characteristics. The well-established intergenerational transmission of marital dysfunction implies that current communication or relationship disturbances are a function of family-of-origin experiences of conflict and divorce (e.g., Amato & Cheadle, 2005; Amato & DeBoer, 2001). These models suggest that current relationship problems occur due to previous interpersonal disturbances that begin in one's family and are not primarily due to

current patterns of communication or perceptions of satisfaction. Models integrating these two perspectives have been proposed and, consistent with these models, the data are clear that interpersonal and intrapersonal factors both play a role in relationship outcomes. Stressful event exposure, couples' ability to adapt to these events through interpersonal communication, and individual-level vulnerability factors such as personality and family-of-origin factors are all proposed to work together to explain variability in marital quality and subsequent marital stability (Karney & Bradbury, 1995).

While interpersonal and intrapersonal factors combine to enhance relationship disturbances, less clear are the specific means by which these two sets of factors come to be associated and their relative contributions to relationship outcomes. Integrative research that tests an array of both kinds of variables in isolation and interaction with each other is needed to understand which factors dominate in predicting subsequent relationship problems. The purpose of the current project is to address this gap, with a particular emphasis on depressive diagnoses and symptoms as a consequence and predictor of relationship dysfunction. Depression merits considerable attention as it is the most common mental disorder (Kessler et. al, 2003) with profound social/economic (Greenberg et al., 2003) and intimate relationship (Whisman, 2007) consequences. Although the links between depression and relationship dysfunction and the relative contributions of individual and interpersonal processes on relationship problems remain unclear, work from interpersonal and intrapersonal perspectives provides some evidence for how depression becomes problematic for relationships. Prominent interpersonal models of depression propose that depression promotes subsequent intimate relationship problems through interpersonal rejection (Coyne, 1976), patterns of marital communication characterized by negative behaviors and affect (Rehman, Gollan, & Mortimer, 2008), stress generation (Hammen,

1991), or declines in marital satisfaction (Fincham, Beach, Harold, & Osborne, 1997; Whisman, 2007). These models suggest that depression impairs social relationships through enhancing relationship stress and compromising communication processes. Clearly, interpersonal processes are a key emphasis of these models. Intrapersonal vulnerability models of depression suggest that pre-existing differences in terms of neuroticism (Kendler, Kuhn, & Prescott, 2004), attachment (Burge et al., 1997), or stressful event exposure (Kessler, 1997) confer risk for developing subsequent depression, but these intrapersonal factors likely interact with interpersonal variables to enhance the depressive experience and may jointly contribute to later relationship dysfunction.

While interpersonal and intrapersonal models connecting depression to intimate relationship dysfunction are promising, important questions remain to be empirically tested. For example, are subsequent intimate relationship outcomes relatively unaffected by depression history but instead primarily a function of previous intimate relationship history or family-of-origin experiences of divorce and conflict? Support for these models over others would suggest studying individuals long before a current relationship to examine the interpersonal costs of depression. Another perspective might suggest that current intimate relationship problems are mainly a focus of mate selection, such that individuals who choose risky partners will be substantially more likely to experience subsequent relationship dysfunction, irrespective of their relationship histories or individual-level risk factors. These models would challenge interpersonal perspectives that intimate relationship distress is a function of current levels of communication and support models that establish a pathway between family-of-origin experiences or early and maladaptive mate selection. Relationship dysfunction may simply be a consequence of choosing a risky partner rather than of changes in the quality or aspects of this intimate relationship over time. Finally, are there ways in which components of current intimate

relationships such as communication, moderate the relationship between intimate dysfunction and depression? In addition to serving as notable consequences of depression, do qualities about the development of committed intimate relationships predict or protect against subsequent depression?

The purpose of the proposed project is to examine these and related questions in a series of three studies. Using a longitudinal sample of adolescents, Study 1 will examine whether depression in adolescence predicts intimate relationship dysfunction in one's 20s and 30s, as defined by poor intimate partner outcomes such as conflict and poor relationship quality. Another important aim of this study is to consider whether depression predicts a history of risky intimate relationships, such as involvement in many short-term relationships, as early intimate relationship experiences may serve as precursors for eventual spousal selection. This dataset and series of questions will help to clarify how early patterns of depression and relationship experiences might predict adult relationship outcomes.

Study 2 will shift to consider mate selection processes, focusing on how a previous history of depression and family-of-origin experiences predict a risky marital partner, as defined by a cumulative index of several risk factors like personality and psychopathology. This sample of newlyweds entering their first marriage differs markedly from that in Study 1, as all participants have committed to an established, marital relationship. We will use an index of previous history of diagnostic depression to determine whether depression history predicts marriage to a "riskier" kind of marital partner. We will also test family-of-origin variables as potential predictors, as well as to consider the interactive quality between depression history and family-of-origin factors through statistical moderation. Study 2 also considers gender

differences, to examine whether different individual factors predict partner risk for men as compared to women.

Study 3 will use prominent interpersonal theories of depression to consider how aspects of the marital relationship might predict new depression onset or relapse. Drawing on evidence that interactions among depressed couples are fundamentally different from the communication between non-depressed/distressed dyads (Rehman, Gollan, & Mortimer, 2008), we will test several competing ideas about what predicts depression throughout the first ten years of marriage: (a) partner's frequent provision of negative behaviors/affect during marital interactions and infrequent displays of positive behaviors/affect or (b) target's perceptions of the quality of these interactions as examined by post-interaction mood ratings. These analyses will control for global marital quality. This study will help determine specific components of the marital relationship that may predict or protect against future depressive symptoms.

As noted, depression appears to be especially costly for the quality and stability of intimate relationships. However, there are other trait-like variables such as family-of-origin conflict and divorce that may also predict relationship dysfunction. Recognizing the need to examine competing models of relationship dysfunction beyond depression, these studies will examine rival models of trait-like characteristics that might predict problematic intimate relationships. To clarify the extent to which depression drives poor intimate relationship functioning, Study 1 will test parental conflict, parental marital instability and the perceived parent/child relationship as potential predictors of relationship outcomes. Study 2 will also examine potentially competing models of partner selection by analyzing parental variables such as conflict and divorce to determine whether family-of-origin variables predict partner selection and whether depression predicts partner selection over and above the effects of parental divorce

and conflict. This study will clarify the relative contributions of depression history versus family-of-origin factors in predicting poor partner selection.

Finally, these studies will not simply compare depression versus family-of-origin models as predictors of later intimate relationship dysfunction but will also integrate these perspectives to increase our understanding of the interactive effects of both kinds of predictors. Several studies will test family-of-origin factors as potential moderators of the relationship between history of depression and later intimate relationship functioning. For example, Studies 1 and 2 will test parental divorce, conflict, and the quality of the parent/child relationship as moderators of the association between depression history and later problematic relationship outcomes. Gender differences and gender moderation will also be considered to determine if different processes occur for men versus women.

The three studies proposed here take a developmental approach to examining a potentially bi-directional relationship between depression and intimate relationship dysfunction, defined in several ways (the selection of a partner with "risky" characteristics, multiple short-term relationships in young adulthood, and negative relationship outcomes such as low perceptions of relationship satisfaction and conflict). Furthermore, these studies will examine a variety of potential factors that may interact with depression to further predict relationship dysfunction, including family-of-origin experiences like parental divorce, parental conflict, and a poor parent-child relationship, as well as previous intimate relationship history. This project aims to make a substantial contribution toward better understanding how depression might differentially predict aspects about the partners one selects and the kinds of intimate relationship environments that are later created and passed on to potential offspring.

References

Amato, P. R., & Cheadle, J. (2005). The long reach of divorce: Tracking marital dissolution and child well-being across three generations. *Journal of Marriage and Family, 67,* 191-206. doi: 10.1111/j.0022-2445.2005.00014.x

Amato, P. R., & DeBoer, D. (2001). The transmission of divorce across generations: Relationships skills or commitment to marriage? *Journal of Marriage and Family, 63,* 1038-1051.

Burge, D., Hammen, C., Davila, J., Daley, S. E., Paley, B., Lindberg, N., ... Rudolph, K. D. (1997). The relationship between attachment cognitions and psychological adjustment in late adolescent women. *Development and Psychopathology, 9,* 151-167. doi: 10.1017/S0954579497001119

Caspi, A. (1987). Personality in the life course. *Journal of Personality and Social Psychology, 53,* 1203-1213. doi: 10.1037//0022-3514.53.6.1203

Caspi, A., Bem, D. J. & Elder, G. H. (1989). Continuities and consequences of interactional styles across the life course. *Journal of Personality, 57,* 375-406. doi: 10.1111/j.1467-6494.1989.tb00487.x

Coyne, J. C. (1976). Toward an interactional description of depression. *Psychiatry, 39,* 28-40.

Dush, C. M. K., & Amato, P. R. (2005). Consequences of relationship status and quality for subjective well-being. *Journal of Social and Personal Relationships, 22,* 607-627. doi: 10.1177/0265407505056438

Fincham, F. D., Beach, S. R. H., Harold, G. T., & Osborne, L. N. (1997). Marital satisfaction and depression: Different causal relationships for men and women? *Psychological Science, 8,* 351- 357. doi: 10.1111/j.1467-9280.1997.tb00424.x

Fisher, H. E. (1989). Evolution of human serial pairbonding. *American Journal of Physical Anthropology, 78,* 331-354. doi: 10.1002/ajpa.1330780303

Greenberg, P. E., Kessler, R. C., Birnbaum, H. G., Leong, S. A., Lowe, S. W., Berglund, P. A., & Corey-Lisle, P. K. (2003). The economic burden of depression in the United States: How did it change between 1990 and 2000? *The Journal of Clinical Psychiatry, 64,* 1465-1475. doi: 10.4088/JCP.v64n1211

Hammen, C. (1991). Generation of stress in the course of unipolar depression. *Journal of Abnormal Psychology, 100,* 555-561. doi: 10.1037//0021-843X.100.4.555

Karney, B. R., & Bradbury, T. N. (1995). The longitudinal course of marital quality and stability: A review of theory, methods and research. *Psychological Bulletin, 118,* 3-34. doi: 10.1037//0033-2909.118.1.3

Kendler, K. S., Kuhn, J. W., & Prescott, C. A. (2004). Childhood sexual abuse, stressful life events and risk for major depression in women. *Psychological Medicine, 34,* 1475-1482. doi: 10.1017/S003329170400265X

Kessler, R. C. (1997). The effects of stressful life events on depression. *Annual Review of Psychology, 48,* 191-214. doi: 10.1146/annurev.psych.48.1.191

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Koretz, D., Merikangas, K. R. … Wang, P. S. (2003). The epidemiology of major depressive disorder: Results from the National Comorbidity Survey Replication (NCS-R). *JAMA: The Journal of the American Medical Association, 289,* 3095-3105. doi: 10.1001/jama.289.23.3095

Markman, H. J., (1981). Prediction of marital distress: A 5-year follow-up. *Journal of Consulting and Clinical Psychology, 49,* 760-762. doi: 10.1037//0022-006X.49.5.760

Markman, H. J., Renick, M. J., Floyd, F. J., Stanley, S. M., & Clements, M. (1993). Preventing

marital distress through communication and conflict management training: A four and five year follow-up. *Journal of Consulting and Clinical Psychology, 62,* 70-77. doi: 10.1037/0022-006X.61.1.70

Proulx, C. M., Helms, H. M., & Buehler, C. (2007). Marital quality and personal well-being: A meta-analysis. *Journal of Marriage and Family, 69,* 576-593. doi: 10.1111/j.1741-3737.2007.00393.x

Rehman, U. S., Gollan, J., & Mortimer, A. R. (2008). The marital context of depression: Research, limitations, and new directions. *Clinical Psychology Review, 28,* 179-198.doi: 10.1016/j.cpr.2007.04.007

Schoenborn, C. (2004). Marital status and health: United States, 1999 – 2002. U.S. National Center for Health Statistics. *Advance Data from Vital and Health Statistics,* 1-32.

Whisman, M. A. (2007). Marital distress and DSM-IV psychiatric disorders in a population-based national survey. *Journal of Abnormal Psychology, 116,* 638-643. doi: 10.1037/0021-843X.116.3.638

Does adolescent depression predict intimate relationship dysfunction in adulthood?

Intimate relationships are characterized by varying degrees of quality and stability. What accounts for the diversity of relationship outcomes faced by individuals entering committed relationships? Interpersonal processes like patterns of wife-demand, husband-withdraw (Eldridge, Sevier, Jones, Atkins, & Christensen, 2007), high amounts of negative affect and negative problem-solving behaviors during support and conflict tasks (Johnson et al., 2005; Pasch & Bradbury, 1998), and physical aggression (Lawrence & Bradbury, 2001) are associated with relationship quality and stability. These perspectives argue that components inside of one's intimate relationship predict subsequent relationship functioning. While interpersonal processes are important predictors of relationship outcomes, understanding intimate relationship functioning is incomplete without examining how individual-difference variables already in place before entry into established intimate relationships govern such outcomes. Investigating individual-difference factors involved in intimate relationship quality and stability implies that aspects of earlier relationships, like the parent-child relationship and an individual's relationship history before marriage, may shape one's decision to enter a committed relationship, the partner one eventually chooses for such a commitment, and the way one interacts with their partner throughout the relationship.

Understanding how pre-existing risk factors affect adult relationship outcomes suggests studying individuals at the developmental period when intimate relationships first begin to form: adolescence. Adolescence is a critically important time for relationship development, as adolescents shift away from parental and peer influence and toward intimate partners as they seek social support (Furman & Buhrmester, 1992). Adolescents also learn social skills like intimate relationship competence and develop self-identity through entering intimate

relationships (Collins, 2003). While adolescence is a critical developmental period for intimate relationship entry, adolescence is also a salient time for the development of depression, a major risk factor that predicts declines in adulthood relationship satisfaction and stability (Fincham, Beach, Harold, & Osborne, 1997; Gotlib, Lewinsohn, & Seeley, 1998). Depression rates climb during adolescence, and gender differences in depression also emerge (Hankin & Abramson, 2001). Furthermore, adolescent depression has been shown to predict future negative educational and familial outcomes, including low educational attainment and early pregnancy (Bardone, Moffitt, Caspi, Dickson, & Silva, 1996; Fergusson & Woodward, 2002).

As intimate relationships and depression are prominent experiences occurring in adolescence, previous research has addressed the connection between these two phenomena. Aspects of adolescent intimate relationships, like engagement in intimate activities (i.e., flirting, kissing, and casual sex) or the presence of an intimate partner (Davila, 2008; Davila et al., 2009; Joyner & Udry, 2000; Steinberg & Davila, 2008) predict increased depressive symptoms. The quality of an adolescent's intimate relationship also predicts psychopathology, as low quality-intimate relationships that are primarily sexual in nature and of short duration (Shulman, Walsh, Weisman, & Schelyer, 2009), or characterized by conflict and criticism (La Greca & Harrison, 2005) and low levels of perceived support (Simon & Barrett, 2010) lead to increases in depression. However, research that primarily investigates a connection between adolescent relationship functioning and later depression is incomplete, in that it fails to consider the mechanisms by which depressive symptoms and vulnerability factors may generate turbulent intimate environments (Hammen, 1991). For example, adolescent depression may contribute to adverse relationship outcomes by establishing characteristic patterns of interacting with intimate partners (conflict, hostility, reassurance-seeking) or coping with stressful events that disrupts

relationship processes. Depression may also be associated with deficits in self-esteem (Orth, Robins, Trzesniewski, Maes, & Schmitt, 2009), or romantic competency (Herzberg et al., 1998) and problem-solving (Davila, Hammen, Burge, Paley, & Daley, 1995) that impair interpersonal communication.

Taken together, research on adolescent depression shows a connection between early intimate relationship involvement/impairment and subsequent depression. While such findings relate to the adult depression literature regarding the prospective association between marital discord and later depression (e.g., Whisman, 2001), this research is also incomplete in failing to appropriately evaluate an important idea: that variability in relationship outcomes may be attributed to factors occurring well before an individual enters this relationship or in fact any relationship. Considering individual-level factors that predate intimate relationship entry means that committed relationship outcomes might be shaped by family-of-origin experiences or psychopathology such as depression. In order words, an early experience of depression or parental conflict might set into motion a cascade of cognitive or behavioral impairments that lead to problems in friendships or early intimate relationships. These interpersonal impairments may persist over time, leading to social skill/communication deficits or dysfunctional partner selection that may predict later marital dysfunction or dissolution. If depressive symptoms predict differential patterns of intimate relationship involvement before marriage, then these earlier consequences of depression may generate a pattern of partner selection that prefigures who one chooses as an eventual mate and thereby the chronically supportive or challenging environment they inhabit.

The main aim of the current project is to build upon previous research examining depression as a consequence of intimate relationship functioning (e.g., Simon & Barrett, 2010) to

consider how adolescent depression may predict particular facets of later relationship dysfunction. At the same time, it is important not to overlook the possibility that other factors in an adolescent's life might uniquely predict later relationship outcomes. Family-of-origin models for intimate relationships may be particularly germane to understanding offspring's intimate competency, quality and stability. Parental discord and divorce/relationship instability affect their children's psychosocial and academic well-being (Amato, 2001) and reduce offspring's intimate relationship satisfaction and stability (e.g., Amato & Booth, 2001). Parental conflict also affects how adolescents and young adults resolve conflict in their own intimate relationships (e.g., Reese-Webber & Marchand, 2002). In addition to examining the role of the relationship between parents, adolescents' perceptions of their relationship with their family-of-origin may predict subsequent intimate relationship problems. Perceptions of parental support co-vary with a lower initial level of depressive symptoms (Needham, 2008) and a greater decrease in depressive symptomatology across adolescence (Meadows, Brown, & Elder, 2006). Much like with parental conflict, the parent/child relationship mirrors that of children's eventual intimate partners, with children who experienced nurturing and involved parenting (e.g., Conger, Cui, Bryant, & Elder, 2000) and interactions characterized by constant provision and receipt of support (Furman, Simon, Shaffer, & Bouchey, 2002) being more likely to display supportive patterns of interaction with later intimate partners.

In short, parental relationship instability and conflict, as well as the parent-child relationship, are likely to predict aspects of offspring's subsequent depression and intimate relationship functioning, potentially through perceived attachment and observed conflict resolution/marital interaction patterns. Therefore, when examining possible consequences of adolescent depression for an adolescent's future relationships, it is vital to also consider the role

of family-of-origin constructs in order to provide a more precise test of which individual-level risk factors are the most powerful predictors of later relationship dysfunction. In line with previous research, we will test parental marital instability, parental relationship discord, and the quality of the adolescent/parent relationship as unique predictors of intimate relationship outcomes in adulthood. Extending previous research through integrating family-of-origin factors with depression, we will examine whether the interaction of several family-of-origin factors combines with depression to predict individuals at especially-high levels of risk for later intimate relationship dysfunction.

Using a nationally representative sample of adolescents, this study will examine whether adolescent depression predicts later intimate relationship functioning in late adolescence and early adulthood. We define intimate relationship functioning in several ways: high levels of risky intimate relationship involvement (e.g., many short-term relationship partners) and relationships with current partners that are of poor-quality (as assessed through self-reported relationship quality measures and conflict).We expect that early experiences of depression will (a) predict subsequent intimate relationship dysfunction as assessed through poor relationship quality and higher rates of self-reported conflict in current relationships, as well as (b) a pattern of intimate relationships characterized by frequent short-term relationships and few long-term relationships. This second hypothesis is tentative, however, given the limited research using a history of relationship experiences as an outcome. Drawing from findings about the intergenerational transmission of marital dysfunction (e.g., Amato & Booth, 2001), we expect that parental relationship instability and conflict, as well as low levels of parent/child quality, will also predict negative intimate relationship outcomes measured through current relationship quality, but we are less clear about how such variables might impact early relationship histories.

A secondary aim is to formally examine these analyses for gender differences through moderation. We expect that, given gender differences in adolescent depression (Hankin & Abramson, 2001) and in sociotropy (McBride, Bacchiochi, & Bagby, 2005), women will be more likely than men to have aversive relationship outcomes to the extent that they experience higher levels of depressive symptoms and poorer-quality relationships with their mothers and fathers. However, we expect no gender differences in the impact of parental relationship instability or conflict on relationship outcomes, given previous research (e.g., Amato, 2001; Amato, & Booth, 2001). A final aim of our study is to test whether adolescent depression and parental variables interact to amplify their effects. In view of evidence that the association between adolescent intimate involvement and subsequent depression is moderated by parental availability and parental stressors (Davila et al., 2009; Steinberg & Davila, 2008), we expect that adolescents who experience depressive symptoms alongside a poor-quality relationship with their parents will be especially likely to experience intimate relationship functioning deficits in adulthood, but previous work has been more tentative on the extent to which depression might interact with parental relationship instability and conflict to predict later relationship dysfunction.

