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Depression and Mate Selection During the Transition to Adulthood

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Psychology

by

Shaina Jill Katz

2014

ABSTRACT OF THE DISSERTATION

Depression and Mate Selection During the Transition to Adulthood

by

Shaina Jill Katz

Doctor of Philosophy in Psychology

University of California, Los Angeles, 2014

Professor Constance L. Hammen, Chair

There is considerable research demonstrating the link between depression and interpersonal stress. This literature has included support for the phenomenon of stress generation, or the tendency for individuals with depression histories to have higher levels of stress in their lives, particularly interpersonal stressors, even after depression remits. Currently missing from the existing literature, but supported by multiple psychological theories and research on constructs related to depression, is the possibility that individuals prone to depression may self-select into maladaptive romantic partnerships that promote stress and exacerbate depression. The current project sought to explore whether depression portends risk for choosing romantic partners with higher levels of psychopathology or disordered personality traits. This question was explored in two complementary studies. Study 1 utilized a longitudinal, community sample of 252 individuals followed from birth to early adulthood with romantic partners at age 20. Results indicated that individuals with higher levels of depressive symptoms

at age 15 had romantic partners by age 20 with higher levels of personality disorder symptoms. Insecure attachment mediated this relationship. Partner personality pathology, in turn, marginally predicted increases in depressive symptoms 2 to 5 years later. Study 2 explored the role of depression in the mate selection process by using a mock online dating laboratory paradigm in which college-aged women rated hypothetical romantic partners based on fabricated dating profiles. Some profiles included antisocial personality disorder traits. Results revealed that current depressive symptoms and major depression history indirectly predicted lower initial interest in "antisocial" profiles via lower self-esteem and lower perceived similarity to these individuals, respectively. However, when participants were later asked to imagine that an "antisocial" individual was interested in dating them, depressive symptoms predicted greater positive change in interest in this individual and a greater likelihood of changing an initial refusal to date this individual to a positive response. Findings from both studies indicate that depression plays a role in the mate selection process and can have detrimental consequences. Future research would benefit from further exploring mediators of the relationship between depression and choosing problematic partners and the role of partner characteristics in the cycle of stress and depression.

The dissertation of Shaina Jill Katz is approved.

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2014

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Darcy, A. M., Fitzpatrick, K. K., **Katz, S.**, Forsberg, S., & Lock, J. D. (2009, November). *The good, the bad, and recovery: examining how former anorexia nervosa patients view their experiences in treatment and their definition of recovery.* Poster presented at meeting of the American Academy of Child and Adolescent Psychiatry, Honolulu, HI

Introduction

<u>Interpersonal Context of Depression</u>

There has been an abundance of research during the past few decades highlighting the interpersonal nature of depression. At every phase of development, childhood, adolescence, and adulthood, proneness to depression seems to be linked to difficulties or dysfunction in interpersonal domains (Gotlib & Hammen, 1999; Joiner, Brown, & Kistner, 2006; Joiner & Coyne, 1999). In terms of factors that contribute to the onset of major depression, research has pointed to poor quality relationships with attachment figures (e.g. Armsden, McCauley, Greenberg, Burke, & Mitchell, 1990), discord in the childhood family environment (e.g. Hammen, Brennan, & Shih, 2004), and peer difficulties (e.g. Cole, 1990; Ladd & Troop-Gordon, 2003) as distal predictors of depressive symptoms and episodes. More proximally, research suggests that stressful events of an interpersonal nature (e.g. relationship dissolution; Monroe, Rohde, Seeley, & Lewinsohn, 1999) commonly precede depressive episodes. Notably, theories of gender differences in depression suggest that a plausible explanation for higher rates of depression in females compared to males is that females are more socially-oriented than males, that is females may be more attuned to stressors among individuals in their social circles, more emotionally affected by these stressors, and have greater exposure and sensitivity to interpersonal discord (Cyranowski, Frank, & Shear, 2000; Leadbeater, Blatt, & Quinlan, 1995; Shih, Eberhart, Hammen, & Brennan, 2006). Interpersonal factors not only contribute to the onset of depression, but also predict the severity and rate of recovery from a depressive episode once it has occurred. For example, individuals with limited social support may take longer to recover from depressive episodes (Billings & Moos, 1985; Kendler, Walters, & Kessler, 1997; Lara, Leader, & Klein, 1997). Additionally, adolescents with more interpersonal difficulties are

more likely to have multiple depressive episodes throughout adolescence and into adulthood (Hammen, Brennan, & Keenan-Miller, 2008).

Interpersonal stress of a romantic nature, specifically, has been linked to depressive symptoms and episodes. Cano and O'Leary (2000) found that marital stressors such as infidelity or threats of divorce predicted a sixfold increase in major depression, even controlling for previous depression. Marital dissatisfaction has also been concurrently and prospectively linked to depressive symptoms and episodes (Davila, Karney, Hall, & Bradbury, 2003; Whisman, Uebelacker, & Weinstock, 2004). Notably, distressed couples are approximately three times more likely to include a spouse with major depression, compared to nondistressed couples (Whisman & Uebelacker, 2003). Even among unmarried teenagers, dissolutions of romantic relationships significantly predict first onset major depressive episodes, even controlling for general life stress (Monroe, Rohde, Seeley, & Lewinsohn, 1999).

While there is a clear prospective link between interpersonal factors and depression, there has also been an increasing amount of evidence that individuals with depression are not simply passive recipients of interpersonal hardships; individuals with depression are not merely victims of the unfortunate interpersonal circumstances that befall them. Rather, individuals prone to depression seem to play an active role in creating, contributing to, and maintaining the interpersonal difficulties that seem to be characteristic of their experience. This phenomenon initially became a focus of depression theory and research in 1976 when Coyne outlined his interpersonal theory of depression. This theory described a significant pattern that likely contributes to the cycle of relationship difficulties and depression, namely that depressed individuals excessively seek reassurance from significant others but are often unsatisfied with and mistrusting of reassurance when it is provided to them (see Joiner & Coyne, 1999).

However, depressed individuals continue to seek such reassurance despite its perceived unhelpfulness. This often leads partners to become frustrated and rejecting, resulting in either conflict in or dissolution of the relationship. Such relationship stress or isolation further cements a depressed individual's negative view of the self, maintaining and often exacerbating depressive symptoms. A recent meta-analysis, conducted by Starr and Davila (2008) found significant associations between depression and excessive reassurance seeking behavior and between such behavior and interpersonal rejection, especially within romantic contexts, providing further support for this model of depressive behaviors and interpersonal difficulties. In addition to excessive reassurance seeking, other depressive behaviors that may be contributing to interpersonal difficulties include isolation or withdrawal, expression of negativity or hostility, and avoidance of or deficits in problem solving, among others (see Beach, Dreifuss, Franklin, Kamen, & Gabriel, 2008). Research has demonstrated that depressive symptoms in the wife of a heterosexual couple longitudinally predict marital stress, partially related to negative behaviors such as blaming, criticizing, or disengaging (Davila, Bradbury, Cohan & Tochluk, 1997).

The concept that depressed individuals are active contributors to interpersonal difficulties has been extended to include not only the ways that individuals in the midst of a depressive episode contribute to adverse interpersonal circumstances, but also the ways in which individuals with a history of depression who are not currently in a depressive episode continue to create stress in their interpersonal environments. In 1991, Hammen found support for a phenomenon that she termed, "stress generation," in her study comparing women with unipolar depression, bipolar depression, chronic medical illness, and no physical or mental ailments. She found that, at one-year follow up, women with a history of unipolar depression experienced comparatively more dependent, interpersonal stressful life events, that is, interpersonal events for which the

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individual was partially responsible. Events included family arguments, romantic break-ups, and

conflictual separations from close friends. This seminal study revealed that women with a

history of unipolar depression, even if not currently in an episode, seem to play an active role in

contributing to stress in their own lives, compared to healthy individuals and even to a greater

degree than individuals with other psychiatric or medical conditions. Since this original study,

stress generation findings have been demonstrated in a variety of samples, including men,

adolescents, and children (see Hammen, 2006; Liu & Alloy, 2010 for reviews).