Method

Participants and procedure

The data for this project were drawn from Waves I, II, and IV of the National Longitudinal Study of Adolescent Health (Add Health), a publically-available dataset that inquired about adolescents' physical/mental health and health behaviors during in-school questionnaires and at-home interviews. Using sampling techniques of all United States high schools with at least 50 students, a random sample of 80 high schools were chosen, along with 52 "feeder" schools. (The sample was designed to be broadly representative of United States

schools in terms of geography, urbanicity, school type [private, public, parochial], school size and student ethnicity). Over 90,000 7th through 12th graders completed an in-school questionnaire between September, 1994 and April, 1995. A baseline sample of 20,745 adolescents was drawn from the larger sample and these participants completed an additional in-home interview between April and December, 1995. An adult primary caregiver (generally biological or resident mother) also completed an in-home interview during this time period. Participants completed further interviews one-year later in 1996 (Wave II), again between 2001-2002 (Wave III), and a fourth time between 2007-2008 (Wave IV). Given the longer time duration and the inclusion of a variety of relationship satisfaction items that were not available at Wave III, Wave IV data was selected as the timeframe for the outcome data.

The publically-available version of this dataset includes a random selection of one-half of the core sample and one-half of the oversample of African-American adolescents possessing a parent with a college degree. Overall, data from 6,504 adolescents and one resident parent are available at Wave I, 4,834 adolescents at Wave II, and 5,114 at Wave IV. Demographic information at Wave I indicates that 48.4 % of participants were male and 51.6 % female. In terms of ethnicity, 57.4 % of participants were Caucasian, 23.7% African-American, 6.5% other, 4.8% Hispanic, 4.0% Asian/Pacific Islander, and 3.4% Pacific Islander. Participant's age was manually computed by subtracting the interview date at Waves I and IV from participant's birth-date and rounding to the nearest year. Among all participants who provided data, the mean age at Wave I was 15.57 years (*SD* = 1.78 years), and 28.42 years (*SD* = 1.81 years) at Wave IV.

Measures

Predictors

Depressive symptoms. Eighteen items from the Center for Epidemiological Depression

Scale (CES-D; Radloff, 1977) were asked of participants during the previous week, while two additional items ("trouble falling asleep or staying asleep" and "frequent crying") were asked of participants over the previous 12 months. In accordance with other research (Pearson & Wilkinson, 2013), a 20-item scale of depressive symptoms was created from these items, which were scored on a 0 ("never") to 3 ("most of the time" or "all of the time/every day") scale, depending upon the question. Relevant items were reverse-scored and all items were summed to create a composite measure that ranged from 0 to 60. The items demonstrated a high degree of reliability (Cronbach's $\alpha = .86$ for Wave I and .87 for Wave II). As the composite scores were correlated at $r = .61$ between Waves I and II, and no group differences existed between individuals who were not present at Wave II ($t = 1.02$, $p = .31$), scores from Waves I and II were averaged to create a composite measure of adolescent depression. An individual's score at Wave I was used for participants who were not present at Wave II. For the overall sample, depression scores ranged from 0 to 51 with a mean of 12.11 and a standard deviation of 7.36. Furthermore, using clinical cut-offs of ≥ 22 for men and ≥ 24 for women (Halfors et al., 2004), 8.4% of participants experienced depressive symptoms at a clinical level of severity.

Parental marital status. In accordance with previous research (Wickrama & O'Neil, 2013), a binary variable was created from parental self-report questionnaires at Wave 1 to distinguish parents who were in a consistent marital or marital-like relationship with their partner for the past 15 (i.e., approximately since participant's birth) years (1) versus those who were not (0). This measurement of marital stability is predictive of adolescents' SES and physical/mental health outcomes (Wickrama & Baltimore, 2010). Descriptive statistics indicated that 53.9% of parental reporters were in a consistent marital or marriage-like relationship, while 46.1% were not.

Parental conflict with partner. For those parental respondents (75.0% of total sample) who reported being in a current relationship at the baseline session, conflict with partner was assessed through the single item "How much do you fight or argue with your current (spouse/partner)?" Responses were provided on a four-point scale ("not at all"; "a little"; "some"; and "a lot"). However, given the fact that relatively few participants endorsed experiencing conflict at a level of "not at all" (3.3%) or "a lot" (15.4%), a dichotomous score was computed from participant's responses, with 0 encoding "not at all" or "a little" and 1 encoding "some" or "a lot." Descriptive statistics demonstrated that 69.9% of parental respondents experienced no conflict with their current partner, while 30.1% did. Parental conflict scores for parents who were currently single were treated as missing data.

Participants' relationship quality with resident mothers and fathers. For the 94.3% and 70.0% of participants who reported having a resident mother or father respectively, participants completed the following five questions: (a) "How close do you feel to your mother/father?" (b) "How much do you think she/he cares about you?" (c) "Overall you are satisfied with your relationship with your mother/father." (d) "Most of the time, your mother/father is warm and loving toward you." (e) "You are satisfied with the way your mother/father and you communicate." The first two items were anchored on a 1 ("not at all") to 5 ("very much") scale, while the remaining items were anchored on a 1 ("strongly disagree") to 5 ("strongly agree") scale. Following previous research (Pearson & Wilkinson, 2013), relevant items were reverse-coded and then averaged to create a composite measure of perceived closeness to resident mothers and fathers that ranged from 1 to 5. Higher scores indicated a higher degree of perceived closeness. These measures possessed a high degree of internal consistency (Cronbach's α = .84 for mothers and .88 for fathers). Values for maternal closeness

ranged from 1.2 to 5 with a mean of 4.43 and a standard deviation of 0.64, while corresponding values for fathers ranged from 1 to 5 with a mean of 4.24 and a standard deviation of 0.76. Participants therefore typically reported high-quality relationships with their mothers and fathers.

Outcomes

Previous relationship experience. At Wave IV, participants were asked "With how many people have you had a romantic or sexual relationship that lasted less than six months since 2001?" and "With how many people have you had a romantic or sexual relationship that lasted six months or more since 2001?" In this way, participants' short and long-term/stable intimate relationship history since Wave III was gathered. Descriptive statistics indicated that the mean number of short-term relationships was 2.04 with a standard deviation of 6.11; the mean number of long-term relationships was .87 with a standard deviation of 2.91. The within-person correlation between these variables was $r = .36$; separate outcomes for number of short and long-term relationships were therefore computed.

Current relationship status. At Wave IV, participants were asked whether they were currently in a romantic relationship; 46.7% of participants were currently single, while 53.3% were in a relationship (i.e., "partnered"). Current relationship status ("single" encoded as "0" and "partnered" encoded as "1") was therefore analyzed as an outcome variable.

Current relationship conflict. Eight items drawn from the Conflict Tactics Scale (CTS; Straus, 1979) assessed for relationship conflict with the current partner at Wave IV. The CTS has been shown to have adequate levels of reliability, internal consistency and validity (Straus, 1979). Items included: "How often has [initials] threatened you with violence, pushed or shoved you, or thrown something at you that could hurt?"; "How often has [initials] slapped, hit, or kicked you?"; "How often have you had an injury, such as a sprain, bruise, or cut, because of a

fight with [initials]?"; and "How often has [initials] insisted on or made you have sexual relations with him/her when you didn't want to?" These four questions were also asked for violence perpetrated by the respondent toward his/her partner. Given the low incidence of violence across any one item, two dichotomous outcome variables were created to denote partner-to-participant and participant-to-partner conflict, with "0" being denoted as "no-conflict", and "1" being denoted as "conflict" (i.e., a non-zero response across any of the four items). Frequencies indicated that 26.2% of participants experienced violence perpetrated by their partner, while 19.9% perpetrated violence against their partner over the last year.

Current relationship dissatisfaction. Relationship dissatisfaction for participants in current relationships (i.e., "partnered") at Wave IV was assessed through summing seven items as derived from previous research (Harden, 2012). The included items were: "We enjoy doing even ordinary day-to-day things together"; "I am satisfied with the way we handle our problems and disagreements"; "I am satisfied with the way we handle family finances"; "My partner listens to me when I need someone to talk to"; "My partner expresses love and affection to me"; "I am satisfied with our sex life"; and "I trust my partner to be faithful to me." Responses were provided using a Likert scale from 1 ("strongly agree") to 5 ("strongly disagree") and summed to create a composite score that ranged from 7 to 35, such that higher scores indicated greater relationship dissatisfaction. Internal consistency for the measure was high, with Cronbach's α = .90. Finally, descriptive statistics for the composite measure (M = 12.63; SD = 5.54) indicated a relatively high degree of satisfaction in one's current relationship.

Data analytic plan

SPSS 16.0 was used for all analyses; linear regression was used for analyses with a continuous outcome, while logistic regression was conducted for analyses with a dichotomous

outcome. Participants' ethnicity, parental household income (M = $47,700; SD = $56,355), and parental education (a dichotomous variable encoded such that "0" = "less than four-year college degree" [75.2% of respondent parents] and "1" = "four-year college degree or higher education" [24.8% of respondent parents]) were entered in all analyses as covariates. Interaction terms were created separately, after group-mean centering continuous predictors, to analyze gender ("men" = "0"; "women" = "1") as a moderator. Interaction terms were also created to combine depression history alongside the four separate family-of-origin predictors to determine whether parental variables moderated the impact of adolescent depression on relevant outcomes. Finally, provided sample weights were used in all analyses, after first normalizing them, in order to control for design effects. We excluded participants who did not have a sampling weight from analysis.

Results

Preliminary analyses. Inter-correlations between covariates, predictors, and outcomes can be found in Table 1. Although many of these correlations were statistically significant, the majority of these correlations were near or below $r = .10$, indicating small associations. Of particular note, partner-to-respondent and respondent-to-partner conflict were correlated at $r = .56$; participant's relationship quality with resident mothers and fathers were correlated at $r = .49$; and the number of short- and long-term relationships were correlated at $r = .36$. In spite of these correlations of a medium to large effect size, these variables were still analyzed as separate predictors or outcome variables. Additional analyses indicated that, as expected, women had higher levels of adolescent depressive symptoms ($M = 13.25$, $SD = 7.89$) as compared to men ($M = 10.77$, $SD = 6.31$, $t = 12.08$, $p < .001$, $d = .35$).

Individual models predicting outcomes. Thirty independent linear or logistic regression

models were conducted to test whether the five separate predictors independently predicted each of the six outcome variables. A family-wise Bonferroni correction for multiple comparisons was employed, such that each significance value was compared against an alpha-value of .008 (i.e. .05/6). The three covariates were entered at step 1, while the predictor of interest was entered at step 2.

Multiple predictors were determined to be statistically significant predictors using the p = .008 threshold for four of the outcome variables (current partnered relationship status, respondent-to-partner conflict, partner-to-respondent conflict, and current relationship dissatisfaction). Simultaneous models were therefore employed in these situations to test the extent to which a predictor remained significant after other predictors were entered. Previously-significant predictors for the outcomes of currently being in a relationship and respondent-to-partner conflict failed to remain significant when entered simultaneously. However, multiple simultaneous predictors remained significant for two other outcomes. Participant's relationship quality with mothers (ß = -.24, *SE* ß = .09, *OR* = .79, p = .005) and parental marital status (ß = -.31, *SE* ß = .11, *OR* = .74, p = .006) remained significant simultaneous predictors of partner-to-respondent conflict (see Table 2), such that participants were less likely to experience relationship conflict from partners to the extent they reported a high-quality relationship with mothers and were in families characterized by marital/relationship stability. Finally, while four predictors were significantly independently related to current relationship dissatisfaction, only maternal relationship quality (b = -1.20, *SE* b = .28, ß = -.13, t = - 4.27, r^2 = .026, p < .001) and parental marital status (b = -.85, *SE* b = .31, ß = -.07, t = - 2.74, r^2 = .008, p = .006) remained statistically significant when entered simultaneously (see Table 3), such that individuals reported a higher quality current relationship to the extent they reported a higher quality relationship with

their resident mothers and were in families characterized by marital stability.

In addition to these findings, only participant/paternal relationship quality predicted the number of short-term intimate relationships (b = -.47, *SE* b = .13, ß = -.07, t = - 3.64, r^2 = .005, p < .001), such that individuals reported fewer relationships of less than a six-month duration to the extent that they reported a higher quality relationship with their father (see Table 4). None of the predictors were significantly related to the number of experienced intimate relationships of a duration longer than six months. Taken together, participant/maternal relationship quality and parental relationship stability were the most frequent predictors of adverse relationship outcomes, in expected directions.

Gender-based moderators. These models were re-examined to test the interaction between gender and all five predictors over all six outcome variables. Gender was therefore added as a main effect at step 2, with the interaction between gender and a particular predictor entered separately at step 3. Results indicated that gender failed to moderate any of the predictors on any of possible outcomes. Taken together, the impact of family-of-origin or adolescent depression on subsequent relationship outcomes are not impacted by participant's gender.

Interactions between depression and family-of-origin variables. Additional models were analyzed to determine whether the four family-of-origin factors interacted with adolescent depression to predict the six relationship outcomes. Grand-mean-centered adolescent depression and one predictor (i.e., participant/maternal relationship quality) were entered individually at step 2, and then the interaction between these variables was entered at step 3. Taken together, 24 models were conducted, with two interaction models determined to be statistically significant. Parental marital status moderated the impact of adolescent depression history on participant's likelihood of being in an intimate relationship (ß = -.03, *SE* ß = .01, *OR* = .97, p = .004), while

parental conflict moderated the impact of adolescent depression on the number of long term partners (b = -.03, $SE\ b$ = .01, ß = -.06, t = -2.70, r^2 = .003, p = .007), Figure 1 indicates the graphs of these interactions, while Tables 5 and 6 provide the full pattern of results for these models.

As expected, individuals with a higher degree of adolescent depressive symptoms were more likely to experience problematic future relationship functioning to the extent they experienced a negative family-of-origin climate. Participants one standard deviation above the mean on depressive symptoms were more likely to be currently single and have a fewer number of stable relationship partners to the extent that they grew up in a family characterized by parental relationship instability and conflict, respectively. However, a closer inspection of the interactions revealed that individuals who were one standard deviation below their group mean on adolescent depressive symptoms and who also experienced family-of-origin strife (i.e., parental relationship instability and conflict) were significantly more likely to be partnered and to have a higher number of longer-term relationship partners.

Discussion

Competing ideas about subsequent intimate relationship dysfunction were drawn from previous literature on the potential impact of adolescent depression and family-of-origin conflict, marital status, and perceived maternal and paternal relationship quality. These variables were tested in individual regression models to consider how adolescent depression or experiences in one's family may be related to a number of adverse relationship outcomes in early adulthood. Results indicated that participant's self-reports of the quality of their relationship with their resident mothers, as well as parental marital/relational status (comparing parents who were in a consistent relationship for at least 15 years versus those who were not), were strong and

consistent predictors of subsequent relationship dysfunction in the expected direction. Gender was examined as a potential moderator of all potential models, with no significant results determined. Finally, although adolescent depression was often a weaker predictor of relationship outcomes than the aforementioned familial variables, adolescent depression interacted with some of these variables to enhance the likelihood of relationship dysfunction in mostly expected directions.

Before these results are more fully discussed, several study strengths and limitations must first be addressed. Representing a national longitudinal survey of adolescents, an important strength of this study is its careful follow-up of a substantial number of participants over time. Furthermore, the inclusion of an over-sampling of African-American children whose parents obtained college degrees permits an accurate analysis of how race and parental educational impact childhood outcomes. Nonetheless, there are several limitations to consider. First, several potential variables of interest (i.e., parental depression, family structure, partner's reports of relationship outcomes, participant's relationship length) were not readily available for analysis in the current dataset. This study is therefore limited in its ability to consider potential rival hypotheses in line with previous research about, for example, the impact of maternal depression on childhood outcomes (Goodman, 2007) or the role of alternative family structures (same-sex relationships, stepfamilies, blended families) on subsequent relationship outcomes (e.g., Sweeney, 2010). This study is also limited in only considering one reporter – the study participant – of the array of relationship outcomes. Gaining multiple perspectives (i.e., from partners) could improve accuracy and also help to avoid potential memory or other cognitive biases in reporting due to depression. Our work also failed to provide validation for whether outcomes of the number of short/long-term relationships were maladaptive. Finally, for some of

the results (especially moderator analyses) that achieved a statistical level of significance, the clinical level of significance (i.e., as measured through effect sizes such as odds ratios or r^2 values) was relatively low. Taken together, future research could be employed to capitalize on competing perspectives through considering the impact of parental depression or parental relationship type on children's subsequent outcomes; analyzing outcomes from the partner's perspective; and advancing the current project by considering potential mechanisms by which family-of-origin dysfunction is associated with future intimate relationship outcomes through statistical mediation.

Independent tests indicated that family-of-origin factors, especially participant/maternal relationship quality and parental marital status, reliably predicted aversive relationship outcomes. These constructs predicted two of the three relationship outcomes (partner-to-respondent conflict, relationship quality) among participants in a current intimate relationship. These findings support previous research (e.g., Amato & Booth, 2001; Furman, Simon, Shaffer, & Bouchey, 2002; Reese-Webber & Marchand, 2002) that has found that family-of-origin marital instability and parental relationship quality impacts the quality of subsequent intimate relationships and extends this research by both considering multiple family-of-origin factors simultaneously and controlling for the impact of depressive symptoms. While depression history was not an independent predictor of subsequent relational outcomes, adolescent depression acted in concert with parental marital status and parental conflict to enhance the impact of these family-of-origin variables on subsequent relationship outcomes including relationship status and number of longer-term relationship partners. These findings suggest that depression history is an important factor that may enhance negative relationship outcomes, especially among individuals with aversive experiences in their family-of-origin.

However, examining the interactions more closely reveals that participants one standard deviation below the mean on depressive symptoms in adolescence were significantly more likely to be (a) currently partnered and (b) have a greater number of longer-term relationships to the extent they experienced a parental history of relationship instability and conflict, respectively. These results suggest that individuals relatively unaffected by early experiences of psychopathology but those who experienced conflictual or unstable relationship role models through their parents may be especially motivated to seek out their own romantic relationships. Perhaps such individuals are keen to search for relationship partners due to expectations that they will be able to handle even difficult relationship experiences (i.e., such individuals may perceive that they have been resilient in the face of family-of-origin strife, so they may be again in their own relationships) or due to different levels of sociotropy/investment in romantic relationships. Our results suggest further inquiry regarding the processes by which individuals without adolescent psychopathology but with familial experiences of relationship instability and conflict decide to enter intimate relationships.

The lack of significant gender moderation was a surprising finding that conflicts with previous research related to the propensity of women and girls to become depressed at over twice the rates of men/boys, especially throughout late adolescence (Hankin & Abramson, 2001), as well as women's higher scores on measures of sociotropy, or investment in close relationships, (McBride, Bacchiochi, & Bagby, 2005) of a small effect size (d = .24 in previous research). We expected that women would be more likely to experience and more sensitive to the impact of earlier depressive histories and parental relationship quality in ways that led to differential gender-based associations between these predictors and our relationship outcomes. The fact that this was not the case, in spite of women's higher levels of adolescent depressive symptoms (d =

.35), suggests that the impact of depression and family-of-origin factors on subsequent intimate relationship outcomes may not be gender-based but rather part of a process that impacts both sexes in a similar manner. Confirming previous results (Amato, 2001; Amato & Booth, 2001), however, we found that there were no gender differences related to the impact of parental divorce/relational instability or conflict on offspring's subsequent intimate relationship quality.

These results yield important clinical and policy implications. First, given that the majority of significant analyses involved outcomes related to current relationship functioning, additional research that investigates the mechanisms by which individuals choose relationship partners may illuminate how to intervene (i.e., through individual therapy, parental monitoring and behaviors, school-based educational programs) in the lives of individuals who may be at risk for making risky selections of an eventual marital partner. Furthermore, discussing parental models of relationship functioning, a component of the assessment phase in couples treatments such as Integrative Behavioral Couples Therapy (Christensen, Jacobson, & Babcock, 1995), may help couples better understand how these early experiences impact current schemas, behaviors, and communication patterns in the relationship. In addition, as family-of-origin variables like parental stability and participant/maternal relationship quality were reliable predictors of aversive childhood outcomes, marriage promotion programs such as Supporting Healthy Marriage (Hseuh et al., 2012) may be important to improve not only parental marital functioning but also subsequent relationship outcomes of offspring. At the same time, as mother/child relationship quality was a much stronger predictor of negative outcomes than father/child relationship quality, these findings suggest continued emphasis on improving relationships between primary caregivers and children through such strategies as family-based therapy, family skills training, and parent training techniques (Kumpfer & Alvarado, 2003).