Historically, much of the research on stress generation has focused on the generation of

discrete, stressful life events. However, researchers have increasingly emphasized the

importance of broadening the scope of stress generation to include not only the ways in which

individuals prone to depression may generate the occurrence of negative events in their own life,

but also the ways in which they may be selecting into environments marked by chronic stress

(e.g. Hammen, 2005). One recent example of this was a study conducted by Hammen, Brennan,

and LeBrocque (2011) in which researchers found that young women who had experienced

depression prior to age 15 demonstrated a greater likelihood of birthing and raising a child prior

to age 20. Teenage motherhood is an excellent example of a life circumstance that likely

contributes to stress in multiple domains (e.g. family, romantic relationships, finances), which

could, in turn, lead to further depression.

One additional avenue through which individuals with depression may be self-selecting

into stressful environments involves choice of romantic partner. As theories and research on the

relationship between depression and marital discord tend to focus on the negative contributions

of the depressed spouse, little attention is paid to the characteristics of the romantic partners

chosen by depressed individuals that may play an additional role in the creation of marital

discord, stress, and further depression. Notably, at least one previous review of stress and depression has recommended exploration of possible dysfunctional mate selection patterns that may play a role in the relationship between depression and stress (Hammen, 2005).   The proposed studies seek to explore the romantic partner choices of individuals with past or current depression in an attempt to understand whether individuals prone to depression may be choosing romantic partners who, themselves, are more likely to create stress and conflict within the romantic relationship and may be less equipped with the interpersonal skills and attunement conducive for healthy, stable relationships. Of additional interest is the role that romantic partner characteristics play in the cycle of stress and depression as well as possible mechanisms that may illuminate why depressed individuals may make poor romantic partner choices.

Who Are the Romantic Partners of Depressed Individuals?

Limited existing research has explored the psychopathological and personality profiles of the romantic partners of individuals prone to depression. The majority of the work that has examined this question has specifically sought to determine whether depressed individuals are likely to partner with other depressed individuals.   Such a prediction is consistent with the idea of assortative mating and the similarity-attraction hypothesis. Assortative mating is the notion that individuals choose mates based on the level of similarity between certain traits that they possess and those possessed by their potential mate. In general, research has supported this basic tenet that individuals like others who are like them (e.g. Byrne, 1961). In terms of romantic partners, the similarity-attraction hypothesis suggests that individuals are attracted to potential mates whose traits and attitudes are similar to their own, presumably because partner similarity serves to validate an individual's own characteristics and beliefs, decrease the likelihood of conflict, and promote partner bonding (see Dijkstra & Barelds, 2008). This similarity-attraction

hypothesis has led researchers interested in mental health to also consider psychiatric history as a "characteristic" that partners may use to assortatively mate. In other words, researchers have sought to explore the possibility that individuals with psychiatric histories are more likely to have romantic partners with similar psychiatric histories than individuals with no such history, presumably because psychiatric history serves as a characteristic that reflects the similarity of a potential mate.

With regards to major depression, research has generally supported the hypothesis that individuals with a depression history are more likely to partner with other individuals who also have a depression history. For example, Maes et al. (1998), using two independent samples of 854 and 568 sets of biological parents of twins, found a relationship between lifetime diagnosis of major depressive disorder in one parent and lifetime diagnosis of major depressive disorder in the other parent. Other studies, however, found no statistically significant relationship between spouses' depression histories (e.g. McLeod, 1995). In light of inconsistent findings, Mathews & Reus conducted a meta-analysis of literature on this topic in 2001. Mathews & Reus (2001) reviewed 17 articles on marital concordance rates for affective disorders published between 1966 and 1999. 12 of the 17 studies found support for assortative mating, both for major depression and bipolar disorder. Moreover, when 6 of these studies were selected for a meta-analysis, the pooled data revealed a statistically significant odds ratio of 2.38, indicating that individuals with a history of an affective disorder are more likely to choose romantic partners also with a past or current mood disorder. A statistically significant finding also held when individuals with a history of major depression were examined separately, confirming that this finding was not merely driven by those with a history of bipolar disorder.

Studies using continuous measures of depressive symptoms have had similar success finding support for the assortative mating hypothesis. Segrin (2004), in a study that followed 153 heterosexual dating couples across three time points, found that depressive symptoms of the two partners, as measured by the Beck Depression Inventory, were significantly correlated with each other at all time points. Correlations ranged from .19 to .35. Further analyses revealed that these concordance rates of depressive symptoms were higher than that which would occur if participants of the study were randomly paired with other participants' partners. Using a separate measure of depressive symptoms, the Young Adult Self-Report (YASR), van Grootheest, van den Berg, Cath, Willemsen, and Boomsma (2008) also found statistically significant correlations between married partners. Humbad, Donnellan, Iacano, McGue, and Burt (2010) found correlations between spouses' scores on the negative emotionality and positive emotionality dimensions of the MMPI, controlling for length of time married. Some research has also found support for spousal similarity in the personality trait, neuroticism (McCrae et al., 2008; Watson et al., 2004), while others have not (e.g. Luo & Klohnen, 2005). Results from these studies indicate that assortative mating likely occurs on the basis of depression diagnosis, as well as for level of depressive symptoms, and possibly for related personality constructs.

Research on rates of other forms of psychopathology among romantic partners of depressed individuals, such as anxiety disorders, externalizing disorders, and personality disorders, is significantly sparser. The research that does exist hints that individuals prone to depression may have partners with psychopathology, personality traits, and other behavioral characteristics that may serve to increase stress in relationship contexts. For example, Maes and colleagues (1998) found that men with a lifetime diagnosis of major depressive disorder are more likely to have wives with a history of generalized anxiety disorder. They found that both women

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and men with a history of major depressive disorder are more likely to have spouses with a history of alcoholism. Women's history of dysthymia has also been found to predict husbands' lifetime history of generalized anxiety disorder (Galbaud du Fort, Band, Newman, & Boothroyd, 1998). At the symptom level, there also seems to be a small, but significant, correlation between depressive symptoms in one spouse and obsessive-compulsive and anxious symptoms in the other spouse (van Grootheest, van den Berg, Cath, Willemsen, & Boomsma, 2008).

As for personality traits, Daley and Hammen (2002), using a sample of female graduating high school seniors, found that young women's BDI scores were positively correlated with their romantic partners' Cluster A, Cluster B, and Cluster C personality symptoms. Importantly, Daley and Hammen (2002) also found that partner's Cluster A personality symptoms mediated the negative relationship between participants' depressive symptoms and partner's emotional support, suggesting that disordered personality traits likely do result in decreased provision of support within a romantic partnership. Additionally, Galbaud du Fort and colleagues (1998) found that wives' lifetime history of major depression was related to husband's lifetime history of antisocial personality disorder. Young women with a history of major depressive disorder or high levels of depressive symptoms are also more likely to become a victim of intimate partner violence, a behavioral tendency linked to partner's personality characteristics (Keenan-Miller, Hammen, & Brennan, 2007; Lehrer, Buka, Gortmaker, & Shrier, 2006). These findings suggest that individuals, especially women, who experience depressive symptoms may have romantic partners with more personality pathology, which may, in turn, negatively affect the depressed individual by limiting emotional support and possibly placing him or her in physical danger. Thus, individuals with a history of depression are not only more likely to choose partners who are also currently or formerly depressed, but also may be more likely to choose partners with

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other forms of Axis I and Axis II psychopathology, with behavioral manifestations such as limited provision of support and intimate partner violence.

Why Are Depressed Individuals Choosing "Disordered" Mates?

As the literature suggests that increased levels of internalizing, externalizing, and personality psychopathology may be likely among the partners of depressed individuals, one might inquire as to why this phenomenon would occur. What is it about a history of depression that predicts involvement with romantic partners who are not only depressed themselves, but also have a host of other mental health and personality difficulties? As previously discussed, the most plausible explanation for the increased likelihood of choosing depressed partners seems clear: individuals tend to like others who are like themselves. Given the high comorbidity between depression and anxiety disorders, this could also explain the finding that individuals with a depression history end up with partners with a history of generalized anxiety disorder (e.g. Maes et al., 1998). The story may be more complex, however, to explain the increased rates of alcoholism, perpetration of violence, and personality disorders and pathology among these partners. The following section reviews additional models that may explain why depressed individuals may not only choose partners with similar histories of psychopathology (e.g. depression and anxiety), but also with other disorders, personalities, and propensities that may be detrimental to a romantic partnership.

Mate Value. One phenomenon that may be at play in creating these pairings is assortative mating among a broader dimension: mate value. The notion of mate value stems from evolutionary theory and refers to "a theoretically quantified estimate of how valuable [a] person would be as a partner in a reproductive relationship…., roughly measured operationally by estimates of 'attractiveness' to members of the opposite sex… including physical, personality,

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and demographic factors." (Brase & Guy, 2004, p. 473). Buss, Shackelford, and Kirkpatrick (2001), examining data regarding characteristics desired in a mate, found traits such as dependability, emotional stability, physical attractiveness, pleasing disposition, and good health to be among the top ten traits desired in a romantic partner, regardless of gender, for the past sixty years. Within the past twenty years, qualities such as intelligence and sociability have also become highly desired traits in a potential romantic partner. Thus, characteristics such as these are expected to comprise an individual's worth as a potential mate (e.g. Kirsner, Figueredo, & Jacobs, 2003). In other words, an individual who is highly physically attractive, intelligent, agreeable, and healthy would be considered to have a high mate value, or, in laymen's terms, be a "good catch," while an individual who is not physically attractive, has low intelligence, has significant health problems, and is unpleasant to interact with would be considered to have a low mate value. In sum, the more desirable qualities important for reproductive success that an individual possesses, the higher his or her theoretical mate value.

Theories of mate selection involving mate value incorporate social exchange theory and posit that the process of choosing a mate occurs much like a business transaction. Individuals evaluate the overall value that a potential mate would contribute to a romantic relationship. In turn, the potential partner determines whether the individual would sufficiently contribute positive attributes to the relationship. If both parties believe that the assets they bring to the relationship are relatively matched with the qualities contributed by the other, and that the effort that must be expended to facilitate the relationship does not outweigh the benefits, partnering ensues (e.g. Kirsner, Figueredo, & Jacobs, 2003). Importantly, trying to "mate up," or date individuals with a much higher mate value than one's own, would likely lead to limited success, while "mating down" may result in a less satisfying relationship. Thus, choosing a partner with a

roughly equivalent mate value is optimal for mating success (Kirsner, Figueredo, & Jacobs, 2003). Indeed, Sprecher (2001) found that perceived equity (i.e. perceived balance in the contributions that each partner brings to the relationship) was an important predictor of relationship satisfaction, commitment, and continuity. When partners perceived that they were under-benefiting from the exchange of resources in the relationship, including affection, social status, material goods, and knowledge, they reported being less satisfied and less committed to the relationship. Moreover, the extent to which women believed they were under-benefiting from the relationship predicted relationship termination six months later (Sprecher, 2001). Thus, couples in which partners bring equal value to the relationship may be more likely to survive and thrive than mismatched pairs.

Previous research has found support for both desiring partners with a similar mate value as one's own and assortative mating on the basis of that mate value. Kenrick, Groth, Trost, and Sadalla (1993) found a .47 and .49 correlation, for females and males respectively, between self-perceived own mate value and the mate value that they reported desiring in a steady dating partner. In this study, overall mate value was a composite rating of emotional stability, intellect, extraversion, agreeableness, family orientation, attractiveness, status, and dominance. Supporting assortative mating on the basis of mate value, Figueredo, Sefcek, and Jones (2006) asked college students to rate their own mate value and the mate value of their romantic partners and found a correlation of .27 between these constructs. Interestingly, this study found no significant correlations between ratings of self and romantic partners on the Big 5 personality traits, openness, conscientiousness, extraversion, agreeableness, and neuroticism. These empirically-derived traits are widely accepted as the five primary facets of personality, and the fact that partners were not correlated on these traits suggests that individuals may not be

assortatively mating on the basis of specific traits, but rather choosing mates that have a similar number of good qualities to bring to a relationship.

In addition to leading individuals to try to find mates with a similar "value" as their own, self-perceived mate value also affects the range of potential partners that an individual is willing to consider. Using a speed-dating paradigm, Back et al. (2011) found that higher self-perceived mate value was related to an individual's choosiness, or willingness to see *fewer* individuals from a speed-dating event for further dating contact. Presumably, having a higher perceived mate value allows an individual to be more discriminating, and perhaps have a higher threshold for acceptability of a partner, when deciding which romantic partners to pursue.

Given the research supporting the phenomenon of choosing mates on the basis of similarity of mate value, how can this apply to the mating decisions of individuals prone to depression? The cognitive model of depression proposes that depression is characterized by negative views of the self, the world, and the future (Beck, 1967). Especially in light of negative cognitive biases about the self, it follows that individuals with depressive tendencies may view their worth as a potential mate to be lower than it actually is. Lower self-perceived mate value is, in turn, expected to lead to the pursuit of potential partners that match this "deficit" in positive attributes. Several lines of research converge on this possibility. However, only one known study has directly examined the role of depressive symptoms in self-perceived mate value and the mate value of desired long-term partners. Utilizing a sample of 485 undergraduate students and structural equation modeling analytic techniques, Kirsner, Figueredo, and Jacobs (2003) found support for a model in which depressive symptoms predicted lower self-perceived mate value. Lower self-perceived mate value, in turn, predicted lower ratings of the hypothetical mate value that participants claimed to want in a long-term mate. The findings of this study provide

support for the detrimental effects of depression on processes relevant to mate selection, namely that depressed individuals may view themselves as having fewer qualities that are desirable in a mate and, in turn, have lower expectations for potential romantic partners.

Though not explicitly related to mate value, one study by Wenzel and Emerson (2003) found, in a laboratory paradigm, that socially anxious individuals were less likely than their non-anxious counterparts to want to pursue romance or sex with highly attractive targets and more likely to want to pursue romance or sex with the least attractive targets. Socially anxious individuals were also less likely to believe that targets in the medium to high range of attractiveness would be interested in them. The results of this study suggest that socially anxious individuals, and perhaps individuals with internalizing difficulties in general, that is higher levels of depressive and/or anxious symptoms, may choose to pursue less desirable partners, possibly due to of believing that they will seem less desirable as potential mates to others.

Self-Esteem. While there is clearly a gap in the literature regarding the role of depression in mate value and mate selection, there have been a handful of studies that have explored the role of a related construct: self-esteem. As low self-esteem has been demonstrated to be a predictor of major depression (e.g. Bernet, Ingram, & Johnson, 1993; Roberts & Kendler, 1999) and is listed in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR; American Psychiatric Association, 2000) as a symptom of dysthymic disorder, low self-esteem is clearly related to depressive symptoms. The literature on mate value and self-esteem suggests that self-esteem and perceived mate value are positively correlated. Brase and Guy (2004) found a correlation of $r = .35$ between these two constructs. Using a different measure of mate value, Penke and Denissen (2008) found correlations of $r = .53$ for women and $r = .61$ for men between mate value and self-esteem.