Table 1

Inter-correlations between covariates, predictors, and outcome variables at Wave I

Variables	1	2	3	4	5	6	7
1. Race [a]	-						
2. Parental education	-.02	-					
3. Total household income	-.11***	.26**	-				
4. Partner-to-respondent conflict	.10***	-.05**	-.06**	-			
5. Respondent-to-partner conflict	.10***	-.05**	-.07***	.56***	-		
6. Number long-term relationships	.05**	.02	.02	.00	-.00	-	
7. Number short-term relationships	-.00	-.04*	.04*	.01	.02	.36***	-
8. Current relationship status [b]	-.06***	-.02	.01	.02	.05**	-.11***	-.15***
9. Total relationship satisfaction	.06***	-.03*	-.04*	.29***	.26***	.04*	.05**
10. Adolescent depressive symptoms	.11***	-.10***	-.09***	.09***	.10***	-.02	-.03*
11. Parental marital status	-.12***	.10***	.16***	-.09***	-.07***	-.01	-.01
12. Parental conflict	.04*	-.05**	-.03	.06**	.03	.00	.04*
13. Relationship quality with mother	-.03	.02	.00	-.06***	-.07***	.01	-.00
14. Relationship quality with father	-.06**	.04*	.01	-.07***	-.07***	.00	-.05**

Variables	8	9	10	11	12	13	14
8. Current relationship status	-						
9. Total relationship satisfaction [c]	-.16***	-					
10. Adolescent depressive symptoms	.04**	.14***	-				
11. Parental marital status	.07***	-.06**	-.10***	-			
12. Parental conflict	-.03*	.06**	.06**	-.01	-		
13. Relationship quality with mother	.04*	-.14***	-.33***	.04**	-.07***	-	
14. Relationship quality with father	.04*	-.13***	-.36***	.10***	-.12***	.49***	-

Note. [a] Race: Reference group is Caucasian. [b] Current relationship status: Encoded as "0" = single and "1" = partnered. [c] Total relationship satisfaction: Higher scores indicate lower levels of relationship satisfaction.

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 2

Summary of final logistic regression model predicting partner-to-respondant conflict, controlling for covariates of race, parental education, and parental household income

Variable	*β*	*SE β*	*OR*
Race (1) [a]	-.77***	.21	0.46
Race (2) [b]	-.30	.31	0.74
Race (3) [c]	-.09	.23	0.92
Race (4) [d]	-.17	.34	0.85
Race (5) [e]	-.26	.36	0.77
Parental Education [f]	-.09	.13	0.91
Parental Household Income	-.00	.00	1.00
Participant/Maternal Relationship Quality	-.24**	.09	0.79
Parental Relationship Stability	-.31**	.11	0.74
Constant	-.30		
χ^2	69.45		
df	10		

Note. [a] Comparing Hispanic/Latino participants with Caucasians. [b] Comparing African-American participants with Caucasians. [c] Comparing American-Indian participants with Caucasians. [d] Comparing Asian/Pacific-Islander participants with Caucasians. [e] Comparing participants of "other" ethnicity with Caucasians. [f] Comparing parents with a four-year college degree versus those without.

** $p < .01$. *** $p < .001$

Table 3

Summary of final linear regression model predicting current relationship quality, controlling for covariates of race, parental education, and parental household income

Variable	*B*	*SE B*	*ß*
Race	.20*	.10	.05
Parental Education [a]	-1.10**	.32	-.09
Parental Household Income	-.00	.00	-.02
Participant/Paternal Relationship Quality	-.15	.22	-.02
Participant/Maternal Relationship Quality	-1.20***	.28	-.13
Parental Marital Stability	-.85**	.31	-.07
Adolescent Depressive Symptoms	.03	.02	.04
Constant	12.99		
R^2	.05		
F	10.56		

Note. [a] Comparing parents with a four-year college degree versus those without.

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 4

Summary of final linear regression model predicting number of short-term relationship partners, controlling for covariates of race, parental education, and parental household income

Variable	*B*	*SE B*	*ß*
Race	.04	.07	.01
Parental Education [a]	.33	.13	.03
Parental Household Income	.01**	.00	.05
Participant/Paternal Relationship Quality	-.47***	.13	-.07
Constant	1.59		
R^2	.01		
F	6.31		

Note. [a] Comparing parents with a four-year college degree versus those without.

** $p < .01$. *** $p < .001$

Table 5

Summary of final logistic regression model testing adolescent depression as a moderator of the relationship between parental relationship instability and currently being partnered

Variable	*β*	*SE β*	*OR*
Race (1) [a]	.09	.15	1.10
Race (2) [b]	-.18	.21	0.83
Race (3) [c]	-.45**	.17	0.64
Race (4) [d]	-.01	.22	0.99
Race (5) [e]	-.22	.25	0.80
Parental Education [f]	-.07	.08	0.93
Parental Household Income	.00	.00	1.00
Adolescent Depressive Symptoms	.00	.01	1.00
Parental Relationship Stability	.10	.07	1.11
Depression X Parental Stability	-.03**	.01	0.97
Constant	.10		
χ^2	55.06		
df	11		

Note. [a] Comparing Hispanic/Latino participants with Caucasians. [b] Comparing African-American participants with Caucasians. [c] Comparing American-Indian participants with Caucasians. [d] Comparing Asian/Pacific-Islander participants with Caucasians. [e] Comparing participants of "other" ethnicity with Caucasians. [f] Comparing parents with a four-year college degree versus those without.

** $p < .01$.

Table 6

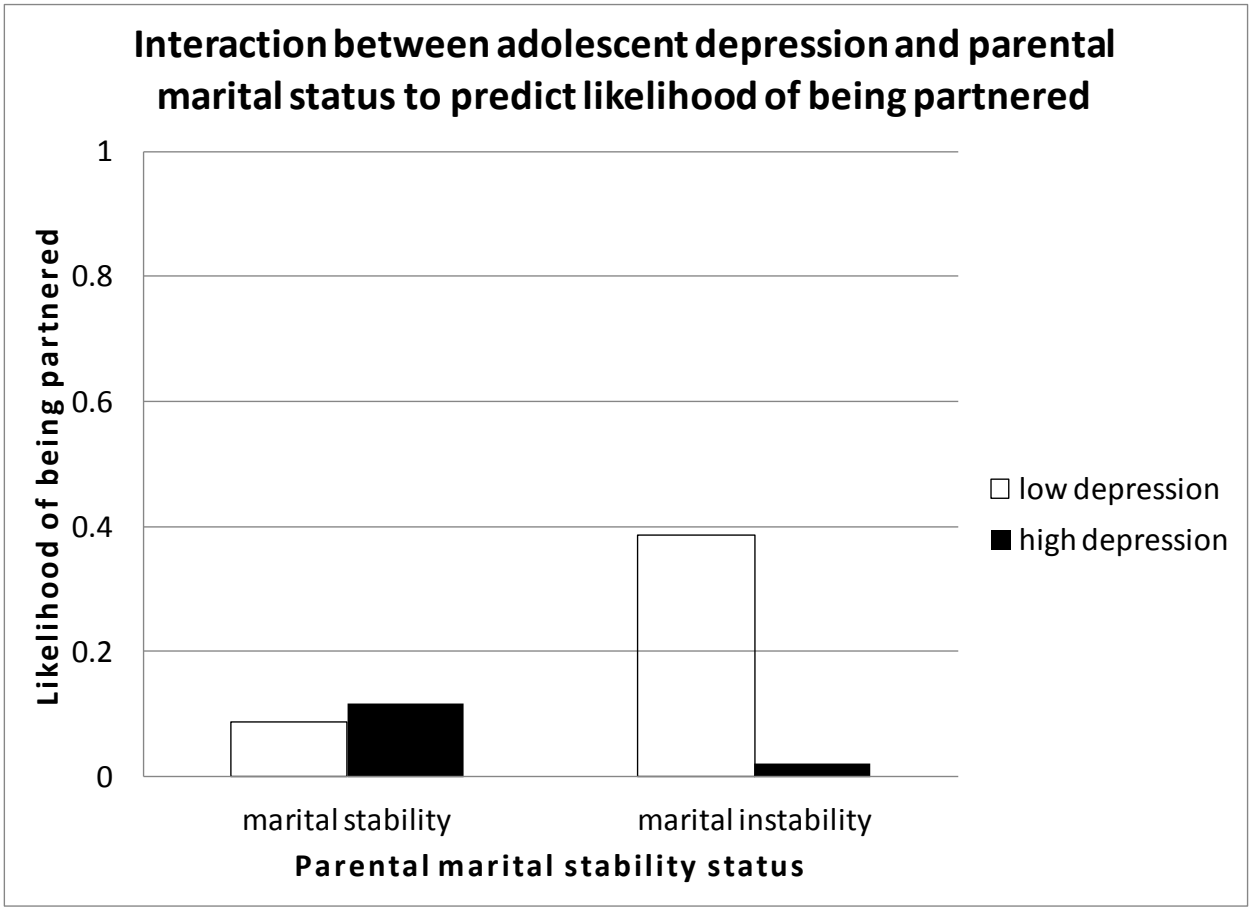
Summary of final linear regression model testing adolescent depression as a moderator of the relationship between parental relationship conflict and number of long-term relationship partners, controlling for covariates of race, parental education, and parental household income

Variable	*B*	*SE B*	*ß*
Race	.04	.02	.04
Parental Education [a]	.16*	.08	.04
Parental Household Income	.00*	.00	.04
Adolescent Depression	.00	.01	.01
Parental Conflict [b]	.11	.07	.03
Depression X Parental Conflict	-.03**	.01	-.06
Constant	.58		
R^2	.01		
F	4.52		

Note. [a] Comparing parents with a four-year college degree versus those without. [b] Comparing parents with "not at all" or "a little" conflict with those with "some" or "a lot".

* $p < .05$. ** $p < .01$.

A)


Interaction between adolescent depression and parental marital status to predict likelihood of being partnered
Likelihood of being partnered
1
0.8
0.6
0.4
0.2
0
low depression
high depression
marital stability
marital instability
Parental marital stability status

B)

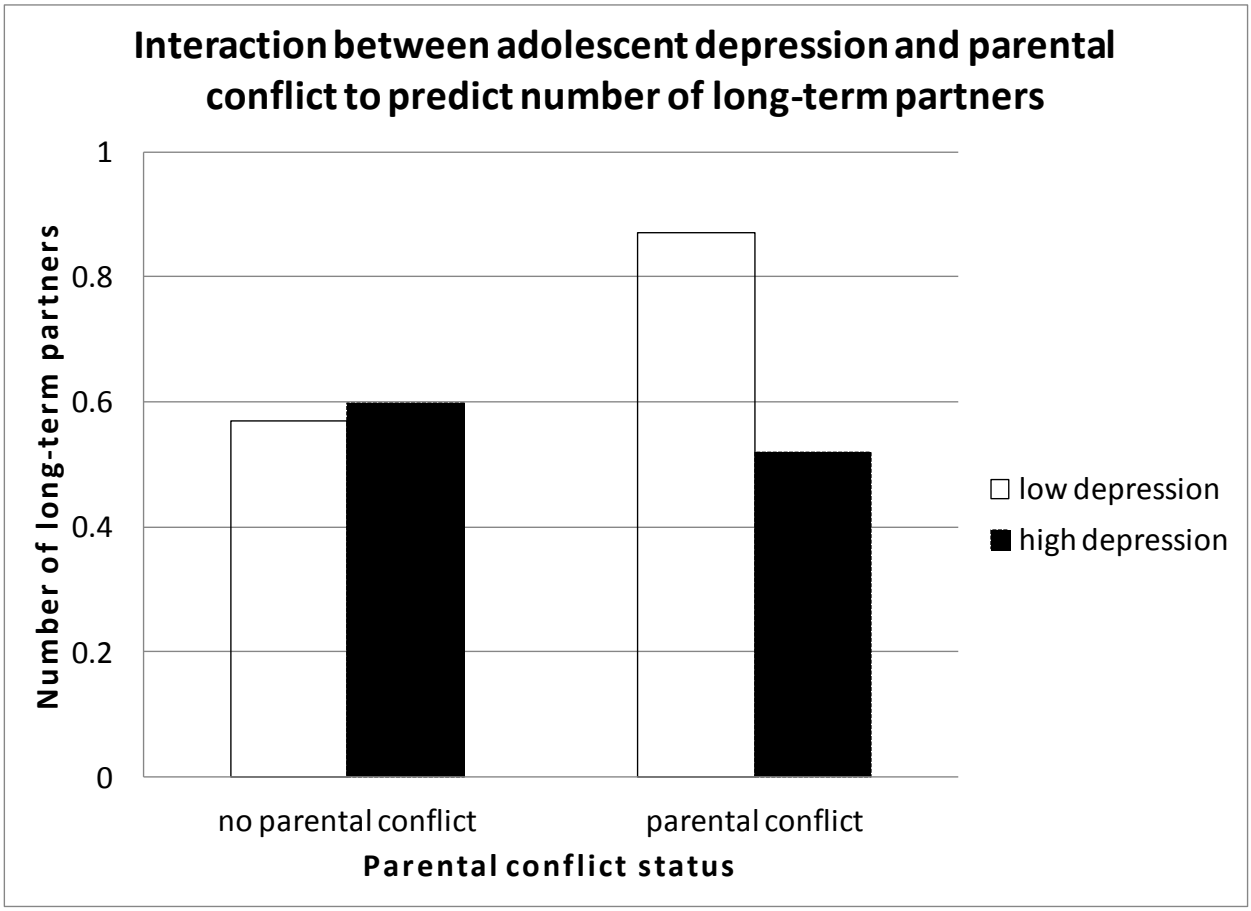


Figure 1. Significant interactions between adolescent depression and family-of-origin variables. Participants 1 *SD* below the mean on depressive symptoms were more likely to be currently partnered (A) and to have a greater number of longer-term intimate partners (B) to the extent they experienced parental relationship instability and parental conflict, respectively.

References

Amato, P. R. (2001). Children of divorce in the 1990s: An update of the Amato and Keith (1991) meta-analysis. *Journal of Family Psychology, 15,* 355-370. doi: 10.1037//0893-3200.15.3.355

Amato, P. R., & Booth, A. (2001). The legacy of parents' marital discord: Consequences for children's marital quality. *Journal of Personality and Social Psychology, 81,* 627-638. doi: 10.1037//0022-3514.81.4.627

Bardone, A. M., Moffitt, T. E., Caspi, A., Dickson, N., & Silva, P. A. (1996). Adult mental health and social outcomes of adolescent girls with depression and conduct disorder. *Development and Psychopathology, 8,* 811-829. doi: 10.1017/S0954579400007446

Christensen, A., Jacobson, N.S. & Babcock, J.C. (1995). Integrative behavioral couples therapy. In N. S. Jacobson & A. S. Gurman (Eds.) *Clinical Handbook for Couples Therapy* (pp. 31-64). New York: Guildford.

Collins, W. A. (2003). More than myth: The developmental significance of intimate relationships during adolescence. *Journal of Research on Adolescence, 13*, 1-24. doi: 10.1111/1532-7795.13010014

Conger, R. D., Cui, M., Bryant, C. M., & Elder, G. H. (2000). Competence in early adult intimate relationships: A developmental perspective on family influences. *Journal of Personality and Social Psychology, 79*, 224-237. doi: 10.1037//0022-3514.79.2.224

Davila, J. (2008). Depressive symptoms and adolescent romance: Theory, research, and implications. *Child Development Perspectives, 2,* 26-31. doi: 10.1111/j.1750-8606.2008.00037.x

Davila, J., Hammen, C., Burge, D., Paley, B., & Daley, S. E. (1995). Poor interpersonal problem

solving as a mechanism of stress generation in depression among adolescent women. *Journal of Abnormal Psychology, 104,* 592-600. doi: 10.1037//0021-843X.104.4.592

Davila, J., Stroud, C. B., Starr, L. R., Ramsay Miller, M., Yoneda, A., & Hershenberg, R. (2009). Intimate and sexual activities, parent-adolescent stress, and depressive symptoms among early adolescent girls. *Journal of Adolescence, 32,* 909-924. doi: 10.1016/j.adolescence.2008.10.004

Eldridge, K. A., Sevier, M., Jones, J., Atkins, D. C., & Christensen, A. (2007). Demand-withdraw communication in severely distressed, moderately distressed, and nondistressed couples: Rigidity and polarity during relationship and personal problem discussions. *Journal of Family Psychology, 21,* 218-226. doi: 10.1037/0893-3200.21.2.218

Fergusson, D. M., & Woodward, L. J. (2002). Mental health, educational, and social role outcomes of adolescents with depression. *Archives of General Psychiatry, 59,* 225-231. doi: 10.1001/archpsyc.59.3.225

Fincham, F. D., Beach, S. R. H., Harold, G. T., & Osborne, L. N. (1997). Marital satisfaction and depression: Different causal relationships for men and women? *Psychological Science, 8,* 351- 357. doi: 10.1111/j.1467-9280.1997.tb00424.x

Furman, W., & Buhrmester, D. (1992). Age and sex differences in perceptions of networks of personal relationships. *Child Development, 63,* 103–115. doi: 10.2307/1130905

Furman, W., Simon, V. A., Shaffer, L., & Boucher, H. A. (2002). Adolescents' working models and styles for relationships with parents, friends, and intimate partners. *Child Development,* 73, 241-255. doi: 10.1111/1467-8624.00403

Goodman, S. H. (2007). Depression in mothers. *Annual Review of Clinical Psychology, 3,* 107-135. doi: 10.1146/annurev.clinpsy.3.022806.091401

Gotlib, I. H., Lewinsohn, P. M., & Seeley, J. R. (1998). Consequences of depression during adolescence: Marital status and marital functioning in early adulthood. *Journal of Abnormal Psychology, 107,* 686-690. doi: 10.1037//0021-843X.107.4.686

Halfors, D. D., Waller, M. W., Ford, C. A., Halpern, C. T., Brodish, P. H., & Iritani, B. (2004). Adolescent depression and suicide risk: Association with sex and drug behavior. *American Journal of Preventative Medicine, 27,* 224-230.