Low self-esteem, or self-worth, has also been found to play a role in the mate selection process. Using a lab paradigm in which participants were assessed for self-worth and asked to rate their likelihood of pursuing relationships with hypothetical individuals on a mock online dating site, representing a range of physical and social attractiveness, Taylor, Fiore, Mendelsohn, and Cheshire (2011) found that participants who were lower in self-worth were more likely than high self-worth participants to report a willingness to contact low desirability targets and less likely to contact high desirability targets. Importantly, participants' expectations of whether the target would respond favorably to their pursuits mediated the relationship between participants' self-worth and reported likelihood of contacting the target.

As a follow up to their first study, Taylor, Fiore, Mendelsohn, and Cheshire (2011) examined the role of self-worth in the mate selection process using an actual online dating website. The researchers found that women with the lowest self-worth were more likely than average to contact the most unpopular (as indicated by number of unique messages received by interested others) men on the website. In contrast, the women with the highest self-worth were less likely than average to contact the most unpopular men. Thus, women with low self-worth may seek to pursue less desirable men, perhaps to increase their self-predicted chances of finding a potential mate. An interesting additional finding of this study was that self-worth and popularity on the website were only correlated at $r = .11$ in this study. This suggests that women with low self-worth were not necessarily less desired by men on the website. Thus, in their decision to contact the most unpopular men on the website, these women may have, in fact, been underestimating their value as a potential mate.

Interpersonal Dependency. In addition to the clear importance of one's views of the self in the process of choosing a romantic partner, another factor that may play a role in the mate

selection process of depressed individuals is the view of oneself in relation to others, namely one's degree of perceived dependency on others. Previous research has demonstrated that interpersonal dependency, which has been measured by items such as "I would be completely lost if I didn't have someone special" and "I need to have one person who puts me above all others" (Hirschfield et al., 1977), is prospectively and concurrently linked to major depressive disorder (e.g. Sanathara, Gardner, Prescott, & Kendler, 2003). In relation to the mate selection process, one might postulate that individuals who are highly dependent on others may exhibit the same lack of choosiness found in individuals with low self-perceived mate value (Back et al., 2011); perhaps individuals who feel a strong need to be in a romantic relationship will be less discriminatory when choosing a romantic partner, especially if a partner conveys interest. Only one known study has examined the role of individual differences in the trait of interpersonal dependency on romantic partner choice. This study, conducted by Buss and Barnes (1986), found that individuals high on trait dependency stated a preference for mates who were kind and considerate. However, nothing is known about how these individuals act in situations where they are evaluating and selecting potential partners, perhaps especially in circumstances with limited available options.

Attachment. Thus far, we have discussed the ways in which self-appraisal (i.e. appraising one's own worth globally or as a romantic partner) and perceived dependency on others may play a role in the mate selection process of depressed individuals. It is likely, however, that there are also distal factors at play that may affect mate choice. According to attachment theory (Bowlby, 1969), the early relationship between a mother and her child is an important first introduction to the social world and sets the stage for future interpersonal relationships. Secure attachment occurs when a mother responds to her child in a warm and

nurturing way, and, in turn, the infant learns that he or she can depend on the mother both in times of need and as a secure base on which he or she can safely rely while exploring the novel world (Ainsworth, 1979). Insecure attachment occurs when a mother responds to a child's needs neglectfully, inconsistently, or abusively (Ainsworth, 1979). The child learns that the mother and, in turn, other people, are unreliable, untrustworthy, and, possibly, harmful. In addition to providing an internal working model of others (i.e. "there for me when I need them" or "not there for me when I need them"), attachment is also thought to contribute to an individual's internal working model of the self (i.e. "worthy of care and affection" or "unworthy of care and affection").

Research supports the notion that an individual's childhood attachment style significantly predicts attachment in future relationships. In a longitudinal study following children from infancy to adolescence, Hamilton (2000) found that individuals classified as insecurely attached during infancy tended to continue to be insecurely attached during adolescence. Findings from the Minnesota longitudinal study suggest that attachment in infancy is related to functioning in peer relationships throughout childhood and adolescence and functioning in intimate romantic relationships during adulthood (Sroufe, Coffino, & Carlson, 2010). Zayas, Mischel, Shoda, and Aber (2011), in a longitudinal study spanning over twenty years, found that the quality of maternal caregiving at eighteen months predicted comfort in relying on relationship partners and was inversely related to level of relationship-related anxiety during adulthood.

Unfortunately, there is also substantial evidence demonstrating that, in addition to negatively affecting interpersonal and romantic relationships, insecure attachment serves as a risk factor for depression in childhood (e.g. Abela et al., 2005), adolescence (e.g. Armsden, McCauley, Greenberg, Burke, & Mitchell, 1990; Lee & Hankin, 2009) and adulthood (e.g.

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Burnette, Davis, Green, Worthington, & Bradfield, 2009). Given this clear relationship, individuals prone to depression may be more likely than those who never experience depression to have negative internal working models of the self and others stemming from the early attachment relationship. In turn, without the clear model for what a healthy, supportive relationship should look like, it may be the case that individuals prone to depression are less likely than securely attached peers to know what to look for in a potential relationship partner. This could feasibly result in choosing partners who are less supportive and warm. Indeed, recent research conducted by Turan and Vicary (2010), using an online sample of over 9,000 individuals, examined the role of insecure attachment on judgments about unsupportive and supportive partners. Subjects were asked to read and participate in an interactive story with a hypothetical romantic partner who was scripted to be either supportive or unsupportive. At the end of the story, participants were asked to rate their level of satisfaction with the partner in the story. While mean ratings demonstrated an overall pattern of less satisfaction with the unsupportive than supportive partner, findings revealed an interaction effect such that individuals with high levels of anxious attachment showed a smaller mean difference in satisfaction between the unsupportive and supportive partner compared to individuals who scored low on attachment anxiety. In other words, individuals with an anxious attachment style seemed to be less attuned to or affected by differences between unsupportive and supportive partners.

Interestingly, Turan and colleagues (e.g. Turan & Horowitz, 2007; Turan & Vicary, 2010; Turan, 2010) have identified and validated another construct related to attachment that is likely relevant when assessing and choosing romantic partners: knowledge of indicators of supportiveness. These researchers have found variation in the extent to which individuals are able to discriminate between a good indicator that a partner will be supportive (e.g. "asks you if

you're OK when getting the feeling that you're not") and a poor indicator of partner's supportiveness (e.g. "is outgoing"). Ability to discern between good and bad indicators of supportiveness was found to positively correlate with ability to identify attachment-related interactions (e.g. one individual providing comfort to another) in ambiguous stimuli and negatively correlate with self-reported attachment avoidance. Performance on this task also predicted higher satisfaction with a supportive partner and lower satisfaction with an unsupportive partner in the aforementioned study. Given the likely connection between this knowledge-based construct, attachment, and processes related to choosing and evaluating potential romantic partners, it is possible that both insecure attachment and deficits in knowledge about positive relationships may be at play in a putative link between depression history and choosing problematic romantic partners.

Life History Strategies. Another distal factor that may be at play in the decision to mate with "riskier" partners is the safety and stability of one's childhood home environment. One evolutionary theory, life history theory, proposes that the early environment is crucial in one's decisions regarding reproduction. Life history theory rests on the assumption that all individuals of mating age must make decisions regarding when and how they will reproduce. The ultimate choice is whether to allocate resources towards current reproduction by quickly seeking reproductive mates or to allocate resources towards personal growth and improvement (e.g. getting an education), presumably, according to evolutionary theory, for the sake of improving one's chances at future reproductive success. Choosing to forego self-enhancement in order to reproduce quickly is considered to be a faster life history strategy, while holding off on reproduction in the hopes that one can build his or her "capital" to improve reproductive success in the future is known as a slower life history strategy. Within this framework, the ultimate goal

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of all organisms, regardless of reproductive strategy, is to improve one's chances of successfully propagating one's genes to survive into future generations. (See Kaplan & Gangestad, 2005 for an overview.)

According to life history theory, one's life history strategy is determined by the quality of one's early environment. Harsh and unpredictable environments are theorized to convey the message to young individuals that the world and the future are likely equally harsh and unpredictable, therefore it is necessary for one to propagate his or her genes immediately before it may be too late. Children in these environments, in turn, are expected to adopt fast life history strategies. In contrast, children who grow up in stable and nurturing environments are expected to feel less immediacy to make reproductive decisions and, instead, adopt slower life history strategies (Kaplan & Gangestad, 2005; Simpson & Belsky, 2008).

Empirical investigation of these theories has borne out these predictions. Simpson and colleagues (2012) found that individuals who experienced greater unpredictability and change in their environments before age five had more sexual partners by age twenty-three. Belsky, Schlomer, and Ellis (2012) found that unpredictability in childhood predicted number of sexual partners prior to age fifteen. One specific type of instability, marital separation, occurring in early childhood, has been linked to earlier age of first sexual intercourse and first pregnancy as well as number of sexual partners (Quinlan, 2003). Notably, this effect held even controlling for socioeconomic status. As for harshness, a multitude of research has found an inverse relationship between neighborhood rates of early mortality or violent crime and average or median age of women giving birth (e.g. Wilson & Daley, 1997).

Life history theory may be related to romantic partner choice to the extent that individuals with faster life history strategies may be less concerned with traits conducive to a

long-term romantic relationship and more concerned with traits consistent with short-term sexual relationships. Indeed, research conducted by Simpson and Gangestad (1992) found that individuals who more freely engage in sexual relationships in the absence of a committed relationship (known in the literature as having an unrestricted sociosexual orientation), when given a list of traits that a hypothetical romantic partner could possess, were less interested in the qualities of "kindness," "faithfulness and loyalty," and "qualities of a good parent." Among females, though not males, interest in short-term sexual relationships was also inversely correlated with desire for "stable personality" in a romantic partner. In a separate study of romantic couples, Simpson and Gangestad (1992) found that having a more unrestricted sociosexual orientation was predictive of having a romantic partner who reported lower levels of responsibility, faithfulness, and affection.

A more recent study by Durante, Griskevicius, Simpson, Cantú, and Li (2012) explored the evaluation of potential romantic partners as a function of both ovulation and age of menarche. Notably, undergoing menarche at an early age is considered to be a biological marker of a faster life history strategy and has been linked to related behaviors, including higher levels of sexual activity during the adolescent years (e.g. Flannery, Rowe, & Gulley, 1993). This study found that women who had first experienced menarche at an earlier age, compared to women with later-onset puberty, were more likely, during ovulation, to believe that a potential romantic partner with traits like social dominance, adventurousness, and charisma (designed to reflect masculine traits more indicative of short-term than long-term mating styles) would be a committed husband and father. Such research suggests that individuals with faster life history strategies may be more interested in potential romantic partners who are less conducive to stable, supportive, healthy relationships, especially during times of heightened sexual interest.

Life history strategies may be related to depression history to the extent that depressive symptomatology and episodes have been linked to biological and behavioral indicators of faster life history strategies, such as earlier onset of menarche (e.g. Graber, Seeley, Brooks-Gunn, & Lewinsohn, 2004), earlier onset of sexual intercourse (e.g. Rink, Tricker, & Harvey, 2007), having a greater number of sexual partners during adolescence (e.g. Ethier et al., 2006), teenage pregnancy (e.g. Hammen, Brennan, & LeBrocque, 2011), and earlier age of marriage (e.g. Gotlib, Lewinsohn, & Seeley, 1998). Furthermore, strong evidence suggests that early adversity, a predictor of life history strategies, is also a predictor of the onset of clinically significant depression (e.g. Hazel, Hammen, Brennan, & Najman, 2008; Klein et al., 2009). Thus, it may be the case that individuals with a history of depression also tend to engage in faster life history strategies and value traits relevant to short-term mating at the expense of traits conducive to long-term partnerships. This may play a role in explaining why depressed women may end up with riskier, less stable partners.

Research related to the aforementioned risk factors (mate value, self-esteem, interpersonal dependency, attachment, and life history strategy) illuminate the likelihood that proneness to depression, given its relationship to such factors, may increase risk for choosing a romantic partner that may not be well-suited for a long-term, supportive, healthy relationship. In addition to exploring the direct effect of depression on romantic partner choice and the role this plays in the cycle of stress and depression, the proposed study seeks to explore indirect pathways through which depression confers risk for dysfunctional mate selection via individual difference factors such as self-esteem, perceived mate value, interpersonal dependency, attachment style, knowledge of indicators of supportiveness, and sociosexual orientation as well as more distal risk

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factors such as parent-child relationship quality and unpredictability and harshness in the childhood home environment.

Methodology: Strengths and Limitations

Previous research has utilized various methodologies to study the mate selection process. In laboratory settings, studies have tended to include lab paradigms in which individuals identify desired traits in romantic partners or rate hypothetical partner profiles. From more naturalistic settings, researchers have examined data from speed-dating events and online dating websites. Researchers have also administered interviews and questionnaires to partners already in romantic relationships to explore questions related to assortative mating and social exchange.

Studies in which researchers have used data from both partners already in a romantic relationship have been beneficial in that researchers are able to directly address the question of who mates with whom. The primary limitation of this research has been the difficulty in parsing apart the direction of causation: do depressed individuals tend to mate with other individuals with depression or other psychopathology, or does depression and psychopathology in a partner contribute to one's own depression? Studies attempting to disentangle these possibilities have yielded support for both phenomena. Some researchers have found that concordance in partner mental health increases over time, as romantic relationship duration increases (e.g. Butterworth & Rodgers, 2005). Others found that many onsets of major depressive disorder in couples occurred after marriage, suggesting that concordance may be a function of shared life stressors or dissatisfaction (e.g. Maes et al., 1998). Others, however, have found that relationship duration was unrelated to similarity in depressive symptoms among partners and that one partner's depressive symptoms at one point did not predict changes in the other partner's depressive symptoms over time (e.g. Segrin, 2004). Furthermore, some studies have found that husbands of

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depressed women tend to have a family history of psychopathology, suggesting pre-existing risk for the disorder (not simply disorder resulting from marital difficulties) among spouses of depressed women (e.g. Merikangas, Weissman, Prusoff, & John, 1988). As with many psychological phenomena, it may be the case that both hypotheses are true; partners choose others who are similar to themselves in terms of psychopathology, and psychopathology in one partner affects the other partner over time.

Another limitation of this type of research is the fact that many variables are at play when individuals select and couple with partners in the real world. Coupling may occur through one's social circle, place of work, or frequented establishments. Decisions to maintain or terminate a relationship may be influenced by peers, family members, or even logistical factors. For these reasons, an individual's current partner may not best represent whom an individual would choose in the absence of external pressures. Thus, these designs may prove ineffective at identifying factors that exert their effects during the evaluative or decision-making phases of the mating process. Despite these limitations, the method of directly assessing individuals and their partners has provided important information about the actual partners of depressed individuals.