Hammen, C., & Brennan, P. A. (2002). Interpersonal dysfunction in depressed women: Impairments independent of depressive symptoms. *Journal of Affective Disorders, 72,* 145-156. doi: 10.1016/S0165-0327(01)00455-4

Hammen, C. (1991). Generation of stress in the course of unipolar depression. *Journal of Abnormal Psychology, 100,* 555-561. doi: 10.1037//0021-843X.100.4.555

Hammen, C. (2005). Stress and depression. *Annual Review of Clinical Psychology, 1,* 293-319. doi: 10.1146/annurev.clinpsy.1.102803.143938

Hankin, B. L., & Abramson, L. Y. (2001). Development of gender differences in depression: An elaborated cognitive vulnerability-transactional stress theory. *Psychological Bulletin, 127,* 773-796. doi: 10.1037/0033-2909.127.6.773

Harden, K. P. (2012). True love waits? A sibling-comparison study of age at first sexual intercourse and intimate relationships in young adulthood. *Psychological Science, 23,* 1324-1336. doi: 10.1177/0956797612442550

Herzberg, D. S., Hammen, C., Burge, D., Daley, S. E., Davila, J., & Lindberg, N. (1998). Social competence as a predictor of chronic stress. *Personal Relationships, 5,* 207-218. doi: 10.1111/j.1475-6811.1998.tb00168.x

Hseuh, J. A., Alderson, D. P., Lundquist, E., Michalopoulos, C., Gubits, D., Fein, D., & Knox,

V. (2012). *The Supporting Healthy Marriage evaluation: Early impacts on low-income families.* OPRE Report 2012-11. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

Johnson, M. D., Cohan, C. L., Davila, J., Lawrence, E., Rogge, R. D., Karney, B. R., … Bradbury, T. N. (2005). Problem-solving skills and affective expressions as predictors of change in marital satisfaction. *Journal of Consulting and Clinical Psychology, 73,* 15-27. doi: 10.1037/0022-006X.73.1.15

Joyner, K., & Udry, J. R. (2000). You don't bring me anything but down: Adolescent romance and depression. *Journal of Health and Social Behavior, 41,* 369-391. doi: 10.2307/2676292

Kumpfer, K. L., & Alvarado, R. (2003). Family-strengthening approaches for the prevention of youth problem behaviors. *American Psychologist, 58,* 457-465. doi: 10.1037/0003-066X.58.6-7.457

La Greca, A. M. & Harrison, H. M. (2005). Adolescent peer relations, friendships, and intimate relationships: Do they predict social anxiety and depression? *Journal of Clinical Child and Adolescent Psychology, 34,* 49–61. doi: 10.1207/s15374424jccp3401_5

Lawrence, E. & Bradbury, T. N. (2001). Physical aggression and marital dysfunction: A longitudinal analysis. *Journal of Family Psychology, 15,* 135-154. doi: 10.1037//0893-3200.15.1.135

McBride, C., Bacchiochi, J. R., & Bagby, R. M. (2005). Gender differences in the manifestation of sociotropy and autonomy personality traits. *Personality and Individual Differences, 38,* 129-136. doi: 10.1016/j.paid.2004.03.014

Meadows, S. O., Brown, J. S., Elder, G. H. (2006). Depressive symptoms, stress, and support: Gendered trajectories from adolescence to young adulthood. *Journal of Youth and Adolescence, 35*, 93-103. Doi: 10.1007/s10964-005-9021-6

Needham, B. L. (2008). Reciprocal relationships between symptoms of depression and parental support during the transition from adolescence to young adulthood. *Journal of Youth and Adolescence, 37,* 893-905. doi: 10.1007/s10964-007-9181-7

Orth, U., Robins, R. W., Trzesniewski, K. H., Maes, J., & Schmitt, M. (2009). Low self-esteem is a risk factor for depressive symptoms from young adulthood to old age. *Journal of Abnormal Psychology*, *118*, 472-478. doi: 10.1037/a0015922

Pasch, L. A., & Bradbury, T. N. (1998). Social support, conflict, and the development of marital dysfunction. *Journal of Consulting and Clinical Psychology, 66*, 219-230. doi: 10.1037//0022-006X.66.2.219

Pearson, J., & Wilkinson, L. (2013). Family relationships and adolescent well-being: Are families equally protective for same-sex attracted youth? *Journal of Youth and Adolescence, 42,* 376-393. doi: 10.1007/s10964-012-9865-5

Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1,* 385-401. doi: 10.1177/014662167700100306

Reese-Weber, M., & Marchand, J. F. (2002). Family and individual predictors of late adolescents' intimate relationships. *Journal of Youth and Adolescence, 31,* 197-206. doi: 10.1023/A:1015033219027

Shulman, S., Walsh, S. D., Weisman, O., & Schelyer, M. (2009). Intimate contexts, sexual behavior, and depressive symptoms among adolescent males and females. *Sex Roles, 61,*

850-853. doi: 10.1007/s11199-009-9691-8

Simon, R. W., & Barrett, A. E. (2010). Nonmarital intimate relationships and mental health in early adulthood: Does the association differ for women and men? *Journal of Health and Social Behavior, 51,* 168-182. doi: 10.1177/0022146510372343

Steinberg, S. J., & Davila, J. (2008). Intimate functioning and depressive symptoms among early adolescent girls: The moderating role of parental emotional availability. *Journal of Clinical Child and Adolescent Psychiatry, 37*, 350-362. doi: 10.1080/15374410801955847

Straus, M. A. (1979). Measuring intrafamily conflict and violence: The Conflict Tactics (CT) Scales. *Journal of Marriage and Family, 41,* 75-88. doi: 10.2307/351733

Sweeney, M. M. (2010). Remarriage and stepfamilies: Strategic sites for family scholarship in the 21st century. *Journal of Marriage and Family, 72,* 667-684. doi: 10.1111/j.1741-3737.2010.00724.x

Whisman, M. A. (2001). The association between marital dissatisfaction and depression. In S. R. H. Beach (Ed.), *Marital and family processes in depression: A scientific foundation for clinical practice* (pp. 3–24). Washington, DC: American Psychological Association. doi: 10.1037/10350-000

Wickrama, K. A. S., & Baltimore, D. L. (2010). Adolescent precocious development and young adult health outcomes. *Advances in Life Course Research, 15,* 121 – 131. doi: 10.1016/j.alcr.2010.08.003

Wickrama, K. A. S., & O'Neal, C. W. (2013). Family of origin, race/ethnicity, and socioeconomic attainment: Genotype and intraindividual processes. *Journal of Marriage and Family, 75,* 75-90. doi: 10.1111/j.1741-3737.2012.01027.x

History of depression, parental divorce, and risky mate selection

The majority of relationship research examines how features about the marital relationship – communication, stressful life events, or declines in marital satisfaction – affect subsequent relationship stability (Karney & Bradbury, 1995) and, in turn, aims to alter how couples communicate as a means of strengthening relationships. These perspectives imply that mate selection matters little in subsequent relationship outcomes because, through intervention, couples can be taught how to better cope with stressful events, to communicate more effectively, or to overcome a partner's psychopathology. The current project operates from the framework that variability in relationship satisfaction, stability, and the mental and physical health outcomes associated with marriage may be related to the qualities about the partner whom one decides to marry. The eventual choice of a marital partner may be a crucial "bottleneck" that explains why some marriages remain steadfast and enhance well-being while others are characterized by significant distress, ultimately dissolve, and result in substantial levels of conflict that compromise the mental health of both partners and any children.

A key aim of the current study is to derive – through factor analysis – a variable that constitutes an index of partner's riskiness. Previous research on risky partner selection defines risk in terms of individual qualities without considering their common variance; defining risk in this way fails to take into account that individuals instead face many risk factors simultaneously (Kraemer, Stice, Kazdin, Offord, & Kupfer, 2001; Rutter, 1979). When examining what factors to consider in developing a measure of partner's risk, a review of the literature suggests that emotion dysregulation emerges as a key domain likely to affect intimate relationship functioning. Research indicates that characteristics of emotion dysregulation – including personality disorders such as borderline personality disorder, insecure attachment style, low self-esteem, excessive

anger, and alcohol use – are associated with interpersonal conflict and relationship disturbances for both the target individual and the partner (e.g., Daley, Burge, & Hammen, 2000; Davila, Bradbury, & Fincham, 1998; Murray, Derrick, Leder, & Holmes, 2008; Waldron, Heath, Lynskey, Bucholz, Madden, & Martin, 2011). Drawing from this work, a first step in the current project is to test – through exploratory factor analysis – a series of individual risk factors available in our dataset simultaneously to determine whether they cluster together into a higher order risk index. In this way, we aim to answer an important question about whether individual variables may be synthesized into a larger index of partner risk.

Next, we aim to test several potential predictors of risky partner selection. First, drawing from the assortative mating literature, which suggests that individuals pair up based upon similarities in personality and in psychopathology, we first examine whether similarity in risk factors predicts a partner's risk profile. This model implies little ability to navigate or change one's risk trajectory, suggesting that risky individuals pair up with other risky individuals. Second, in order to evaluate models by which particular facets of an individual's previous experiences might shape partner selection, we will examine whether depression history directly predicts partner selection, in accordance with interpersonal theories of depression such as stress generation (Hammen, 2005). This theory proposes that the association between depressive symptoms and subsequent stressful events is partially due to self-selection into chronically stressful environments like poor-quality intimate partners. Support for this model implies that mate selection might be affected by specific factors like perceptions of oneself as an undesirable intimate partner, social withdrawal, or interpersonal-skills deficits that may accompany a history of depressive symptoms. Third, recognizing that other individual risk-factors besides depression are likely to affect mate selection, we will test whether parental divorce and conflict as well as

perceptions of low-quality relationship with one's mother and father also predict selection of a risky partner. Support for family-of-origin factors would imply that parental models of intimate relationships shape the selection of marital partners and corroborate past literature regarding the intergenerational transmission of intimate relationship dysfunction.

Assortative mating and risky partner selection

The concept of assortative mating (Crow & Felsenstein, 1968) proposes that individuals choose a partner who is similar on a particular phenotype at a rate greater than expected by chance. Individuals with low-risk profiles presumably pair up with partners at a similar level of risk, with the same pattern expected for high-risk individuals. Research supports this idea, as individuals have been found to be married to a partner who is like them in terms of demography (Blackwell & Lichter, 2000), agreeableness and openness (McCrae et al., 2008), antisocial personality disorder (Kim & Capaldi, 2004), and unipolar and bipolar depression (Mathews & Reus, 2001) at a greater-than-chance level. The length of an intimate relationship fails to predict similarity (Watson et al., 2004), suggesting that similarity – at least in terms of qualities such as demographics like age or level of education – is due to initial assortment for particular qualities rather than convergence. Additional research has addressed the consequences of assortative mating on relationship stability, finding that partner similarity on positive traits like agreeableness predicts higher relationship satisfaction (Luo & Klohnen, 2005), whereas similarity on negative characteristics like unipolar depression is predictive of divorce (Butterworth & Rodgers, 2008).

Assortative mating research assumes that own risk predicts partner risk but fails to conceive of risk using a multi-faceted index or to address how individuals without risky profiles might nonetheless marry a problematic partner. A key aim of the current study is to build upon

general theories about assortative mating to test models that examine an array of risk factors rather than any single factor. We will first examine whether one's own risk profile predicts that of one's partner. However, we will also test additional constructs beyond one's own risk to determine if these potential predictors are also associated with a risky partner. Two specific kinds of risk factors will be examined based upon a review of previous literature: a history of depression and family-of-origin distress, including parental divorce, parental conflict, and a poor quality relationship with one's parents.

Depression history as a risk factor for adverse partner selection

Depression merits close attention as a predictor of partner's risk: it is the most commonly-experienced mental disorder (Kessler et al. 2003) with profound social and economic consequences (Greenberg et al., 2003). Depression is arguably the single trait-like variable with the greatest impact on relationship dysfunction. Interpersonal models of depression have determined that depression promotes subsequent intimate relationship problems, including declines in marital satisfaction (Fincham, Beach, Harold, & Osborne, 1997; Whisman, 2007), marital communication characterized by negative behaviors and affect (Rehman, Gollan, & Mortimer, 2008), increased interpersonal conflict stressors (Hammen, 1991), and negative feedback-seeking (Casbon, Burns, Bradbury, & Joiner, 2005; Swann, Wenzlaff, Krull, & Pelham, 1992) that is linked to interpersonal rejection (Coyne, 1976).

These models suggest that depression impairs existing social relationships by promoting relationship stressors and degrading communication processes. How might depression be related to marrying a risky partner? Two perspectives posit that core cognitive and interpersonal deficits that accompany depression may be connected to the depressed person's desire for and previous experiences with intimate relationships in ways that enhance an eventual partner's risk. First,

anhedonia and social withdrawal are key symptoms and consequences of depression. Depressive individuals often cope with interpersonal stressors through social withdrawal (Agoston & Rudolph, 2010) and may be motivated to withdraw from social interactions to avoid social rejection that hastens depression onset (Slavich, Thornton, Torres, Monroe, & Gotlib, 2009). Depressive symptoms in adolescence (Maughan & Taylor, 2001) and diagnoses in adulthood (Teitler & Reichman, 2008) predict a reduced likelihood of entry into cohabitating or marital relationships. This research implies that depressed individuals may be likely to withdraw from intimate relationships, suggesting fewer previous intimate partners and limited intimate relationship experience that may prefigure marrying a riskier partner.

On the other hand, for those who do enter into intimate relationships, a history of depression typically predicts an earlier age of marriage (Gotlib, Lewinsohn, & Seeley, 1998). Depressed individuals may enter intimate relationships sooner because of interpersonal problem-solving deficits (Davila, Hammen, Burge, Paley, & Daley, 1995) or to enhance low self-esteem, a powerful predictor of depression (Orth, Robins, Trzesniewski, Maes, & Schmitt, 2009). Individuals high on a personality style known as sociotropy demonstrate an intense desire for intimate relationships in order to bolster low self-esteem and are prone to depression when such relationships end (Coyne & Whiffen, 1995). Furthermore, among women, past depression history predicts higher levels of sociotropy that are related to stress-generation (Shih, 2006). Taken together, depressed individuals may enter intimate relationships earlier in an attempt to bolster low self-perceptions and satisfy their desire for a supportive intimate partner.

In summary, depression may promote entering into a relationship with a maladaptive partner through limited previous intimate relationship experiences or a perceived need for a relationship, both of which suggest a depressed person entering a relationship without the skills

required to select a suitable partner or to navigate conflict once it occurs. Importantly, intimate relationship dysfunction is independent of current depressive symptoms, as women with a history of depression report lower marital satisfaction and a greater number of interpersonal stressors than never-depressed women (Hammen & Brennan, 2002). These findings suggest the need, as our current study does, to examine depression history as a predictor of partner's risk.

Parental relationships as predictors of risky partner selection

Sole emphasis on depression history as a determinant of partner risk is likely to underestimate the complexity of mate selection. Indeed, alternative conceptual frameworks highlight factors other than depression as influences in partner selection. Prominent in this regard are the experiences that individuals have in their families as they grow up and the ways in which relationship dysfunction can be transmitted across generations. The emotional climate in the home, the nature of the relationship between one's parents, children's perceptions of their relationship with their parents, and parental divorce are known to predict depression (Oldehinkel, Ormel, Veenstra, de Winter, & Verhulst, 2008), aspects of mate selection (Wolfinger, 2003), and relationship functioning in adolescence and adulthood (Amato, 2001; Amato & Booth, 2001; Crockett & Randall, 2006). Consequently, a third goal of the current study is to test a set of models that examine whether one's relationship in one's family of origin predicts partner risk as theories about the intergenerational transmission of marital dysfunction suggest. We will therefore test recollections of parental conflict, parental divorce, and the participant's perceptions of their relationship quality with their mother and father as predictors of a martial partner's risk.

The current study

Using a sample of 172 newlywed couples entering their first marriage, we will first derive an index of partner's risk using factor analysis. In line with previous research that has

argued for examining multiple risk factors rather than any specific risk factor as a predictor of adverse outcomes (Kraemer, Stice, Kazdin, Offord, & Kupfer, 2001; Rauer, Karney, Garvan, & Hou, 2008; Rutter, 1979), our dependent variable will represent the additive effects of several isolated risk factors known to predict relationship dysfunction. This methodology also extends assortative mating research, which has frequently examined correspondence between individual traits amongst partners without attending to a composite index of risk. In accordance with assortative mating theory, we expect to see similarity between target's risk and that of their partner upon marriage.

Second, we will test competing models of partner risk beyond one's own risk level. First, we examine depression history as a unique predictor of cumulative partner's risk, as suggested by stress generation theory (Hammen, 2005). Then, to clarify the role of depression versus other competing variables as a predictor of partner risk, we will test parental conflict and divorce as well as partner's reports of relationship quality with their mothers and fathers as additional predictors of partner risk.

Finally, although it is important to clarify the nature of risk, and the degree of between-partner co-variation in risk, a central question concerns whether other factors strengthen or weaken this co-variation. We will therefore test these six individual predictors in interaction with each other to determine whether one risk factor (i.e., depression history) predicts partner risk when combined with another (i.e., parental divorce). Separate interactions will address a novel research question about how competing models of marrying a risky partner (own composite risk, depression history, and parental conflict, divorce, and participant's reports of relationship quality with their mother and father) interact to amplify or attenuate the self-reported risk in one's partner.

Method

Participants

The total sample consists of 172 newlywed couples recruited from Los Angeles County marriage licenses between May 1993 and January 1994. A total of 3,606 letters were sent to identified couples, with 637 (17.8%) expressing interest in study participation. While the majority of published marital research involves Caucasian partners, the present work recruited a significant number of ethnic minorities (39% of wives and 33% of husbands), with the ethnic composition representative of the larger L.A. community. The mean age was 27.6 years for husbands and 26.0 years for wives, while median annual income was between $21,000 and $30,000 for husbands and between $11,000 and $20,000 for wives. Husbands averaged 15.3 years of education while wives averaged 15.5 years.

Procedure

Within the first six months of marriage, couples participated in a laboratory visit where they completed self-report measures including the risk components and clinical interviews to assess current and past depressive symptomatology. This study uses cross-sectional data from the baseline initial laboratory visit.

Measures

Depressive diagnoses history. A clinical interview adapted from the Structured Clinical Interview for DSM-III Axis I Disorders (SCID; Spitzer, Williams, Gibbon, & First, 1992) assessed for current ("during the past month") and previous ("have you ever experienced a time when") history of major depression diagnoses on a 3-point scale (0 = "no symptoms"; 1 = "1-2 symptoms"; 2 = "3-4 symptoms"; 3 = "diagnosable depression") during the laboratory session. At least one of the depressive symptoms must have been either depressed mood or anhedonia;

otherwise, a score of 0 was given. Due to the low incidence rates of individuals with depression diagnoses, past depression history was dichotomized such that 87 wives and 59 husbands were classified in the depression history group, having endorsed any previous symptoms of depression. However, 18 men and 29 women endorsed a history of depression before marriage that met diagnosable criteria.

Parental Divorce. Parental divorce before the age of 16 was assessed through clinical interview. Thirty-seven wives and 32 husbands reported experiencing parental divorce.

Parental Conflict. The 15 item true/false Family of Origin subscale from the Marital Satisfaction Inventory (Snyder, 1979) assessed for general levels of perceived family-of-origin warmth and conflict (i.e., "I had a very happy home life" and "my parents had very few quarrels"). Relevant items were reverse-coded such that higher scores indicated a higher level of family negativity. Coefficient alphas ranged from .83 for husbands to .85 for wives.

Poor-Quality Relationships with Mothers and Fathers. Participants completed a measure derived from Hazan and Shaver's work (1987) on adult attachment. On a five-point scale, participants responded to 18 adjectives using the following prompt: "Take a moment to think about your relationship with each of your parents while you were growing up. What were their attitudes, feelings, and behavior toward you?" Sample adjectives included "loving," "critical" and "disinterested." Relevant items were reverse-coded such that higher scores indicated a more negative relationship with one's mother or father. Participants answered separately for both parents. Coefficient alphas for husbands' relationships with mothers and fathers were both .88, while this value was .91 for wives' reports of their relationship with both mothers and fathers.

Personality Disorder Symptoms. Twelve symptoms of borderline personality disorder

and 11 symptoms of antisocial personality disorder were assessed through the Personality Diagnostic Questionnaire-Revised (PDQ-R; Hyler & Rieder, 1987), a true/false self-report measure that corresponds to personality disorder diagnostic criteria from the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R; American Psychiatric Association, 1987). Participants endorsed items like "I feel empty or bored much of the time" (borderline) and "Lying comes easily to me and I often do it" (antisocial) based upon how they "tended to feel, think, and act over the past several years." The borderline and antisocial subscales demonstrate adequate internal consistency over-time, with test/re-test coefficients at .74 for the borderline subscale and .75 for the antisocial subscale after a 3-month follow-up (Trull, 1993).

Trait Anger. Participants completed the 25-item Multidimensional Anger Inventory (MAI; Siegel, 1986) to assess levels of felt and expressed anger and hostility. Items were scored on a 1 ("totally false") to 5 ("totally true") scale, with higher total scores indicating higher levels of anger. Sample items include "It is easy to make me angry" and "When I get angry, I stay angry for hours." Coefficient alphas for both husbands and wives in the current sample were .86.

Dysfunctional Impulsivity. Six items captured partner's self-reported dysfunctional impulsivity, defined as acting without prior thought (Dickman, 1990). All items were scored on a 1 ("does not describe me") to 7 ("describes me very well") scale, with higher total scores indicating higher levels of problematic impulsivity. Sample items included "I often make up my mind without taking the time to consider the situation from all angles" and "I often get into trouble because I don't think before I act." Coefficient alphas were calculated at .82 for wives and .72 for husbands in the current sample.

Alcohol Symptoms/Consequences. A laboratory-created measure was derived from The Michigan Alcoholism Screening Test (Selzer, 1971). This adapted 20-item measure assessed for

consequences and problem behaviors resulting from alcohol use. Sample items included "How often have your friends complained or expressed concerns as a parent while drinking?" and "How often have you hit your spouse or gotten into a physical fight with your spouse while you were drinking?" Items were scored on a 6-point scale: ("never," "has happened but not in the past year," "happened once in the past year," "happened twice in the past year," "happened three times in the past year," and "happened four or more times in the past year), with higher total scores indicating higher levels of alcohol-related problems. Coefficient alphas for the current study's sample were calculated at .81 for wives and .91 for husbands.

Neuroticism. Participants completed the 12-item neuroticism subscale of the NEO-Five Factor Inventory, Form S (NEO-N; Costa & McCrae, 1992) to assess for neuroticism. Items were scored on a 1 ("strongly disagree") to 5 ("strongly agree") scale, and relevant items were reverse-scored such that higher total scores represented higher levels of neuroticism. Sample questions included "I am not a worrier" (reverse-scored) and "When I'm under a great deal of stress, sometimes I feel like I'm going to pieces." Reliability values measured through coefficient alpha in the present sample were .75 for husbands and .77 for wives.