Speed-dating paradigms have been widely popular recently in the study of mate selection processes, especially because they are able to closely examine the process of initially evaluating and choosing a potential mate in a setting that exists naturally in the world. This method has involved collecting data at heterosexual speed-dating events in which each woman at the event meets each man at the event for a finite period of time. At the end of each interaction, individuals are asked whether they would be interested in going on additional dates with the person they just met. The number of participants present at each speed-dating event has tended to range from about fourteen to twenty-six, leading to between seven and thirteen "dates" per

person (Back et al., 2011; Eastwick & Finkel, 2008; Luo & Zhang, 2009). Researchers have tended to administer additional self-report measures to each individual at the event to further study the individual differences that are playing a role in the mate selection process. The strength of this approach is that it provides researchers the ability to study the mate selection process as it occurs in a controlled environment in which participants are also incentivized by the prospect of a potential partner. One concern, however, is that the evidence suggests that speed-dating events are not highly likely to lead to long-term romantic relationships; one study found that only four percent of speed daters developed a long-term relationship with someone they had met at the event (Asendorpf, Penke, & Back, 2011).

Laboratory analog studies have tended to take two forms. Participants have either been asked to report on what they are looking for in a desired partner or to view profiles of hypothetical romantic partners and rate their level of interest in these individuals based on their profiles. When asked to report on desired partner traits, participants have been asked to do tasks such as fill out a personality inventory for how their ideal partner would answer these items (Figueredo, Sefcek, & Jones, 2006), complete a measure of mate value for an ideal partner (e.g. Kirsner, Figueredo, & Jacobs, 2003), or assign percentiles for a list of characteristics (e.g. 90th percentile of intelligence) for their ideal partner (e.g. Edlund & Sagarin, 2010). The second type of lab paradigm involves viewing hypothetical partner profiles and rating the likelihood of choosing to pursue a relationship with each individual. Such designs have typically manipulated the hypothetical profiles to include individuals with low, medium, and high levels of physical attractiveness as well as low to high levels of social status/earning potential (e.g. Landolt, Lalumiere, & Quinsey, 1995; Taylor, Fiore, Mendelsohn, & Cheshire, 2011; Wenzel & Emerson, 2009). A few studies employed a similar design, manipulating the target to be either "depressed"

or "non-depressed" (e.g. Rosenblatt & Greenberg, 1988). (Interestingly, findings from Rosenblatt and Greenberg (1988) revealed that while non-depressed participants preferred the non-depressed targets, depressed participants did not display this preference.) Importantly, few known studies have attempted to study mate preferences using a lab paradigm with manipulations of personality characteristics. One notable exception was the study by Durante and colleagues (2012) in which participants made ratings of videotaped men portraying characteristics of either a stable, committed, albeit dull partner or a dominant, charismatic, exciting partner.

A major criticism of the hypothetical profile paradigm is the possibility that individuals' evaluations of hypothetical profiles may not reflect evaluations of potential partners met during actual in-person interactions. Some previous research has supported this point. For example, Eastwick, Finkel, and Eagly (2011) found that, when presented with a paper profile of a potential partner, individuals indicated greater romantic interest to the extent that the profile matched their ideals for a partner. In contrast, individuals' ideals were not related to romantic interest in the partner once they met him in person. This study calls into question the ecological validity of lab paradigms that utilize hypothetical partner profiles. Similar results have been found when comparing stated preferences and characteristics of mates chosen at speed-dating events (Eastwick & Finkel, 2008; Todd, Penke, Fasolo, & Lenton, 2007). Such findings suggest that individuals may have ideas about the qualities that they want in a romantic partner or have predictions about how they would respond to a hypothetical romantic partner, but may not behave consistently with these ideas or predictions in actual dyadic dating scenarios.

However, with the increase in use of online dating, profiles are increasingly becoming an important part of the dating process. Individuals looking for romantic partners online must first

evaluate the demographic and personality information presented in profile format before determining willingness to date that individual. Thus, even if individuals eventually decide not to date an individual after meeting them in person, profiles serve as an important first step in screening and evaluating potential partners in real world settings. In fact, Heino, Ellison, and Gibbs (2010), through interviews with online dating users, found that the online dating space may particularly embody the social exchange theory of relationship formation given that its users tend to adopt a perspective of the online dating experience as similar to a marketplace in which they can "shop" for a perfect partner. Indeed, studies are now employing online dating websites to study partner preferences and mate selection on the basis of profiles in a naturalistic way (e.g. Hitsch, Hortacsu, & Ariely, 2010; Lee, Loewenstein, Ariely, Hong, & Young, 2008; Taylor et al, 2011). Thus, it is possible that with the increase in efforts to find and meet partners online, the ecological validity of considering potential mates on the basis of computer profiles has become stronger in the modern era. The current study seeks to explore mate selection in depressed individuals by employing multiple methods: 1) self-report questionnaires administered to young adults and their actual romantic partners and 2) a lab paradigm utilizing hypothetical computer profiles designed to simulate the online dating experience.

Why Does Mate Selection Matter?

Choosing a romantic partner with whom to have a long-term, committed relationship is a significant step in the transition to adulthood. As mentioned previously, having supportive relationships with close others can play a significant role in preventing or buffering depressive symptoms and episodes, while being involved in conflictual, stressful, unsatisfying relationships can promote negative mental health outcomes. Partner internalizing symptoms may contribute to such relationship discord via problems such as social withdrawal, limited problem solving

capacity, negative mood, low enjoyment, irritability, and excessive reassurance-seeking (Beach, Dreifuss, Franklin, Kamen, & Gabriel, 2008). Partners with high levels of externalizing symptoms, such as aggressive behavior, may channel this aggression into the romantic relationship. Finally, personality pathology, such as Cluster A symptoms or antisocial personality disorder, has been shown to positively correlate with chronic romantic relationship stress and relationship conflict, and inversely relate to partner romantic relationship satisfaction (Andrews, Foster, Capaldi, & Hops, 2000; Daley, Burge, & Hammen, 2000; Woodward, Fergusson, & Horwood, 2002). Thus, individuals who self-select into relationship contexts with such partners may find themselves in relationships marked by limited closeness, stress, aggressive conflict, and dissatisfaction. Unfortunately for individuals already at risk for depression, this could create a cycle of depression and stress that may then, given the detrimental effects of maternal depression (e.g. Goodman et al., 2011), perpetuate into future generations of offspring. By learning more about the predictors of selecting potentially dysfunctional romantic partners, it may be possible to understand who is at increased risk for self-selecting into stressful, depressogenic context and to design specific interventions that address romantic partner choice for individuals, perhaps especially women, transitioning into adulthood.

Project Overview

The purpose of the current project is to explore the romantic partner choices of individuals with a history of depression. Of particular interest are the psychiatric and personality profiles of the romantic partners of individuals with a history of depression compared to those without such a history. As noted above, previous research suggests that individuals with a history of depression may tend to partner with other individuals with depression, as well as those with related internalizing disorders (e.g. generalized anxiety disorder; Maes et al., 1998), disorders marked by externalizing psychopathology (e.g. substance abuse, Maes et al., 1998), or personality pathology (e.g. Galbaud du Fort et al., 1997; Daley & Hammen, 2002). The first study will seek to confirm that depression confers risk for partnering with individuals with higher levels of internalizing, externalizing, and personality psychopathology in a community sample of individuals followed from birth to age twenty. The second study, utilizing a laboratory paradigm, will explore whether individuals with a depression history are more likely to endorse a willingness to date potential romantic partners who present with characteristics indicative of elevated levels of personality pathology that are especially indicative of poor provision of emotional support and aggressive conflict within relationships, in this case, characteristics of antisocial personality disorder. While the first study utilizes methodology consistent with previous research (i.e. comparing self-report and diagnostic information of already partnered individuals), the second study uses novel methodology to determine whether differences between previously depressed and never-depressed individuals occur at the point of evaluating potential romantic partners. By examining differences in initial willingness to date potentially problematic romantic partners, we can identify whether individuals prone to depression may be actively choosing suboptimal partners despite warning signs. Given that choosing such partners may be

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influenced by available options, study 2 will also seek to explore whether ever-depressed and never-depressed individuals differentially endorse a willingness to date a potentially problematic partner when given information that this person has expressed interest in dating them.