Self-esteem. The 10-item Rosenberg Self Esteem Scale (RSES; Rosenberg, 1965) measured participants' self-esteem. The items were scored from "strongly agree" to "strongly disagree" on a 1-4 point scale, and five items were reverse-scored to create a measure where higher scores indicated lower levels of self-esteem. Alphas on the RSES generally exceed .85 (e.g., Rosenberg, 1965).

Anxious Attachment. Participants completed the 18-item Revised Adult Attachment Scale (Collins & Read, 1990), from which the 6-item anxious attachment subscale was derived. On a five-point scale, participants answered sample items like "In relationships, I often worry

that my partner does not really love me." This subscale has acceptable levels of reliability and validity (Collins & Read, 1990) with coefficient alphas above .80 in a newlywed sample.

Marital Satisfaction and Stability. In order to validate the composite indices of partner risk (see below), we correlated several measures of marital satisfaction and relationship stability with the composite indices and their constituent scales. We used two self-report measures of marital satisfaction administered at the initial laboratory session: the 15-item Marital Adjustment Test (Locke & Wallace, 1959) and the Semantic Differential (SMD; Karney & Bradbury, 1997), a 15-item measure where participants rate their marital relationship on 15 pairs of adjectives (e.g., satisfied/dissatisfied) using a 7-point Likert scale. We also used two separate measures of relationship stability: a self-report question from the longitudinal portion of our study about whether participants had divorced after 10 years of marriage and nine items taken from the Marital Status Inventory (Weiss & Cerreto, 1980) administered at the fourth year of marriage to assess for steps taken toward divorce. Relevant items on the Marital Status Index were reverse-coded such that scores ranged from 0 to 9, with "0" indicating no steps taken toward divorce and "9" indicating that all of the steps had been taken, including divorce. Sample items included "I have occasionally thought of divorce or wished that we were separated, usually after an argument or other incident"; "I have discussed the question of my divorce or separation with someone other than my spouse (trusted friend, psychologist, minister, etc.)"; "my spouse and I have separated"; and "I have filed for divorce or we are divorced."

Data Analysis

Given the hierarchical nature of our data (i.e., individuals at Level 1 nested within couples at Level 2), multilevel modeling through the HLM/2L program was used in all analyses. This approach accounts for built-in interdependencies between husbands and wives and

accommodates data assumed to be missing at random (Hox, 2002).

Results

Creation of composite partner risk outcome and own risk predictor

Exploratory factor analysis using a quartimax rotation was conducted on the eight risk items comprising anxious attachment, self-esteem, borderline and antisocial personality disorder symptoms, dysfunctional impulsivity, anger, alcohol use symptoms, and neuroticism. Results revealed one single and interpretable factor that explained 31.2% of the total variance. The included variables were partner reports of low self-esteem (loading = .66), anxious attachment (.58), anger (.54), and borderline personality disorder symptoms (.47). Individual scores on each scale were standardized (by gender) before being added together. The partner risk outcome variable was therefore defined as the sum of the partner's standardized responses on these variables, while the own risk predictor was computed as the sum of the target's responses on these variables.

Descriptive statistics for this factor for women's risk ranged from -5.76 to 8.16, with a mean of 0 and a standard deviation of 2.92. These values for men's risk ranged from -5.71 to 8.68 with a mean of 0 and a standard deviation of 2.68. Scores on the individual four scales correlated with the composite risk item. For women's risk, these correlations ranged from $r = .69$ to $r = .77$ with a median correlation of $r = .74$, while correlations for men's risk ranged from $r = .63$ to $r = .74$ with a median correlation of $r = .67$. Taken together, these results indicate a wide degree of variability in partner risk across this factor and demonstrate that the constituent scales that comprised the larger index are highly correlated with the overall measure and reflective of difficulties in emotional regulation and relationship insecurity/instability.

Validating the risk measure in relation to satisfaction and dissolution. To validate our risk measure, we correlated raw scores from each of the individual scales that comprised our outcome variable with marital satisfaction and dissolution. As can be seen in Table 1, scores from the overall composite risk factor and many of its consistent subscales were significantly correlated with two measures of baseline marital satisfaction for men and women. To test for associations between partner risk indices and subsequent divorce, we analyzed for group differences in the scores from the individual scales and the composite risk indices for our outcome between the 134 intact couples and the 38 divorced couples by the 10th year. While the overall risk composite was not significantly different between the two groups ($t = 1.01$, $p = .31$), individuals who were divorced by the 10th year were significantly more likely to have a partner with higher initial levels of anger ($t = 1.98$, $p < .05$), and borderline personality disorder symptoms ($t = 2.03$, $p < .05$). Finally, as shown in Table 2, the measure of husbands' steps taken to divorce was significantly correlated with wives' scores on many of the constituent risk scales and the overall composite risk index. However, the measure of wives' steps taken to divorce was uncorrelated with all of husbands' individual scales as well as husbands' overall composite outcome index. Furthermore, the overall risk index and its composite subscales were uncorrelated with divorce after the 10th year. These analyses help validate the overall risk measure and most constituent scales as being negatively associated with concurrent marital satisfaction and predictive of steps toward subsequent divorce among men.

Tests of individual predictors of risky partner selection

To determine whether depression history, own risk, or family-of-origin factors (parental divorce, parental conflict, participants' relationship quality with mothers, participant's relationship quality with fathers, paternal relationship quality) predicted partner risk, we first ran

6 individual-models entering one of these 6 predictors. A sample level-1 equation, where depression history was tested as a predictor of partner risk was:

$$Y_{ij} = \beta_{0j} + \beta_{1j}(SEX) + \beta_{2j}(DEPRESSION) + \beta_{3j}(SEX*DEPRESSION) + r_{ij} \quad (1)$$

where the partner's risk index was predicted from an overall intercept (β_0), a gender predictor denoting women (β_1), dichotomous depression history (β_2), the interaction between gender and depression history (β_3), and an error term (r_{ij}). A significant interaction term would mean that the association between depression history and partner's risk differed for men and women; if non-significant, each model was re-analyzed removing the interaction term. The level-2 model was unconditional with random effects estimated at β_0. We interpreted robust standard errors in all analyses.

Two of the six variables were found to be significant predictors of partner's composite risk across the full sample. Specifically, we found a positive association between own risk and partner risk (Pearson's r = .28, β_2= .283, t = 3.82, p < .001) and a negative association between poor-quality participant relationships with fathers and partner risk (β_2= -.025, t = -2.03, p < .05). These variables were then analyzed simultaneously. Controlling for poor participant/paternal relationship quality, own risk still remained a significant direct predictor of partner risk (β_2= .304, t = 4.12, p < .001), while after controlling for own risk, a poor-quality participant/paternal relationship still remained a significant indirect predictor of partner risk (β_3= -.024, t = -1.99, p < .05). Depression history, parental divorce, parental conflict, and quality of the participant/maternal relationship failed to significantly predict partner risk for all participants.

Interactive models of risky partner selection

One additional aim was to consider how own risk, depression history, and family-of-origin variables interacted to enhance or attenuate partner risk. Pairs of these variables were

tested in a series of models alongside gender to examine whether specific gender-linked patterns of family-of-origin variables moderated the impact of own risk, depression history, or other familial variables on partner risk. A sample model, where partner composite risk was predicted from an overall intercept; predictors for gender, depression, and own risk; two-way interactions between gender and depression, gender and own risk, depression and own risk; a three-way interaction between gender, depression, and own risk; and an error term, is as follows:

$$Y_{ij} = \beta_{0j} + \beta_{1j}(SEX) + \beta_{2j}(DEPRESSION) + \beta_{3j}(OWN\ RISK) + \beta_{4j}(SEX*DEPRESSION) + \beta_{5j}(SEX*OWN\ RISK) + \beta_{6j}(DEPRESSION*OWN\ RISK) + \beta_{7j}(SEX*DEPRESSION*OWN\ RISK) + r_{ij} \quad (2)$$

As in previous models, the level-2 model was unconditional with random effects estimated only for the overall intercept, and robust standard errors were interpreted. First, all 3 way interactions were examined; if non-significant, these interactions were dropped to test whether the interaction between one predictor and another predictor was significant without examining formal gender differences. Given the six predictors and three-way gender interaction possibility, up to 30 separate moderating models were conducted, and the Bonferroni correction for multiple comparisons was used to interpret all results ($p = .002$).

Results using composite risk as well all four individual risk items as predictors determined that after controlling for own risk, parental variables and depression history consistently failed to interact to enhance partner risk. The combination of parental divorce and depression history affected women's tendency to end up with a riskier partner ($\beta_8 = 4.447$, $t = 3.25$, $p < .01$), but no other moderating pairs were found to be significant after controlling for own risk and correcting for multiple comparisons.

To further explore the impact of parental divorce and depression history on partner risk, a

series of one-way ANOVAs were run separately for men and women to see whether parental divorce and depression history (using a more stringent test that compared 3 or more symptoms against 0-2 symptoms) were associated with group differences in the composite outcome. Depression history and parental divorce status failed to predict the composite outcome as well as its individual components. In summary, own risk is a reliable predictor of partner risk, and depression history and family-of-origin variables mainly fail to independently predict or combine to enhance partner risk beyond one's own risk.

Discussion

The current study expands upon assortative mating literature by testing which constructs best predict a risky partner. We first defined risk through a factor analysis that indicated one outcome factor consisting of low self-esteem, borderline personality disorder symptoms, anger, and anxious attachment. We then examined whether, as assortative mating theory suggests, own risk predicts partner risk. In order to consider additional theoretical perspectives on partner selection, we also analyzed whether more specific qualities such as depression history or parental conflict and divorce might further contribute to a risky partner. We formally tested for gender differences in all analyses to examine whether patterns differed for men and women.

Results indicated that own risk was a reliable correlate of partner risk for men and women, supporting mate selection theories based upon similarity. We found minimal support for depression history and indices of family-of-origin negativity as predictors of partner risk. Own risk remained a significant predictor across our outcome risk factor and was a stronger predictor than participant/paternal relationship quality in simultaneous models. Furthermore, we found virtually no significant moderators of partner risk. These results support assortative mating theories about own risk predicting partner risk while raising doubts about depression history and

parental relationships as mate selection predictors.

Before discussing these results, some limitations must be addressed. First, our sample was a community sample of couples newly entering their first marriage. As such, our sample was generally a highly-functioning group in terms of marital satisfaction and depression, especially at the initial time point. It is possible that we would have seen larger effect sizes or a greater proportion of significant results had we had a population with more extreme distributions on depression history, parental conflict or divorce, or some of the personality and psychopathology variables that comprised the risk index. Furthermore, as individuals met criteria for our depression history category with one or more symptoms of depression, it is difficult for our study to make comparisons with previous research that examines subclinical or clinical levels of depression. Supplementary analyses, however, indicated that there were no group differences in the composite risk outcome when comparing individuals with 0-2 depressive symptoms against those with 3 or more symptoms, lending further support to the idea that depression history did not reliably discriminate partner's risk. A further consequence of sampling heterosexual newlywed couples means that we cannot account for the growing diversity of "non-traditional" partnership experiences, including same-sex couples, re-married couples, and cohabitating couples. These relationships may differ markedly in terms of a number of factors (i.e., barriers to relationship entry/exit; status of legal recognition) that may impact relationship quality/stability or the characteristics of individuals in these relationships. Finally, the concurrent nature of our predictions (i.e., own risk predicting partner risk measured at the same time point) prevents making longitudinal predictions about how risk well before marriage predicts initial partner selection. We therefore could not ask questions about the mechanisms of risky partner selection or how aspects of earlier intimate relationships (both with previous relationship partners and the

current spouse) affect ultimate partner selection.

On the other hand, it is likely that our risk indices and predictors represent relatively stable qualities over time, and we conducted a validity check through correlating individual scales and the composite factor with measures like relationship quality and subsequent steps to divorce in order to demonstrate relationship consequences to initial partner risk. Notable strengths of our study include its integration of assortative mating theory alongside models about the interpersonal nature and consequences of depression and the impact of parental relationship dysfunction on offspring's relationship outcomes. We have addressed theoretical and methodological gaps in previous literature by considering partner risk beyond just correspondence in one domain (i.e., the relationship between one's own depressive symptoms and those of one's partner) and instead examined a multi-faceted risk index as suggested by Rutter and colleagues (Rutter, 1979; Rauer, Karney, Garvan, & Hou, 2008).

In individual models examining partner risk, we found that own risk directly predicted that of one's partner. These results support and extend assortative mating research, which has demonstrated similarity between a target and one's partner on individual characters like mood disorders (Mathews & Reus, 2001) or antisocial personality traits (Kim & Capaldi, 2004). Our work extends previous research by examining multi-faceted risk indices and demonstrates that individuals who score highly on an amalgamation of vulnerability factors characteristic of emotion dysregulation are likely to connect with a partner who also displays a high level of these traits. Our results largely fail to support theories involving depression history (e.g., Gotlib, Lewinsohn, & Seeley, 1998; Hammen & Brennan, 2002) or parental conflict and divorce (e.g., Amato, 2001; Amato & Booth, 2001) as factors involved in mate selection. Parental divorce and conflict consistently failed to predict partner risk, while participant/paternal relationship quality

predicted partner risk at a much smaller level than own risk. Interactions between combinations of these variables also generally failed to operate as moderators of partner risk beyond one's own risk. Finally, depression history and parental divorce, the only significant moderating pair for any risk outcome, failed to predict adverse relationship outcomes like marital dissatisfaction and dissolution. These null findings suggest that mate selection, at least in our sample, is relatively unaffected by prior experiences such as previous depressive symptoms or relationships from one's family-of-origin.

One result, that a poor-quality relationship with one's father is related to a lower level of partner risk, further contradicts past theoretical and empirical research related to the transmission of marital dysfunction. Although a direct test could not be conducted with the available variables in our dataset, it is possible that individuals who disclosed a poor-quality relationship with a parent may have in fact had limited contact with them (i.e., emotional distance due to work demands, parental divorce). In other words, this supposed stressor may in fact not be so maladaptive if children were not exposed to much parental contact. One other possibility is that some exposure to a problematic family-of-origin environment may in fact be beneficial for later relationship choices, potentially improving one's ability to resolve conflicts (mitigating the impact of their partner's risk) or enhancing one's search for a partner where such conflict may not be likely. In any event, paternal relationship quality was a substantially weaker predictor of partner risk than one's own risk.

In summary, these results suggest opportunities for future inquiry as well as inform theoretical and clinical implications. First, future research should take advantage of longitudinal data linking one's own risk and the risky profiles of dating partners, cohabitating partners, and eventual marital partners. In collecting data about psychopathology, relationship risk factors, and

the variety of intimate relationship experiences well before marriage (perhaps in adolescence), research might better understand how characteristics of past relationships or relationship partners shape eventual partner selection. Assessing experiences before marriage might also help to elucidate mechanisms of partner selection or examine a more intentional quality to partner selection. Although own risk was a reliable predictor of partner risk, the correlation of $r = .28$ suggests that there were many individuals whose own risk profile did not match that of their spouse. The moderate level of correspondence between own risk and partner risk suggests that mate selection may in fact be an idiosyncratic process, in that two people might assess the same partner and find different things to be attracted to and repelled by. These results imply further examining what characteristics predict a mismatch between own and partner risk. How do people without an initially risky profile end up with risky mates? Furthermore, what about people who come from adverse experiences but nonetheless choose "wisely" in their partner selection? Examining these questions might inform theory about how individuals enter into a relationship in order to specifically buffer against their own risk profile or in spite of a relatively low risk profile. In terms of clinical implications, these results suggest interventions aimed at helping individuals navigate their risk profiles and to treat the personal and dyadic impact of one's own psychopathology and personality disorder symptoms. Our results imply that individual treatment and prevention of psychological and personality disorders might promote better partner selection or prevent marital problems before they occur or are exacerbated by a partner's characteristics.

Table 1

Cross-partner correlations between partner risk subscales and composite risk index with self-reported baseline marital satisfaction

	MAT		SMD	
Measure	Men	Women	Men	Women
Overall risk outcome	-.47***	-.29***	-.25**	-.18*
Anxious attachment	-.36***	-.17*	-.22**	-.05
Poor self-esteem	-.29***	-.22**	-.19*	-.13
Anger	-.35***	-.20*	-.33***	-.12
Borderline symptoms	-.39***	-.21**	-.33***	-.23**

Note. *$p < .05$, **$p < .01$, ***$p < .001$. MAT = Marital Adjustment Test (Locke & Wallace, 1959). SMD = Semantic Differential (Karney & Bradbury, 1997).

Table 2

Correlations between partner risk subscales and composite risk index with steps taken to divorce after the 4th year of marriage and whether couples divorced by their 10th year of marriage

	Steps taken to divorce		Divorce by 10th year	
Measure	Men	Women	Men	Women
Overall risk outcome	.26**	.03	.13	.03
Anxious attachment	.13	-.03	-.04	-.10
Poor self-esteem	.10	-.03	.12	-.10
Anger	.22*	.03	.10	.12
Borderline symptoms	.32***	.12	.13	.10

Note. *$p < .05$, ** $p < .01$, *** $p < .001$. Steps taken to divorce derived from the Marital Status Inventory (Weiss & Cerreto, 1980).

References

Agoston, A. M., & Rudolph, K. D. (2010). Transactional associations between youth's responses to peer stress and depression: The moderating roles of sex and stress exposure. *Journal of Abnormal Child Psychology, 39*, 159-171. doi: 10.1007/s10802-010-9458-2

Amato, P. R. (2001). Children of divorce in the 1990s: An update of the Amato and Keith (1991) meta-analysis. *Journal of Family Psychology, 15,* 355-370. doi: 10.1037//0893-3200.15.3.355

Amato, P. R., & Booth, A. (2001). The legacy of parents' marital discord: Consequences for children's marital quality. *Journal of Personality and Social Psychology, 81,* 627-638. doi: 10.1037//0022-3514.81.4.627

American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed, rev.). Washington, DC: Author.

Blackwell, D. L., & Lichter, D. T. (2000). Mate selection among married and cohabitating couples. *Journal of Family Issues, 21*, 275-302. doi: 10.1177/019251300021003001

Butterworth, P., & Rodgers, B. (2006). Concordance in the mental health of spouses: Analysis of a large national household panel survey. *Psychological Medicine, 36,* 685-697. doi: 10.1017/S0033291705006677

Butterworth, P., & Rodgers, B. (2008). Mental health problems and marital disruption: Is it the combination of husbands and wives' mental health problems that predicts later divorce? *Social Psychiatry and Psychiatric Epidemiology, 43*, 758-763. doi: 10.1007/s00127-008-0366-5

Casbon, T. S., Burns, A. B., Bradbury, T. N., & Joiner, T. E. (2005). Receipt of negative feedback is related to increased negative feedback seeking among individuals with

depressive symptoms. *Behaviour Research and Therapy, 43,* 485-504. doi: 10.1016/j.brat.2004.03.009

Collins, N. L., & Read, S. J. (1990). Adult attachment, working models and relationship quality in dating couples. *Journal of Personality and Social Psychology, 58,* 644-663. doi: 10.1037//0022-3514.58.4.644

Costa, P. T., & McCrae, R. R. (1992). *NEO PI-R Professional Manual.* Odessa, FL: Psychological Assessment Resources, Inc.

Coyne, J. C. (1976). Toward an interactional description of depression. *Psychiatry, 39,* 28-40.