Unfortunately, though previous research has illuminated a possible main effect of depression history on the selection of partners with depression and other forms of psychopathology, the literature, though ripe with relevant theory, has failed to empirically examine two important lines of questioning related to this tendency. Firstly, why are individuals with depression histories choosing these partners? What correlated risk factors may make a depressed individual more likely to choose a partner with higher rates of psychiatric symptomatology or problematic personality traits? Pulling from life history theory, attachment theory, mate value theory, literature on the relationship between depression and interpersonal dependency, and a handful of studies on knowledge of indicators of supportiveness, we will seek to explore how both distal factors (Study 1) and related individual differences (Study 2) may serve as mechanisms in an individual's willingness to date "risky" partners. Secondly, though theoretically discussed in previous literature (Hammen, 2005), no known studies have sought to explore the role of mate choice in the stress generation process and the cycle of stress and depression. Study 1 will seek to explore how partner psychopathology and personality pathology may contribute to chronic and acute relationship stress and depressive symptoms and play a role in the perpetuation of the cycle of stress and depression. This project aims to shed light on these important questions about the role of depression in the mate selection process.

Study 1: The Romantic Partners of Depressed Youth: Partner Characteristics and The Role They

Play in the Cycle of Stress and Depression

Past evidence suggests that individuals with a history of depression may tend to partner with individuals with elevated rates of internalizing, externalizing, and personality difficulties (Daley & Hammen, 2002; Galbaud du Fort et al., 1998; Maes et al., 1998; Mathews & Reus, 2001; Segrin, 2004; van Grootheest et al., 2008). The primary objective of Study 1 is to replicate these findings in a community sample of 20-year-olds with elevated risk for depression and their romantic partners.

This study also aims to identify the role of romantic partner characteristics in the stress generation process. Stress generation, a term coined by Hammen in 1991, refers to the tendency for individuals with a history of depression to create stress in their lives, even after depression remits, largely of an interpersonal nature. The discovery of stress generation was novel as it illuminated that individuals prone to depression are not simply passive recipients of stressful life circumstances, but rather active participants in the creation and maintenance of these stressors. Given findings supporting stress generation in individuals with a history of depression (reviewed in Liu & Alloy, 2010), it is plausible that pairing with romantic partners who also exhibit stress-generating psychopathology and characteristics may exacerbate an individual's own risk for chronic and acute stress. In this way, choosing a partner with such traits and symptoms may amplify the stress generation process. Further compounding problems for a previously depressed individual, literature suggests that lack of partner support and presence of relationship conflict is predictive of later depressive symptoms, even controlling for initial depression (e.g. Horwitz, McLaughlin, & White, 1998). Thus, partner characteristics that may lead to difficulties within the relationship and fail to provide protective buffers against stress (i.e. support) may also lead to

increased depressive symptoms over and above initial depression. The possibility that partner characteristics moderate the relationship between past depression and stress and prospectively predict depressive symptoms will be evaluated in the proposed study.

This study will also expand upon existing literature by addressing possible distal factors that may contribute to self-selection into relationships with partners who have elevated rates of psychopathology. According to attachment theory, the mother-child relationship plays an important role in shaping an individual's understanding of and expectations for close relationships. Thus, it is no surprise that difficulties in the parent-child relationship during childhood and adolescence are predictive of similar difficulties within romantic relationships during adolescence and adulthood, while nurturing, supportive parent-child relationships are predictive of supportive, healthy romantic relationships (Cui, Durtschi, Donnellan, Lorenz, & Conger, 2010; Donnellan, Larsen-Rife, and Conger, 2005; Furman, Simon, Shaffer, & Bouchey, 2002). Yet to be explored is whether problematic parent-child relationships, marked by conflict and lack of closeness, are also predictive of choosing partners who embody such behaviors, through, for example, aggressive, externalizing behaviors or limited provision of support related to personality pathology. As parent-child attachment is related to depression in childhood and adolescence (Abela et al., 2005; Armsden et al., 1990; Lee & Hankin, 2009), the current study will explore the parent-child relationship as a possible mechanism through which depression history operates on dysfunctional partner selection.

By a similar token, the cognitions about the self and others and interpersonal patterns resulting from the parent-child relationship (i.e., attachment style) may directly influence the type of partners chosen by individuals. Previous research has found that insecurely attached individuals may be less discriminatory when evaluating supportive versus unsupportive partners

(i.e., Turan & Vicary, 2010). Thus, in addition to exploring the influence of parent-child relationship quality on romantic partner choice, the current study will also seek to examine whether self-reported attachment style plays a mediating role in the relationship between depression and choosing romantic partners with higher levels of Axis I and Axis II pathology.

In addition to the possible role played by parent-child relationship quality and attachment style, other factors related to a child's upbringing might also contribute to choosing partners who exhibit high levels of psychopathology. Specifically, harshness (i.e. low socioeconomic status, violence) and unpredictability (i.e. divorce, relocation) of the childhood home environment have been related, in previous research, to faster life history strategies, as indicated by engagement in shorter-term, casual sexual relationships (e.g. Simpson et al., 2012). This phenomenon has been explained by the life history model, because experiencing harshness and unpredictability leads to an awareness of the possibility of a foreshortened future and its implications that mating, and the propagation of one's genes, must occur soon if it is to occur at all. These faster life history strategies have been linked to less interest in partner traits characteristic of stability and long-term commitment (Simpson & Gangestad, 1992), and it may be the case that childhood harshness and unpredictability are also related to coupling with partners with psychopathology. The current study will explore this possibility. By examining the psychopathology and personality pathology of partners of depressed individuals, the mechanisms of the relationship between depression history and partner characteristics, and the role of partner pathology in the stress generation process, the current study aims to replicate and further illuminate findings about the partner choices of depressed individuals. Additionally, though no a priori hypotheses will be made regarding gender differences in each of these predicted relationships, the fact that there is evidence for gender differences in risk for depression (Nolen-Hoeksema, 2001) and stress

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generation (see Liu & Alloy, 2010) warrants evaluation of possible gender moderation in study analyses.

Hypotheses

1. Past depressive episodes and symptoms will predict coupling with romantic partners with higher levels of internalizing symptoms

2. Past depressive episodes and symptoms will predict coupling with romantic partners with higher levels of externalizing symptoms.

3. Past depressive episodes and symptoms will predict coupling with partners with higher rates of personality pathology.

4. Harshness in the childhood home environment, unpredictability in the childhood home environment, attachment security, and poor mother-child relationship quality will serve to explain, at least partially, the relationship between depression history and choosing "disordered" partners.

5. Internalizing symptoms, externalizing symptoms, and personality pathology among romantic partners are expected to moderate the relationship between depression history and romantic relationship stress, such that elevated levels of psychopathology among romantic partners strengthens the relationship between depression history and both chronic and acute romantic relationship stress.

6. Partner symptoms, as well as chronic and acute romantic relationship stress, are expected to prospectively predict depressive symptoms, in this case two to five years later. Partner psychopathology will also exert an indirect effect on later depressive symptomatology via relationship stress.