Coyne, J. C., & Whiffen, V. E. (1995). Issues in personality as diathesis for depression: The case of sociotropy-dependency and autonomy-self-criticism. *Psychological Bulletin, 118,* 358-378. doi: 10.1037//0033-2909.118.3.358

Crockett, L. J., & Randall, B. A. (2006). Linking adolescent family and peer relationships to the quality of young adult intimate relationships: The mediating role of conflict tactics. *Journal of Social and Personal Relationships, 23,* 761-780. doi: 10.1177/0265407506068262

Crow, J. F., & Felsenstein, J. (1968). The effect of assortative mating on the genetic composition of a population. *Biodemography and Social Biology, 15,* 85-97. doi: 10.1080/19485565.1968.9987760

Daley, S., Burge, D., & Hammen, C. (2000). Borderline personality disorder symptoms as predictors of 4-year intimate relationship dysfunction in young women: Addressing issues of specificity. *Journal of Abnormal Psychology, 109,* 451-460. doi: 10.1037//0021-843X.109.3.451

Davila, J., Bradbury, T. N., & Fincham, F. D. (1998). Negative affectivity as a mediator of the

association between adult attachment and marital satisfaction. *Personal Relationships, 5,* 467-484. doi: 10.1111/j.1475-6811.1998.tb00183.x

Davila, J., Hammen, C., Burge, D., Paley, B., & Daley, S. E. (1995). Poor interpersonal problem solving as a mechanism of stress generation in depression among adolescent women. *Journal of Abnormal Psychology*, *104,* 592-600. doi: 10.1037//0021-843X.104.4.592

Dickman, S. J. (1990). Functional and dysfunctional impulsivity: Personality and cognitive correlates. *Journal of Personality and Social Psychology, 58*, 95-102. doi: 10.1037//0022-3514.58.1.95

Fincham, F. D., Beach, S. R. H., Harold, G. T., & Osborne, L. N. (1997). Marital satisfaction and depression: Different causal relationships for men and women? *Psychological Science, 8,* 351- 357. doi: 10.1111/j.1467-9280.1997.tb00424.x

Gotlib, I. H., Lewinsohn, P. M., & Seeley, J. R. (1998). Consequences of depression during adolescence: Marital status and marital functioning in early adulthood. *Journal of Abnormal Psychology*, *107,* 686-690. doi: 10.1037//0021-843X.107.4.686

Greenberg, P. E., Kessler, R. C., Birnbaum, H. G., Leong, S. A., Lowe, S. W., Berglund, P. A., & Corey-Lisle, P. K. (2003). The economic burden of depression in the United States: How did it change between 1990 and 2000? *The Journal of Clinical Psychiatry, 64,* 1465-1475. doi: 10.4088/JCP.v64n1211

Hammen, C. (1991). Generation of stress in the course of unipolar depression. *Journal of Abnormal Psychology*, *100,* 555-561. doi: 10.1037//0021-843X.100.4.555

Hammen, C. (2005). Stress and depression. *Annual Review of Clinical Psychology, 1,* 293-319. doi: 10.1146/annurev.clinpsy.1.102803.143938

Hammen, C., & Brennan, P. A. (2002). Interpersonal dysfunction in depressed women:

Impairments independent of depressive symptoms. *Journal of Affective Disorders, 72*, 145-156. doi: 10.1016/S0165-0327(01)00455-4

Hazan, C., & Shaver, P. (1987). Intimate love conceptualized as an attachment process. *Journal of Personality and Social Psychology, 52*, 511-524. doi: 10.1037//0022-3514.52.3.511

Hox, J. (2002). *Multilevel analysis: Techniques and applications*. Mahwah, NJ: Lawrence Erlbaum Associates.

Hyler. S. & Rieder, R. (1987). *PDQ-R: Personality Diagnostic Questionnaire—Revised.* New York: New York State Psychiatric Institute.

Karney, B. R., & Bradbury, T. N. (1995). The longitudinal course of marital quality and stability: A review of theory, methods and research. *Psychological Bulletin, 118,* 3-34. doi: 10.1037//0033-2909.118.1.3

Karney, B. R., & Bradbury, T. N. (1997). Neuroticism, marital interaction, and the trajectory of marital satisfaction. *Journal of Personality and Social Psychology, 72,* 1075-1092. doi: 10.1037//0022-3514.72.5.1075

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Koretz, D., Merikangas, K. R. … Wang, P. S. (2003). The epidemiology of major depressive disorder: Results from the National Comorbidity Survey Replication (NCS-R). *JAMA, 289,* 3095-3105. doi: 10.1001/jama.289.23.3095

Kim, H. K. & Capaldi, D. M. (2004). The association of antisocial behavior and depressive symptoms between partners and risk for aggression in intimate relationships. *Journal of Family Psychology, 18,* 82-96. doi: 10.1037/0893-3200.18.1.82

Kraemer, H. C., Stice, E., Kazdin, A., Offord, D., & Kupfer, D. (2001). How do risk factors work together? Mediators, moderators, and independent, overlapping, and proxy risky

factors. *The American Journal of Psychiatry, 158*, 848-856. doi: 10.1176/appi.ajp.158.6.848

Locke, H. J., & Wallace, K. M. (1959). Short marital-adjustment and prediction tests: Their reliability and validity. *Marriage and Family Living, 21*, 251-255. doi: 10.2307/348022

Luo, S., & Klohnen, E. C. (2005). Assortative mating and marital quality in newlyweds: A couple-centered approach. *Journal of Personality and Social Psychology, 88*, 304-326. doi: 10.1037/0022-3514.88.2.304

Mathews, C. A., & Reus, V. I. (2001). Assortative mating in the affective disorders: A systematic review and meta-analysis. *Comprehensive Psychiatry, 42*, 257-262. doi: 10.1053/comp.2001.24575

Maughan, B., & Taylor, A. (2001). Adolescent psychological problems, partnership transitions and adult mental health: An investigation of selection effects. *Psychological Medicine, 31*, 291-305. doi: 10.1017/S0033291701003403

McCrae, R. R., Martin, T. A., Hrebickova, M., Urbanek, T., Boomsma, D. I., Willemsen, G., & Costa, P. T. (2008). Personality trait similarity between spouses in four cultures. *Journal of Personality, 76*, 1137-1164. doi: 10.1111/j.1467-6494.2008.00517.x

Murray, S. L., Derrick, J. L., Leder, S., & Holmes, J. G. (2008). Balancing connectedness and self-protection goals in close relationships: A levels-of-processing perspective on risk regulation. *Journal of Personality and Social Psychology, 94*, 429-459. doi: 10.1037/0022-3514.94.3.429

Oldehinkel, A. J., Ormel, J., Veenstra, R., de Winter, A. F., & Verhulst, F. C. (2008). Parental divorce and offspring depressive symptoms: Dutch developmental trends during early adolescence. *Journal of Marriage and Family, 70*, 284-293. doi: 10.1111/j.1741-

3737.2008.00481.x

Orth, U., Robins, R. W., Trzesniewski, K. H., Maes, J., & Schmitt, M. (2009). Low self-esteem is a risk factor for depressive symptoms from young adulthood to old age. *Journal of Abnormal Psychology, 118,* 472-478. doi: 10.1037/a0015922

Rauer, A. J., Karney, B. R., Garvan, C. W., & Hou, W. (2008). Relationship risks in context: A cumulative risk approach to understanding relationship satisfaction. *Journal of Marriage and Family, 70,* 1122-1135. doi: 10.1111/j.1741-3737.2008.00554.x

Rehman, U. S., Gollan, J., & Mortimer, A. R. (2008). The marital context of depression: Research, limitations, and new directions. *Clinical Psychology Review, 28,* 179-198. doi: 10.1016/j.cpr.2007.04.007

Rosenberg, M. (1965). *Society and the Adolescent Self-Image*. Princeton, New Jersey: Princeton University Press.

Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. In M.W. Kent & J.E. Rolf (Eds.), *Primary prevention of psychopathology: Social competence in children* (Vol. 3, pp. 49 – 74). Hanover, NH: University Press of New England.

Selzer, M. L. (1971). The Michigan Alcoholism Screening Test: The quest for a new diagnostic instrument. *American Journal of Psychiatry, 127,* 1653-1658.

Shih, J. (2006). Sex differences in stress generation: An examination of sociotropy/autonomy, stress, and depressive symptoms. *Personality and Social Psychology Bulletin, 32,* 434-446. doi: 10.1177/0146167205282739

Slavich, G. M., Thornton, T., Torres, L. D., Monroe, S. M., & Gotlib, I. H. (2009). Targeted rejection predicts hastened onset of major depression. *Journal of Social and Clinical Psychology, 28, 223- 243*. doi: 10.1521/jscp.2009.28.2.223

Snyder, D. K. (1979). Multidimensional assessment of marital satisfaction. *Journal of Marriage and the Family, 41,* 813-823. doi: 10.2307/351481

Spitzer, R. L., Williams, J. B., Gibbon, M., & First, M. B. (1992). The Structured Clinical Interview for DSM-III-R (SCID): I. History, rationale, and description. *Archives of General Psychiatry, 49,* 624–629. doi: 10.1001/archpsyc.1992.01820080032005

Swann, W. B, Wenzlaff, R. M., Krull, D. S., & Pelham, B. W. (1992). Allure of negative feedback: Self-verification strivings among depressed persons. *Journal of Abnormal Psychology, 101,* 293-306. doi: 10.1037//0021-843X.101.2.293

Teitler, J. O., & Reichman, N. E. (2008). Mental illness as a barrier to marriage among unwed mothers. *Journal of Marriage and Family, 70,* 772-782. doi: 10.1111/j.1741-3737.2008.00520.x

Trull, T. J. (1993). Temporal stability and validity of two personality disorder inventories. *Psychological Assessment, 5,* 11-18. doi: 10.1037//1040-3590.5.1.11

Waldron, M., Heath, A. C., Lynskey, M. T., Bucholz, K. K., Madden, P. A. F., & Martin, N. G. (2011). Alcoholic marriage: Later start, sooner end. *Alcoholism: Clinical and Experimental Research, 35,* 632-642. doi: 10.1111/j.1530-0277.2010.01381.x

Watson, D., Klohnen, E. C., Casillas, A., Simms, E. N., Haig, J., & Berry, D. S. (2004). Match makers and deal breakers: Analyses of assortative mating in newlywed couples. *Journal of Personality, 72,* 1029-1068. doi: 10.1111/j.0022-3506.2004.00289.x

Weiss, R. L. & Cerreto, M. (1980). The Marital Status Inventory: Development of a measure of dissolution potential. *The American Journal of Family Therapy, 8,* 80-86. doi: 10.1080/01926188008250358

Whisman, M. A. (2007). Marital distress and DSM-IV psychiatric disorders in a population-

based national survey. *Journal of Abnormal Psychology*, *116*, 638-643. doi: 10.1037/0021-843X.116.3.638

Wolfinger, N. H. (2003). Family structure homogamy: The effects of parental divorce on partner selection and marital stability. *Social Science Research*, *32*, 80-97. doi: 10.1016/S0049-089X(02)00014-5

Depression history, marital communication, and future depressive symptoms among newlyweds

While high-quality and stable marriages enhance general physical and emotional well-being (Dush & Amato, 2005), some couples experience declines in marital satisfaction that can lead to relationship termination (Bradbury, Fincham, & Beach, 2000). These findings suggest an inherent tension in intimate relationships: the very person who is supposed to be a non-ending source of physical and emotional support can create enough unhappiness to contribute to the relationship's ending. How is it that some marriages remain an enduring source of support and happiness while other marriages are fraught with conflict and end in divorce? Focusing attention on the processes within marriages that promote continued satisfaction and mental health or that create chronically stressful environments and enhance psychopathology will therefore be a key goal of the current project.

While previous research has uncovered several factors that predict subsequent declines in marital dissatisfaction or divorce, depression is an especially common disorder (Kessler et al. 2003) that impacts subsequent marital distress (Whisman, 2001). Communication and interpersonal problem-solving deficits accompany depression (Rehman, Gollan, & Mortimer, 2008), suggesting that depression can impose an upper bound on the extent to which changing couples' communication patterns, an essential component of pre-marital prevention programs (e.g., Markman, Renick, Floyd, Stanley, & Clements, 1993) and couples' therapy (e.g., Christensen, McGinn, & Williams, 2009), can fundamentally improve couples' relationship satisfaction. Furthermore, while depressive symptoms are associated with subsequent increases in interpersonal stressors (Hammen, 1991), intimate relationship impairment (i.e., marital instability and dissatisfaction, psychiatrically-affected intimate partners) occurs even among individuals with a previous history of depression but who lack current clinical symptoms

(Hammen & Brennan, 2002). The experience of depression, either before or during marriage, might therefore transform the quality of the marital relationship in ways that can lead to relationship dissolution.

It is less clear, however, how aspects of marital relationships might prospectively predict elevations in depressive symptoms, or specifically which factors of intimate relationships most strongly predict or protect against later depression. These questions represent major aims of the current study, which will clarify which specific components of marital relationships best predict future depressive symptoms and will address previous theoretical gaps in two ways. First, we aim to integrate several theoretical perspectives to determine which relationship risk factors most strongly predict later depression. Second, our use of a community sample of newlyweds will permit a test of how components of relationship functioning predict increases in depressive symptoms even among individuals without previous depressive symptoms at a clinical level.

Several aspects of intimate relationships predict depression maintenance or relapse. Interpersonal rejection is one route through which intimate relationship characteristics predict future depression. Depressed individuals seek but then reject reassurance from close others about their own self-worth. Continued need for reassurance eventually frustrates the partner, who responds with criticism and rejection that heightens depressive symptoms (Coyne, 1976; Joiner, Alfano, & Metalsky, 1992). Marital interactions involving a depressed spouse are indeed characterized by elevated amounts of negative behaviors and affect and reduced amounts of positive affect and problem-solving strategies (e.g., Rehman, Gollan, & Mortimer, 2008) that maintain depression. In light of theoretical and empirical research establishing a connection between pre-existing depression and deficits in interpersonal communication, the current study will extend this research by examining how interpersonal communication prospectively impacts

subsequent depressive symptom. Testing a broad range of individuals with and without a previous history of depression, the current study will analyze which specific facets of interpersonal communication may predict or protect against elevations in depressive symptoms.

As an interpersonal process, communication can be studied at two levels (Noller, 1980): what the receiver intends to say (message encoding) and what the recipient perceives (message decoding). One specific area of research – perceived criticism – has explicitly focused on the recipient's perspective of decoding supposed critical comments from his/her spouse. Perceived criticism from one's partner predicts depression relapse more strongly than the combination of marital distress and the actual provision of criticism determined by external raters (Hooley & Teasdale, 1989). In fact, a specific bias to over-perceive criticism ("criticality bias") has been associated with depressive symptoms and critical behaviors towards one's spouse (Peterson, Smith, & Windle, 2009). These findings suggest that how individuals interpret, evaluate, and affectively respond to the interpersonal feedback that they receive from their partners contributes to an important aspect of how interpersonal communication affects future depressive symptoms.

As positive skills, affect, and behavior occur more frequently in newlywed communication than negative skills, affect, and behavior (Johnson et al., 2005; Pasch & Bradbury, 1998), we employ a broad perspective to consider positive and negative evaluations of interpersonal communications from spouses beyond perceived criticism. Our study will therefore attempt to separate whether externally-rated behaviors and affect or participant's post-interaction positive and negative affective evaluations are most predictive of subsequent depressive symptoms. We further extend this research to spouses with varying degrees of dysphoria. This extension is important to clarify whether affective evaluations immediately after marital

conversations confer risk for elevations in depression and whether such evaluations predict subsequent depression even among individuals without a history of depression.

Finally, receipts and affective evaluations of spousal communication may be specific components of general marital quality. While a bi-directional relationship between marital discord and depression has been established (Whisman & Uebelacker, 2009), focusing on global marital satisfaction as a predictor of subsequent mood disorder symptoms may overlook the impact of specific relationship processes (Brock & Lawrence, 2011). Therefore, another aim of the current study is to integrate the literature on expressed/affective evaluations of communication by examining whether expressions and evaluations of behaviors predict depressive symptoms beyond global marital satisfaction.

Using observational data from couples discussing perceived marital problems and soliciting social support, as well as participants' mood immediately after the interactions, this study will explore the relationship between externally-rated behaviors, affective evaluations after communication, and subsequent depressive symptoms. Depression history before marriage will also be examined as a moderator of the relationship between externally-rated communication or affective evaluations and depression, given intimate relationship dysfunction among individuals with an earlier history of depression (e.g., Gotlib, Lewinsohn, & Seeley, 1998).

Several hypotheses will be tested. First, following Rehman and colleagues (2008), we expect that displays of negative affect and skills during problem-solving tasks, as well as negative behaviors during social support tasks, will be associated with higher future depressive symptoms. We expect an inverse relationship between positive affect/behaviors and future depressive symptoms. We also expect that negative affective evaluations after the completion of an interaction will also uniquely predict elevations in depressive symptoms. Finally, we expect

that depression history will amplify the relationship between (a) expressions of negative communication and subsequent depressive symptoms and (b) negative affective evaluations after completing interactions and subsequent depressive symptoms.

Method

Participants

Our sample includes 172 heterosexual newlywed couples entering their first marriage. This study is the first with this dataset to specifically link baseline behavioral patterns and perceptual data with future depressive symptoms. Participants were recruited from Los Angeles County marriage licenses filed between May 1993 and January 1994. Our sample includes a significant number of ethnic majorities (33% of husbands and 39% of wives) and is consistent with Los Angeles demographics. Participants' mean age at study entry was 27.6 years for husbands and 26.0 years for wives. Educational attainment and income levels were modest: median annual income was between $21,000 and $30,000 for husbands and between $11,000 and $20,000 for wives, while husbands averaged 15.3 years of education and wives 15.5 years.

Procedure

Within the first six months of marriage, couples completed their initial laboratory visit, which consisted of self-report measures including depressive symptoms and perceptions of marital satisfaction, a clinical interview to assess current and past depressive symptomatology, and two social support and two problem-solving marital discussions. The prompt for the social support conversations required one partner (helpee) to "talk about something you would like to change about yourself," while the other partner (helper) was told to "be involved in the conversation and respond in whatever way you wish." For the problem-solving conversations, couples were asked to select a marital problem and to "discuss the topic for 10 minutes and try to

work toward a mutually satisfying solution." Partners then changed roles so that each could be the provider and recipient of support and problem-solving. After completing all interaction tasks, couples also separately rated their current mood using positive and negative adjectives. These procedures were then replicated at a laboratory session occurring between eight and 10 years after their initial visit, with current depressive symptoms at that time from the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) serving as the dependent variable.

Measures

Depressive symptoms at the later laboratory session. At the laboratory session eight to 10 years after the baseline visit, participants completed the 21-item BDI to assess for symptoms of depression over the past week. The measure's reliability and validity in non-clinical samples have been well-established (Beck, Steer, & Garbin, 1988). Due to an error, one question (#19, about weight loss) was not administered. To account for this, the mean score per item was calculated from the 20 administered items for each participant and added to compute a pro-rated score for all 21 items. Scores for the 130 men who provided data ranged from 0 to 16.80 (M = 4.05; SD = 3.86); for the 132 women, these scores ranged from 0 to 22.10 (M = 5.58; SD = 5.00). Therefore, scores one standard deviation above the mean placed men close to and women within the cutoff for a mild level of depression, with some women approaching a moderate level of current depressive symptoms roughly eight years after marriage.

Participants also completed a clinical interview, adapted from the Structured Clinical Interview for DSM-III Axis I Disorders (SCID; Spitzer, Williams, Gibbon, & First, 1992), at this timepoint. This interview inquired about the number of symptoms of depression during participant's "worst" experience of depression since the baseline period. At least one of the

depressive symptoms must have been either depressed mood or anhedonia; otherwise, a score of 0 was given. The interview was encoded on a 4-point scale ("0" = "no symptoms"; "1" = "1-2 symptoms"; "2" = "3-4 symptoms"; "3" = "diagnosable depression"), with individuals whose depression score was deemed due to bereavement treated as missing data. Thirty men out of the 108 who provided complete data and were retained (i.e., depression not due to bereavement) reported experiencing a depressive episode since the baseline interview at a subclinical or clinical level; while 46 out of 104 women reported a subclinical or clinical episode of depression. Taken together, 28% of men and 44% of women experienced a depressive episode since the newlywed period, suggesting a substantial degree of depression over the newlywed period.

History of depression before marriage. At the initial laboratory session, participants completed the same structured clinical interview, with these questions focused on depressive episodes experienced at any point prior to the interview. All 172 husbands and wives provided data at this time point. Past depression history was captured using a 0-3 range ("0" = "no symptoms of depression"; "1" = "1-2 symptoms"; "2" = "3-4 symptoms"; and "3" = "diagnosable depression") and later converted into a dichotomous variable ("0" = "0-2 symptoms"; "1" = "3 or more symptoms") such that the depression grouping was derived of individuals with previous subclinical or clinical diagnoses of MDD. Among men, 133 reported zero to two symptoms of depression before marriage, while 33 men reported a history of depression at the subclinical or clinical threshold. Among wives, 105 reported no history of depression, with 58 reporting experiencing a depressive episode of a subclinical or clinical level.

Initial marital satisfaction. The 6-item Quality of Marriage Index (QMI; Norton, 1983) was entered as a covariate to control for perceptions of marital satisfaction at the initial time point. The QMI has been established to have generally high levels of reliability (coefficient

alphas above .95) among newlywed samples (Karney & Bradbury, 1997) and is generally less confounded with behavioral variables. Overall scores on the measure range from 6 to 45, with higher values indicating higher levels of marital satisfaction. Husbands' scores at baseline ranged from 22 to 45 with a mean of 41.32 and a standard deviation of 4.40; wives' scores were similar, ranging from 26 to 45 with a mean of 41.60 and a standard deviation of 4.27. Husbands and wives reported high levels of marital satisfaction, as would be expected shortly after marriage.

Positive and negative behaviors during baseline social support conversations. Social support discussions were coded using the Social Support Interaction Coding System (Bradbury & Pasch, 1994). Each turn of speech by helper (support provider) and helpee (support recipient) was coded for negative and positive behaviors. Helper behaviors could either be negative (e.g., rejection) or positive (e.g., encouragement). Helpee behaviors were also coded as negative (e.g., criticizing) or positive (e.g., clear statement of feelings). Inter-rater reliability through intraclass correlations ranged from .75 (helpee's negative behaviors) to .86 (helper's positive behaviors), demonstrating good reliability. Given a correlation of $r = .83$ between husbands' and wives' positive support behaviors, as well as a correlation of $r = .83$ between husbands' and wives' negative support behaviors, values were collapsed across topics within each couple such that raw counts of the number of positive and negative behaviors across all conversations served as separate independent variables.

Positive and negative affect during baseline problem-solving conversations. Problem-solving conversations were coded for affect using the Specific Affect Coding System (SPAFF; Gottman & Krokoff, 1989). Each 5-second interval was coded with one of two negative affect codes that included anger and contempt (whining, sadness, and anxiety were dropped from analyses as in previous work by Sullivan and colleagues); one of three positive affect codes of

humor, interest or affection; or a code for neutral affect. Raw counts of positive and negative affect were deemed reliable, with intraclass correlations between .66 and .91 (Johnson et al., 2005). As with the support conversations, data was collapsed across gender and topic such that the predictors included a count of the total number of instances of positive affect (correlated r = .45 between husbands' and wives' topics) and negative affect (r = .35 for husbands' and wives' topics) across all topics within a couple.

Positive and negative skills during baseline problem-solving conversations. The Kategoriensystem fur Partnerschaftliche Interaktion (KPI; Hahlweg et al., 1984) served as the coding paradigm to determine the skills that partners displayed during the problem-solving interactions at the first laboratory session. The KPI encodes each speaking turn and reliably discriminates between distressed and nondistressed couples (Hahlweg et al., 1984). The current study analyzed two kinds of skill codes: a positive skills variable (comprised of the sum of several codes, including aspects such as a direct expression of feelings and compromise with the partner) and a negative skills variable (including the sum of a variety of codes including devaluation of one's partner or making demands). Intraclass correlations were high, ranging from .62 to .90 (Johnson et al., 2005). Codes were collapsed across gender and topic within each couple such that separate variables denoted the total number of speaking turns characterized by positive (correlated between husbands' and wives' topics at r = .48) and negative skills (r = .58 between husbands' and wives' topics).

Post-interaction affective evaluations. Immediately after the social support and problem-solving task of the topic of their choosing, husbands and wives completed the 20-item Positive and Negative Affect Scale (PANAS; Watson & Clark, 1994). Participants endorsed how they felt "right now, at the present moment, as you think about the discussion you just

completed" on a 1 ("not at all") to 5 ("very much") scale. The 10 items from the negative affect scale (i.e., "afraid" and "hostile") and the 10 items from the positive affect scale (i.e., "determined" and "interested") were summed to establish participant's affective evaluations of the interactions they just completed. Coefficient alphas ranged from α = .86 (wives' negative affective evaluations after completing their support task) to α = .94 (husbands' positive affective evaluations after completing their support task) with a median value of α = .91.

Data Analysis

We used multilevel modeling through the HLM/2L program, due to the hierarchical nesting of individuals within couples. This technique accounts for the interdependencies between husbands and wives (Hox, 2002). Among men, no group differences occurred between those who were missing at the later time-point (i.e., at the laboratory session eight to 10 years after marriage), as compared to those who remained in the study, on initial marital satisfaction (t = .53, p = .86) or depression history (t = .82, p = .56). However, men who were missing at this timepoint were more likely to have experienced divorce prior to this timepoint (t = 6.34, p < .001). Results were similar for women, with no differences determined on initial marital satisfaction (t = -1.69, p = .09) or depression history (t = 1.06, p = .29) but with a higher likelihood of experiencing divorce among women who did not provide outcome data (t = 6.34, p < .001). In summary, participants who dropped out of the study showed differences in rates of divorce but not on initial aspects including marital satisfaction or depression history.

Results

Preliminary Analyses

Descriptive statistics for behavioral and post-interaction affective ratings can be found in Tables 1 and 2. Inter-correlations between variables are shown for men in Table 3 and women in

Table 4 and indicate mainly small and non-significant correlations between behavioral codes and affective evaluations, as well as moderate to strong correlations within various dimensions of behavioral codes and affective evaluations. As expected, individuals with a history of previous depression experienced higher depressive symptoms at the later laboratory session (for men: t = 3.00, $p < .01$; for women: $t = 2.80$; $p < .01$).

Tests of individual predictors of depressive symptoms eight years after marriage

To determine whether behaviors or post-interaction affective evaluations predicted subsequent depressive symptoms, we ran 6 individual models entering a specific marital behavior (i.e., negative social support) alongside that behavioral codes' specific self-reported post-interaction mood rating (i.e., negative mood after the social support task). In this way, behavioral codes were tested as a predictor of depressive symptoms above and beyond the effects of evaluations, and vice-versa. All level-2 predictors were grand-mean centered. A sample level-1 equation was as follows:

$$Y_{ij} = \beta_{1j}(H) + \beta_{2j}(W) + r_{ij}$$

With the corresponding level-2 equation:

$$\beta_1 = \gamma_{10} + \gamma_{11} * (\text{HUSBANDS' MARITAL QUALITY}) + \gamma_{12} * (\text{HUSBANDS' POSITIVE SUPPORT AFFECTIVE EVALUATIONS}) + \gamma_{13} * (\text{POSITIVE SUPPORT BEHAVIORS}) + u_1$$

$$\beta_2 = \gamma_{20} + \gamma_{21} * (\text{WIVES' MARITAL QUALITY}) + \gamma_{22} * (\text{WIVES' POSITIVE SUPPORT AFFECTIVE EVALUATIONS}) + \gamma_{23} * (\text{POSITIVE SUPPORT BEHAVIORS}) + u_2$$

where one's own future depressive symptoms (Y_{ij}) were predicted from affective evaluations ($\gamma_{12/}$ γ_{22}) controlling for behaviors ($\gamma_{13/}$ γ_{23}) and initial marital satisfaction ($\gamma_{11/}$ γ_{21}) or vice-versa. We interpreted robust standard errors in all analyses.

Interpreting the six possible behaviors, controlling for initial marital quality and one's own post-interaction evaluations, husbands were more likely to experience higher depressive symptoms approximately eight years after marriage to the extent that they participated in support conversations characterized by a greater frequency of negative behaviors ($\beta_{13} = 0.12$, $t = 2.28$, $p < .05$). The other behavioral codes were not significant predictors of future depressive symptoms for men or women after controlling for affective evaluations and initial marital quality.

Interpreting the four possible affective evaluation variables, controlling for initial marital quality and the corresponding externally-rated behaviors, wives were more likely to experience depression to the extent that they felt more negative after completing problem-solving interactions of a topic of their choosing (controlling for KPI: $\beta_{22} = 0.22$, $t = 2.41$, $p < .05$; controlling for SPAFF: $\beta_{22} = 0.24$, $t = 2.76$, $p < .01$). Furthermore, husbands were more likely to experience future depression when they felt more negative after completing their own problem-solving interactions (controlling for KPI: $\beta_{12} = 0.12$, $t = 2.08$, $p < .05$; controlling for SPAFF: $\beta_{12} = 0.12$, $t = 1.99$, $p < .05$). Participant's post-interaction affective ratings of positive mood after support and problem-solving tasks consistently failed to predict subsequent BDI symptoms.

Interactions between depression history and behaviors/post-interaction evaluations

A series of models were run as above, but this time adding at Level-2 additional variables of previous depression history and an interaction term between depression history and either one of the six behavioral codes or one of the four affective evaluation variables. In this way, interactions between depression history and behaviors were assessed after controlling for affective evaluations and initial marital quality, while interactions between depression history and affective evaluations were examined after controlling for initial marital quality and coded behaviors.

Results indicated that, after controlling for the aforementioned covariates, men were significantly more likely to experience depressive symptoms approximately eight years after marriage to the extent they faced a subclinical or clinical history of depression before marriage and (a) participated in social support conversations characterized by infrequent provision of negative behaviors (β_{15} = - 0.36, t = -2.65, p < .01) or (b) reported a negative mood after completing support (β_{15} = 0.55, t = 4.70, p < .001) and problem-solving (controlling for KPI: β_{15} = 0.29, t = 2.19, p < .05; controlling for SPAFF: β_{15} = 0.29, t = 2.23, p < .05) conversations about a topic for which they were seeking support or problem-resolution. Graphs of these significant interactions are displayed in Figure 1. Furthermore, wives were marginally more likely to experience subsequent depressive symptoms if they faced a previous history of depression and participated in marital conversations characterized by a high degree of negative skills (β_{25} = 0.25, t = 1.96, p = .052) and affect (β_{25} = 0.14, t = 1.81, p = .073). Depression history failed to moderate the association between post-interaction mood and subsequent depression among wives.

Discussion

Following literature establishing that expressions and affective evaluations of negative interpersonal communication between spouses characterize interactions between depressed individuals and predict depression relapse, the current project simultaneously examined these variables as predictors of depression eight to 10 years after marriage. All models controlled for marital satisfaction, and additional analyses tested depression history as a moderator. Results largely supported our predictions: Husbands were more likely to experience future depression when they participated in support conversations characterized by frequent expressions of negative behaviors, as well as when they reported being in a negative mood after their own

problem-solving interactions. Wives experienced greater depressive symptoms when they reported enhanced negative mood after completing problem-solving interactions shortly after marriage. Furthermore, depression history significantly moderated the behaviors/affective evaluations-to-future-depression link among men: Men with a history of depression reported higher subsequent depressive symptoms when participating in support interactions characterized by infrequent displays of negative behaviors and when reporting themselves to be in a more negative mood after completing their own support and problem-solving interactions. Taken together, these findings confirm the impact of initial marital conversations (both expressed and subsequent affective evaluations of negative emotions) on depressive symptoms eight years later. Furthermore, these findings demonstrate that evaluations and expressions of negative behaviors/affect more reliably predict future depression than positive behaviors.

Before discussing these findings' implications, some limitations must be acknowledged. First, our study recruited a community sample of newlyweds with substantially greater levels of marital satisfaction and lower levels of depressive symptoms or diagnosable depression history than might be expected from a more clinical sample. Therefore, a restriction of range could contribute to some of our null findings. On the other hand, our results indicated that even in happy newlywed couples, baseline patterns of negative communication and negative moods after completing marital interactions are associated with depressive symptoms approximately eight years later. Furthermore, as there were more significant results for men than for women, it may be the case that our sample of women, as compared to other samples, lacked a substantial level of clinical depression among women to be directly comparable to past research. Third, due to limited observational data collection, we have no evidence that the behavioral patterns were stable over time. Future research should aim to include more frequent collection of behavioral

observations to determine whether such patterns of marital communication/affective evaluations are consistent over time, or how changes in marital communication (perhaps due to stressful events including childbirth), impact participant's moods.

The fairly consistent results across men and women suggest that externally-coded expressions of negative behaviors and affect, as well as how individuals report feeling after completing such interactions, make unique and important contributions toward predicting subsequent depressive symptoms. Therefore, our findings offer support for theories related to critical interpersonal communication among depressed individuals (Coyne, 1976; Rehman, Gollan, & Mortimer, 2008) as well as negative perceptions of social interactions (Hooley & Teasdale, 1989) as potential depression relapse factors. Our results also provide clear evidence that negative behaviors, affect, or post-interaction evaluations reliably impact future depression, while corresponding positive behavioral or perceptual variables do not. These findings further support previous interpersonal theories of depression (Coyne, 1976; Joiner, Alfano, & Metalsky, 1992) that uniquely focus on the ways that depression promotes enhanced interpersonal criticism, negativity, and rejection. The fact that behaviors and post-interaction evaluations significantly contributed to men's depression (and nearly-so for women's depression, in interaction with women's depression history) provides further support for the reliable finding that coded behaviors as well as participant's evaluations of their mood after such interactions both contribute to future depressive symptoms. In other words, both what the receiver intends to say, and how such communication is internalized, reflect important components of interpersonal communication that enhances the likelihood of experiencing future elevated depressive symptoms.

While, as expected, the interaction between men's depression history and negative post-

interaction mood enhanced men's future depressive symptoms, one counter-intuitive result occurred: Men were more likely to experience later depression if they had a history of depression and participated in support interactions characterized by *fewer* negative behaviors. These results make more sense, however, when interpreted in the light of Cohan and Bradbury's work (1997) that found that wives' displays of anger during marital conversations were associated with a reduction in wives' depressive symptoms and elevations in wives' levels of marital satisfaction. Cohan and Bradbury noted that anger in fact may represent productive interpersonal communication and motivate effective problem-solving. As such, conversations characterized by low amounts of anger may be ineffective to promote men's ability for health-promoting physical or emotional changes – such as adequate coping with a previous history of depression – that may be related to a number of health benefits of marriage for men (i.e., Schoenborn, 2004). These results also relate to previous research regarding the maladaptive intrapersonal and interpersonal consequences of protective buffering – or hiding one's concerns and opinions from one's spouse to avoid conflict (e.g., Coyne & Smith, 1991; Uebelacker, Courtnage, & Whisman, 2003). Our results indicate that men who participate in social interactions where they and their partner fail to appropriately express emotions including anger, criticism and hostility may in fact be at risk for greater mental health concerns.

In conclusion, the current study suggests that marital communication and post-communication affective interactions significantly predict depressive symptoms approximately eight to 10 years after their occurrence. Therefore, our results support continued focus on interpersonal communication between couples through observational data collection. In fact, our results suggest that extended observational coding through external raters may be less predictive of future depressive symptoms than assessing for participant's evaluations of the interactions.

We therefore confirm the importance of assessing not only the expressions of behaviors from one partner to the other but also how such behaviors may feel to the listener. Our work also suggests that negative behaviors or affect especially impact the development of future depression; as such, communication training work that targets the detrimental nature of criticism, hostility, and rejection, as well as withdrawal from and avoidance of effective problem-solving, will be vital to highlight in subsequent prevention and intervention work.

Table 1

Descriptive statistics for externally-rated behaviors, affect, and skills in couples' marital interactions

Measure	*M*	*SD*
Positive behaviors during support tasks	39.87	12.97
Negative behaviors during support tasks	5.22	9.46
Positive affect during problem-solving tasks	7.41	7.83
Negative affect during problem-solving tasks	14.99	19.68
Positive skills during problem-solving tasks	205.04	74.69
Negative skills during problem-solving tasks	85.98	68.37

Note. *M* = Mean; *SD* = Standard Deviation.

Table 2

Descriptive statistics for participant's post-affective evaluations of marital interactions

	Men		Women	
Measure	*M*	*SD*	*M*	*SD*
Positive mood after support tasks	34.72	9.25	34.00	9.02
Negative mood after support tasks	13.74	5.01	13.65	5.20
Positive mood after problem-solving tasks	35.43	8.12	35.65	8.33
Negative mood after problem-solving tasks	14.96	6.00	14.02	5.25

Note. *M* = Mean; *SD* = Standard Deviation.

Table 3

Husbands' inter-correlations between covariates, predictors, and outcome variables

Variables	1	2	3	4	5	6	7
1. Baseline marital satisfaction	-						
2. Depression history	-.13	-					
3. Future depressive symptoms	-.08	.28**	-				
4. Positive behaviors during support	.11	-.01	-.09	-			
5. Negative behaviors during support	-.14	.01	.23**	-.32***	-		
6. Positive affect during problem-solving	.15*	-.01	-.09	.04	-.09	-	
7. Negative affect during problem-solving	-.08	.05	-.01	.03	.23**	-.24**	-
8. Positive skills during problem-solving	.06	-.14	-.05	.01	-.05	.06	-.37***
9. Negative skills during problem-solving	-.13	-.08	-.03	-.02	.21**	-.33***	.69***
10. Positive mood after support	-.01	-.05	.03	.01	.00	-.10	-.00
11. Negative mood after support	.02	-.13	-.00	-.02	-.08	.15	-.15
12. Positive mood after problem-solving	.01	-.01	-.03	.02	.01	.08	-.17*
13. Negative mood after problem-solving	-.17*	.00	.20*	-.05	.13	-.30***	.22**

Variables	8	9	10	11	12	13
8. Positive skills during problem-solving	-					
9. Negative skills during problem-solving	-.38***	-				
10. Positive mood after support	.08	.06	-			
11. Negative mood after support	.03	-.17*	-.18*	-		
12. Positive mood after problem-solving	.25**	-.12	-.18*	.04	-	
13. Negative mood after problem-solving	-.07	.24**	.06	.01	-.07	-

Note. * $p < .05$. ** $p < .01$. *** $p < .001$

Table 4

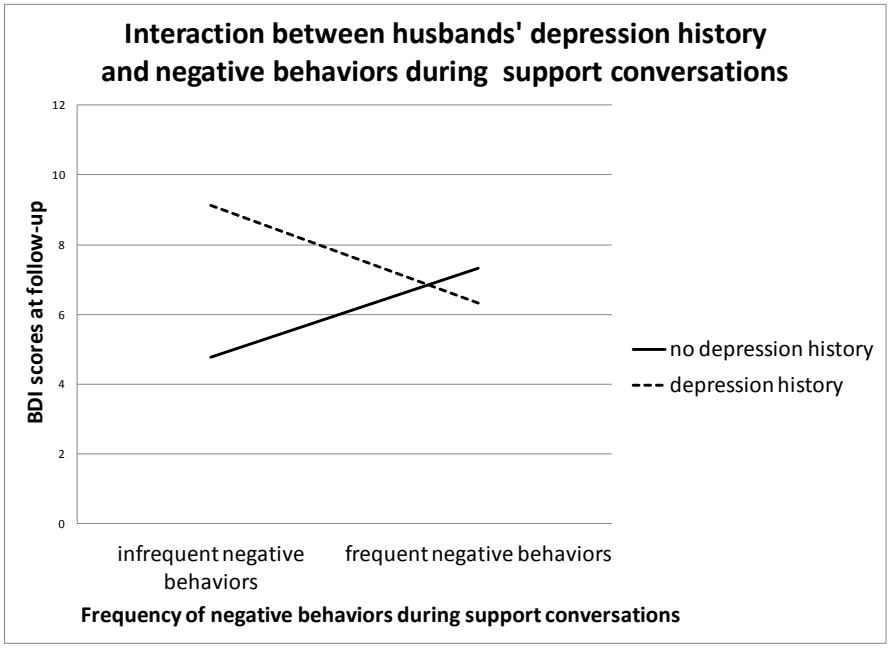
Wives' inter-correlations between covariates, predictors, and outcome variables

Variables	1	2	3	4	5	6	7
1. Baseline marital satisfaction	-						
2. Depression history	.01	-					
3. Future depressive symptoms	-.24**	.24**	-				
4. Positive behaviors during support	.10	-.09	-.14	-			
5. Negative behaviors during support	-.21**	.00	.08	-.32***	-		
6. Positive affect during problem-solving	.26**	-.01	-.07	.04	-.09	-	
7. Negative affect during problem-solving	-.28***	-.09	.24**	.03	.23**	-.24**	-
8. Positive skills during problem-solving	.14	.03	-.12	.01	-.05	.06	-.37***
9. Negative skills during problem-solving	-.26**	-.10	.29**	-.02	.21**	-.33***	.69***
10. Positive mood after support	-.17*	.07	.09	-.06	-.04	-.12	.10
11. Negative mood after support	.03	-.09	-.02	.15	-.09	-.00	-.15
12. Positive mood after problem-solving	.04	-.03	-.12	-.04	.05	.07	-.04
13. Negative mood after problem-solving	-.16*	.14	.33***	-.04	.06	-.28***	.29***

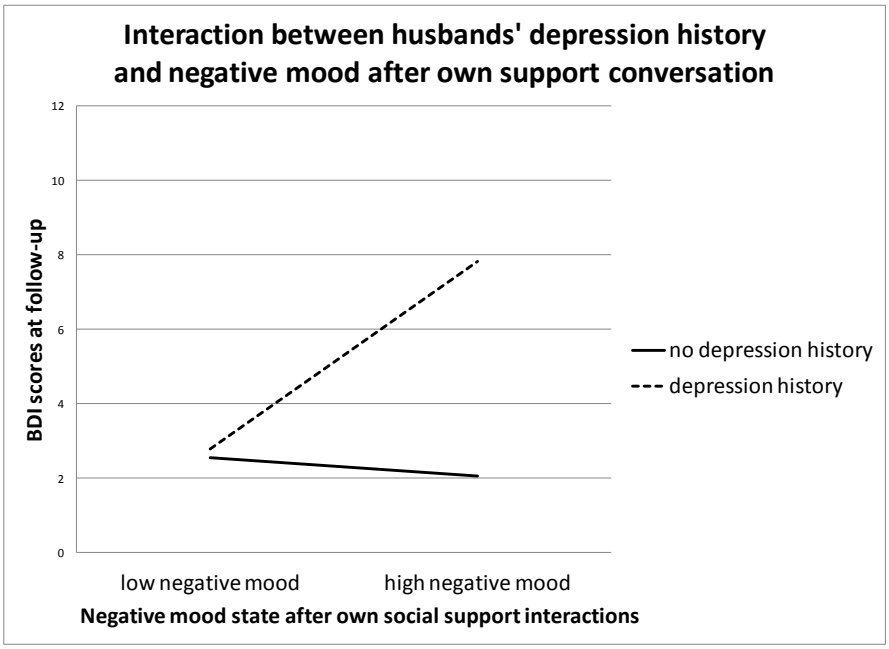
Variables	8	9	10	11	12	13
8. Positive skills during problem-solving	-					
9. Negative skills during problem-solving	-.38***	-				
10. Positive mood after support	-.01	.07	-			
11. Negative mood after support	.08	-.11	-.15	-		
12. Positive mood after problem-solving	.09	-.04	-.13	-.00	-	
13. Negative mood after problem-solving	-.19*	.36****	.04	.12	-.23**	-

Note. * $p < .05$. ** $p < .01$. *** $p < .001$

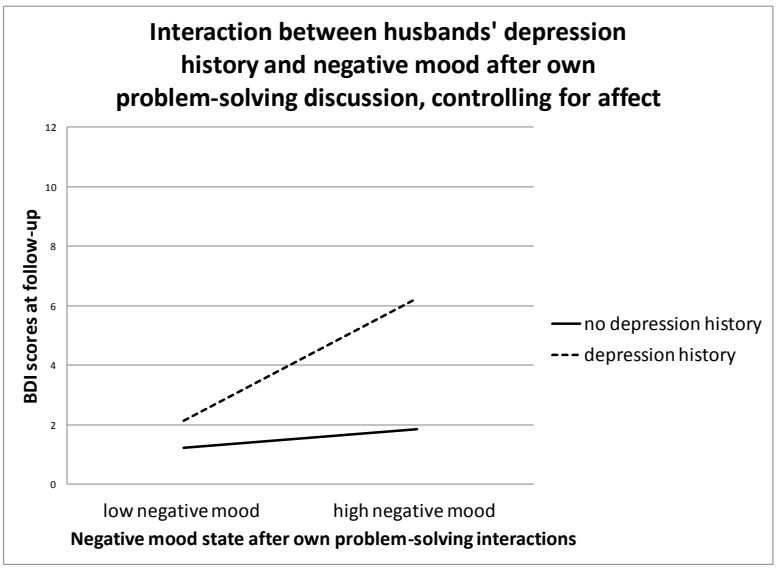
A)


Interaction between husbands' depression history and negative behaviors during support conversations
BDI scores at follow-up
12
10
8
6
4
2
0
infrequent negative behaviors
frequent negative behaviors
Frequency of negative behaviors during support conversations
no depression history
depression history

B)


Interaction between husbands' depression history and negative mood after own support conversation
BDI scores at follow-up
12
10
8
6
4
2
0
low negative mood
high negative mood
Negative mood state after own social support interactions
no depression history
depression history

C)



D)

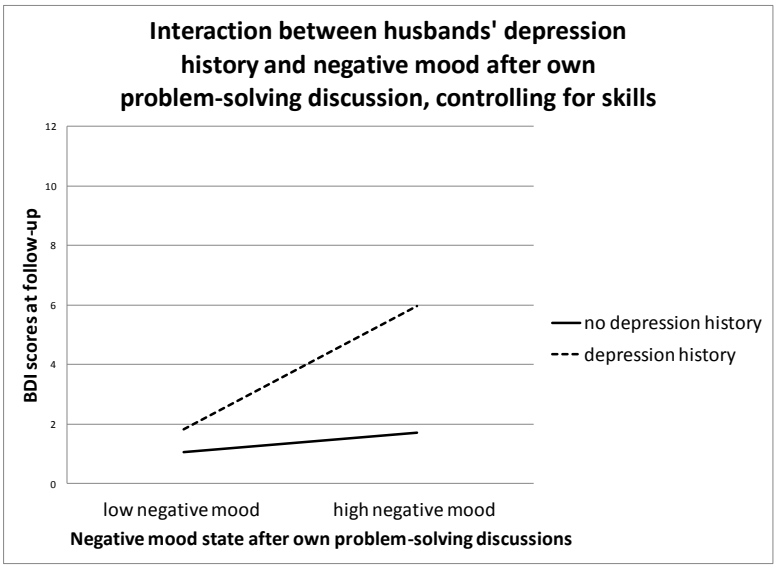


Figure 1. Interactions between husbands' depression history and negative behaviors/evaluations. Husbands with a history of depression were more likely to experience future depressive symptoms if they engaged in support discussions characterized by infrequent negative behaviors (A) or reported a negative mood after completing support (B) and problem-solving (C-D) tasks.

References

Beck, A. T, Steer, R. A., & Garbin, M. G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8,* 77-100. doi: 10.1016/0272-7358(88)90050-5

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 5,* 462-467. doi: 10.1001/archpsyc.1961.01710120031004

Bradbury, T. N., Fincham, F. D., & Beach, S. R. H. (2000). Research on the nature and determinants of marital satisfaction: A decade in review. *Journal of Marriage and Family, 62,* 964-980. doi: 10.1111/j.1741-3737.2000.00964.x

Bradbury, T. N., & Pasch, L. A. (1994). *The Social Support Interaction Coding System (SSICS).* Unpublished coding manual, University of California, Los Angeles

Brock, R. L., & Lawrence, E. (2011). Marriage as a risk factor for internalizing disorders: Clarifying scope and specificity. *Journal of Consulting and Clinical Psychology, 79,* 577-589. doi: 10.1037/a0024941

Coyne, J. C. (1976). Toward an interactional description of depression. *Psychiatry, 39,* 28-40.

Christensen, A., McGinn, M., & Williams, K. J. (2009). Behavioral couples therapy. In G. O. Gabbard (Ed.), *Textbook of psychotherapeutic treatments* (pp. 603-623). Arlington, VA: American Psychiatric Publishing. doi: 10.1176/appi.books.9781585623648

Cohan, C. L., & Bradbury, T. N. (1997). Negative life events, marital interaction, and the longitudinal course of newlywed marriage. *Journal of Personality and Social Psychology, 73,* 114-128. doi: 10.1037/0022-3514.73.1.114

Coyne, J. C., & Smith, D. A. (1991). Couples coping with a myocardial infarction: A contextual

perspective on wives' distress. *Journal of Personality and Social Psychology, 61,* 404-412. doi: 10.1037//0022-3514.61.3.404

Dush, C. M. K., & Amato, P. R. (2005). Consequences of relationship status and quality for subjective well-being. *Journal of Social and Personal Relationships, 22,* 607-627. doi: 10.1177/0265407505056438

Gotlib, I. H., Lewinsohn, P. M., & Seeley, J. R. (1998). Consequences of depression during adolescence: Marital status and marital functioning in early adulthood. *Journal of Abnormal Psychology, 107,* 686-690. doi: 10.1037/0021-843X.107.4.686

Gottman, J. M., & Krokoff, L. J. (1989). Marital interaction and satisfaction: A longitudinal view. *Journal of Consulting and Clinical Psychology, 57,* 47-52. doi: 10.1037/0022-006X.57.1.47

Hahlweg, K., Reisner, L., Kohli, G., Vollmer, M., Schindler, L., & Revenstorf, D. (1984). Development and validity of a new system to analyze interpersonal communication: Kategoriensystem fu¨r Partnerschaftliche Interaktion. In K. Hahlweg & N. S. Jacobson (Eds.), *Marital interaction: Analysis and modification* (pp. 182–198). New York: Guilford.

Hammen, C. (1991). Generation of stress in the course of unipolar depression. *Journal of Abnormal Psychology, 100,* 555-561. doi: 10.1037/0021-843X.100.4.555

Hammen, C., & Brennan, P. A. (2002). Interpersonal dysfunction in depressed women: Impairments independent of depressive symptoms. *Journal of Affective Disorders, 72,* 145-156. doi: 10.1016/S0165-0327(01)00455-4

Hooley, J. M., & Teasdale, J. D. (1989). Predictors of relapse in unipolar depressives: Expressed

emotion, marital distress, and perceived criticism. *Journal of Abnormal Psychology, 98,* 229-235. doi: 10.1037/0021-843X.98.3.229

Hox, J. (2002). *Multilevel analysis: Techniques and applications*. Mahwah, NJ: Lawrence Erlbaum Associates.

Johnson, M. D., Cohan, C. L., Davila, J., Lawrence, E., Rogge, R. D., Karney, B. R., … Bradbury, T. N. (2005). Problem-solving skills and affective expressions as predictors of change in marital satisfaction. *Journal of Consulting and Clinical Psychology, 73,* 15-27. doi: 10.1037/0022-006X.73.1.15

Joiner, T. E., Alfano, M. S., & Metalsky, G. I. (1992). When depression breeds contempt: Reassurance seeking, self-esteem, and rejection of depressed college students by their roommates. *Journal of Abnormal Psychology, 101,* 165-173. doi: 10.1037/0021-843X.101.1.165

Karney, B. R., & Bradbury, T. N. (1997). Neuroticism, marital interaction, and the trajectory of marital satisfaction. *Journal of Personality and Social Psychology, 72,* 1075-1092. doi: 10.1037/0022-3514.72.5.1075

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Koretz, D., Merikangas, K. R. … Wang, P. S. (2003). The epidemiology of major depressive disorder: Results from the National Comorbidity Survey Replication (NCS-R). *JAMA: The Journal of the American Medical Association, 289,* 3095-3105. doi: 10.1001/jama.289.23.3095

Markman, H. J., Renick, M. J., Floyd, F. J., Stanley, S. M., & Clements, M. (1993). Preventing marital distress through communication and conflict management training: A four and five year follow-up. *Journal of Consulting and Clinical Psychology, 62,* 70-77. doi: 10.1037/0022-006X.61.1.70

Noller, P. (1980). Misunderstandings in marital communication: A study of couples' nonverbal communication. *Journal of Personality and Social Psychology, 39,* 1135-1148. doi: 10.1037/h0077716

Norton, R. (1983). Measuring marital quality: A critical look at the dependent variable. *Journal of Marriage and the Family, 45,* 141–151. doi: 10.2307/351302

Pasch, L. A., & Bradbury, T. N. (1998). Social support, conflict, and the development of marital dysfunction. *Journal of Consulting and Clinical Psychology, 66,* 219-230. doi: 10.1037//0022-006X.66.2.219

Peterson, K. M, Smith, D. A., & Windle, C. R. (2009). Explication of interspousal criticality bias. *Behaviour Research and Therapy, 47,* 478-486. doi: 10.1016/j.brat.2009.02.012

Rehman, U. S., Gollan, J., & Mortimer, A. R. (2008). The marital context of depression: Research, limitations, and new directions. *Clinical Psychology Review, 28,* 179-198.doi: 10.1016/j.cpr.2007.04.007

Schoenborn, C. (2004). Marital status and health: United States, 1999 – 2002. U.S. National Center for Health Statistics. *Advance Data from Vital and Health Statistics*, 1-32.

Sullivan, K. T., Pasch, L. A., Johnson, M. D., & Bradbury, T. N. (2010). Social support, problem solving, and the longitudinal course of newlywed marriage. *Journal of Personality and Social Psychology, 98,* 631-644. doi: 10.1037/a0017578

Uebelacker, L. A., Courtnage, E. S., & Whisman, M. A. (2003). Correlates of depression and marital dissatisfaction: Perceptions of marital communication style. *Journal of Personal and Social Relationships, 20,* 757-769. doi: 0.1177/0265407503206003

Watson, D., & Clark, L. A. (1984). Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin, 96,* 465-490. doi: 10.1037/0033-2909.96.3.465

Whisman, M. A. (2001). The association between marital dissatisfaction and depression. In S. R. H. Beach (Ed.), *Marital and family processes in depression: A scientific foundation for clinical practice* (pp. 3–24). Washington, DC: American Psychological Association. doi: 10.1037/10350-000

Whisman, M.A., & Uebelacker, L. A. (2009). Prospective associations between marital discord and depressive symptoms in middle-aged and older adults. *Psychology and Aging, 24,* 184-189. doi: 10.1037/a0014759

General Discussion

Using two separate datasets, the current project adopted a developmental perspective to consider the impact of depression history and parental divorce, conflict, and relationship quality on intimate relationship functioning from adolescence throughout the first eight to 10 years of marriage. These studies drew from prominent interpersonal theories of depression (e.g., Hammen, 1991; Hammen, 2005; Hooley & Teasdale, 1989; Joiner, Alfano, & Metalsky, 1992) and the transmission of relationship functioning (Amato, 2001) to offer integrative models that compared these competing theories of predictors of relationship dysfunction against each other. Through the use of gender-based moderators, as well as interactive effects between family-of-origin variables and depression history, these studies also answered important questions regarding for what specific kinds of individuals relationship dysfunction was likely to be amplified.

Study 1, using the National Longitudinal Survey of Adolescent Health's publically-available dataset, examined whether adolescent depression or family-or-origin factors (parental conflict, parental marital stability, and participant's relationship quality with resident mothers and fathers) predicted a series of aversive relationship outcomes (particularly with respect to current relationship quality and conflict) in one's late 20's and early 30's. Results demonstrated that participant/maternal relationship quality and parental marital stability were consistent predictors of relationship dysfunction in expected directions. Furthermore, adolescent depression history moderated the effect of some family-of-origin variables on some relationship outcomes. No gender differences were noted. Study 2, using a longitudinal sample of newlywed couples, investigated whether family-of-origin functioning or depression history before marriage predicted the level of risk (as defined through a factor-analyzed and validated composite

measure) of one's marital partner. Results indicated that while neither depression history nor familial functioning reliably predicted partner's risk, one's own level of risk was a strong predictor of partner's risk. Study 3, again using the longitudinal newlywed sample, examined whether baseline levels of externally-rated positive and negative behaviors, affect, and skills during marital conversations, or participant's evaluations of the quality of these interactions through post-interaction mood ratings, predicted elevated depressive symptoms eight to 10 years later. Results demonstrated that post-interaction evaluations – especially of a negative mood – were more consistent predictors of future depression than behaviors, for both men and women. Furthermore, among men, a history of clinical or subclinical depression amplified the association between negative evaluations of marital interactions and subsequent depressive symptoms.

Before interpreting and synthesizing these results, some project strengths and limitations must be noted. First, this project is to be commended for its use of large-scale and longitudinal datasets that permit an examination of temporal and bi-directional associations between depression and intimate relationship functioning. Second, all of these studies employed multiple informants to collect data and permitted genuine dyadic tests of interpersonal phenomenon through data from both members of a couple (Studies 2 and 3) as well as interactional and perceptual data from marital conversations (Study 3) that moved beyond mere participant self-report. Study limitations involved the inclusion of primarily high-functioning individuals (i.e., community samples of couples entering their first marriage) as compared to a clinical sample. While participants had lower levels of depressive symptoms/history or family-of-origin conflict and divorce than may be expected from clinical samples, potentially limiting significant results, our studies nonetheless showed relationship dysfunction even among individuals without a clinical history of depression or significantly impaired parental models of intimate relationships.

Synthesizing these results indicates some inconsistencies in the findings, particularly when comparing Study 1 (which demonstrated reliable family-of-origin predictors of relationship dysfunction) with Study 2 (which indicated that neither familial conflict/divorce nor depression history impacted partner's risk). Differences in the composition of participants through sampling techniques, as well as measurement differences through the usage of divergent measures between the two studies, may explain these discrepancies. Another possibility is that family-of-origin factors may impact relationship satisfaction in earlier relationships but may not impact outcomes in more stable and/or committed relationships as evidenced by Study 2's inclusion of only marital relationships. Perhaps throughout the development of the history of an individual's intimate relationships, one learns how to better modulate or cope with negative self-schemas or insecure attachment that have been modeled through experiences in one's family-of-origin.

In spite of this inconsistency between studies, synthesizing the results from all three studies reveals several reliable findings. First, while depression history was rarely an independent predictor of relationship functioning, it nonetheless moderated the association between family-of-origin factors and current relationship dysfunction (Study 1) and between baseline externally-rated negative behaviors and evaluations of marital interactions and subsequent depressive symptoms eight to 10 into the marriage (Study 3). In this way, failing to consider depression history misses identifying individuals who are at a particular risk for future relationship dysfunction or depression recurrence. Furthermore, the lack of significant gender differences in the results of Studies 1 and 2, and the finding that interactions between depression history and negative behaviors/perceptions were predictive of subsequent depression among men but only marginally-significant for women (Study 3), suggests that it is important to examine how men may be particularly impaired in their intimate relationships through depression history

or adverse family environments, in spite of gender differences in depression (Nolen-Hoeksema, 2001) and sociotropy (McBride, Bacchiochi, & Bagby, 2005). Finally, our use of competing theories in all studies has demonstrated findings that emphasize family-of-origin factors over depression history (Study 1), own risk over parental divorce/conflict and depression history (Study 2), and participant's post-interaction negative mood over specific facets of the interactions as rated by external coders (Study 3). Through these analyses, this project supports theories related to the intergenerational transmission of relationship dysfunction (Amato, 2001), assortative mating between one's own and one's partners risky characteristics (e.g., Mathews & Reus, 2001), and the impact of participants' perceptions of marital interactions beyond external rater's coded assessments (Hooley & Teasdale, 1989).

In conclusion, aspects related to the climate of the family in which one grows up, one's own level of risk through a multi-faceted risk index, and a history of depressive symptoms predict and interact together to amplify subsequent intimate relationship dysfunction. Furthermore, aspects of the communication and especially the post-interaction evaluations of interpersonal communication between newlywed couples significantly predict future depressive symptoms after the first eight to 10 years of marriage. In this way, this study demonstrates a clear association between experiences well before relationship entry and the quality of those relationships and relationship partners. This study therefore adds an important perspective to the examination of intimate relationships: that the quality and stability of current intimate relationships may be due, in part, to characteristics that have little to do with that relationship itself. In other words, individual characteristics including psychopathology, the quality and stability of parent's intimate relationships, the quality of the perceived relationship between a

relationship partner and his/her parents, and the pattern of intimate relationships before the current one may all explain a significant amount of variance in current relationship outcomes. Practically, our results indicate that constructive discussion of relationship histories – both one's own and those in one's family of origin – may be a valuable component of pre-marital intervention or couples-based therapies. Our findings further suggest that treating individual symptoms of depression, personality disorder traits, or anger – at either an individual or dyadic-level – could yield important relational benefits. Finally, our work continues to emphasize the impact of improving intimate relationships in order to prevent the perpetuation of relationship dysfunction through transmission to offspring.

References

Amato, P. R. (2001). Children of divorce in the 1990s: An update of the Amato and Keith (1991) meta-analysis. *Journal of Family Psychology, 15,* 355-370. doi: 10.1037//0893-3200.15.3.355

Hammen, C. (1991). Generation of stress in the course of unipolar depression. *Journal of Abnormal Psychology, 100,* 555-561. doi: 10.1037//0021-843X.100.4.555

Hammen, C. (2005). Stress and depression. *Annual Review of Clinical Psychology, 1*, 293-319. doi: 10.1146/annurev.clinpsy.1.102803.143938

Hooley, J. M., & Teasdale, J. D. (1989). Predictors of relapse in unipolar depressives: Expressed emotion, marital distress, and perceived criticism. *Journal of Abnormal Psychology, 98,* 229-235. doi: 10.1037/0021-843X.98.3.229

Joiner, T. E., Alfano, M. S., & Metalsky, G. I. (1992). When depression breeds contempt: Reassurance seeking, self-esteem, and rejection of depressed college students by their roommates. *Journal of Abnormal Psychology, 101,* 165-173. doi: 10.1037/0021-843X.101.1.165

Mathews, C. A., & Reus, V. I. (2001). Assortative mating in the affective disorders: A systematic review and meta-analysis. *Comprehensive Psychiatry, 42,* 257-262. doi: 10.1053/comp.2001.24575

McBride, C., Bacchiochi, J. R., & Bagby, R. M. (2005). Gender differences in the manifestation of sociotropy and autonomy personality traits. *Personality and Individual Differences, 38,* 129-136. doi: 10.1016/j.paid.2004.03.014

Nolen-Hoeksema, S. (2001). Gender differences in depression. *Current Directions in Psychological Science, 10,* 173-176. doi: 10.1111/1467-8721.00142