Method

Participants

This study includes a sample of 252 (57.5% female, 42.5% male) individuals who were part of a larger birth cohort study, the Mater-University of Queensland Study of Pregnancy (MUSP; Keeping et al., 1989), and who had romantic partners at age 20 who were willing to participate in the research. The MUSP study, conducted in Queensland, Australia, was designed to examine how conditions during pregnancy relate to children's cognitive, psychological, behavioral, and health-related development in early childhood. Of the more than 7,000 mother-child pairs included in the original study, 815 were selected for follow up at youth age 15. This subsample was selected to include an overrepresentation of maternal depression, based on the depression scale from the Delusions-Symptoms-States Inventory (DDSI; Bedford & Foulds, 1978) completed by mothers at pregnancy and three times before youth age 5. 68% of the mothers in this sample endorsed some depressive symptoms during that time frame, while 11% reported severe depressive symptoms at several time points prior to youth age 5. The original sample of 815 families was largely Caucasian (92%) and primarily of lower to lower-middle socioeconomic status.

Of these 815 mother-child pairs, 706 (87% of the sample) were retained for follow up at youth age 20. Attrition was largely due to refusal to participate or failure to be located or scheduled. At age 20, youth who were involved in romantic relationships were asked to involve their romantic partner in study participation. 375 youth (53% of age 20 sample) reported being involved in a romantic relationship. However, only 252 of these participants included their romantic partners in study participation. Of these 252 partner pairs, 12 (4.8%) were married and 124 (49.2%) reported living together. The average relationship duration was two years.

Compared to the original sample of 815 families, the sample that was used in the current study was no different in terms of youth depression history or maternal depression history. The current sample also did not differ on these depression variables from individuals who reported being in romantic relationships but whose partners did not participate in the study. However, individuals whose romantic partners participated, compared to participants without participating partners, tended to report longer relationship duration (25 months vs. 19 months) and were also significantly more likely to be living with their partner. Thus, the romantic relationships in the proposed study may be more committed than the average relationship of a 20-year-old.

Procedures

At ages 15 and 20, participants and their mothers completed assessments consisting of interviews and questionnaires. At the age 20 interview, the participants involved in romantic relationships were asked to invite their partners to complete self-report questionnaires, as well as questionnaires about the participant. Participants who did not have romantic partners or who did not want to invite their romantic partners to participate were asked to invite their best friend to complete the questionnaires. Interviews were conducted in the participants' homes or other locations convenient for the participants and the interviewer. Graduate students in psychology were trained to conduct and reliably score these interviews. Participants all gave informed consent, or assent in the case of minors, and the relevant institutional review/ethics panels approved the research protocols.

A subsample of study participants were followed up again at ages 22 to 25, primarily for collection of genetic data. Relevant to the current study, participants were also administered the Beck Depression Inventory at that time point to assess current depressive symptoms.

Measures

Depression diagnostic history. Depression history was assessed at the age 15 and age

20 interviews. At age 15, participants and their mothers were administered the *Schedule for*

Affective Disorders and Schizophrenia for School-age Children, Present and Lifetime Version

(K-SADS-PL; Kaufman et al., 1997) to assess for youth's history of major depressive disorder.

The K-SADS-PL is a well-validated and reliable semi-structured diagnostic interview, which

covers the DSM-IV criteria for current and lifetime child psychopathology. Diagnostic decisions

were ultimately made by an independent clinical rating team who incorporated both mother's

and child's reports. Weighted kappas for current depressive disorders were .82, and .73 for past

depressive disorders. 28 (11.1%) participants in the current sample met diagnostic criteria for a

major depressive episode prior to age 15.

At age 20, participants were administered the *Structured Clinical Interview for DSM-IV*

(SCID-IV; First, Spitzer, Gibbon, & Williams, 1995) to assess for major depressive episodes

since age 15. Independent judges' ratings' of 55 (8% of retained sample) audiotaped interviews

indicated strong inter-rater reliability for current diagnostic status (weighted kappa = 0.83) and

past major depressive episodes (weighted kappa = 0.89). As with age 15 past and current

diagnoses, principal investigators resolved disagreements among raters based on all available

information. 57 (22.6%) participants in the current sample met diagnostic criteria for a major

depressive episode between ages 15 and 20.

Depressive symptoms. All participants were administered the Beck Depression

Inventory (BDI-II; Beck, Steer, & Brown, 1996) at ages 15 and 20. 178 (71%) participants also

completed the BDI-II one time between ages 22 and 25 when asked to provide a blood sample

for a follow-up genetics study. The BDI-II is a 21-item self-report measure of current depressive

symptomatology. Participants are asked to endorse the extent to which they have experienced

various changes in mood, appetite, sleep, worthlessness, and other symptoms during the past two weeks. This self-report measure has been widely used and well validated.

Romantic relationship stress. At age 20, participants were administered the UCLA Life Stress Interview (LSI; Hammen et al., 1987). This semi-structured interview assesses chronic stress in various domains, including family relationships, finances, work, and romantic relationships, as well as stressful acute events that took place during the past twelve months. Relevant to this study, the romantic relationship domain assesses for chronic stress within an individual's romantic relationship by querying about frequency and severity of conflicts, conflict resolution, relationship stability, level of trust, emotional closeness, and other aspects of romantic relationship functioning. Trained interviewers rate an interviewee's level of romantic relationship stress on behaviorally-specific anchors indicating severity scaled from 1 to 5, with 1 reflecting no to minimal relationship stress (i.e. exceptionally close, confiding, stable relationship with minimal conflict) and 5 reflecting severe, chronic relationship stress (i.e. abusive relationship). Interrater reliability was assessed by comparing ratings of independent raters, and the intraclass correlation for the romantic relationship stress domain was 0.84.

To assess for acute events, participants are queried about any negative events, incidents, or changes that took place during the past twelve months. Sample events include romantic relationship break-ups, deaths of family members, or major arguments with a close friend or family member. Interviewers obtain information relevant to the objective stressfulness of the event, including the surrounding circumstances of the event, whether the event was expected or unexpected, major consequences of the event, and whether adequate resources and support were available to effectively cope with the event. Interviewers record this information, provide a code related to event type (e.g. romantic relationship break-up, major accident, etc.), and then present

the event, along with contextual information obtained during the interview, to a team of trained raters. The independent rating team then considers all information provided by the participant about the event, without knowledge of the individual's actual reaction to the event, and rates the objective stressfulness of the event on a scale from 1 to 5 (ranging from mild stressfulness to severe stressfulness). Adequate inter-rater reliability was found when comparing acute stress ratings of independent rating teams (intraclass correlation = 0.84). For the purposes of this study, ratings of only romantic acute events were summed. Participants with scores at 2.5 or above were considered to have significant acute stress, while those below this cutoff were not. 2.5 was chosen as the cutoff as it is reflective of at least two minor stressors or one moderate stressor, indicative of non-negligible romantic stress. This was included as a binary variable in the current study. Rationale for including acute romantic stress as a binary variable was based on the sizeable positive skewness of the data, with 64.9% of the sample scoring a 0 on this measure, and 82.9% scoring 2 or lower.

Partner internalizing and externalizing symptoms. Romantic partners completed the Young Adult Self-Report (YASR; Achenbach, 1991) to assess for internalizing and externalizing symptoms. This self-report measure includes 116 items pertaining to behaviors and symptoms. Each item is endorsed on a scale from 0 to 2, with 0 indicating that the individual never exhibits the behavior or experiences the symptom and 2 indicating that the individual often exhibits the behavior or experiences the symptom. Raw scores were used in study analyses. The YASR includes 8 syndrome scales: Anxious/Depressed, Withdrawn, Intrusive Behavior, Aggressive Behavior, Delinquent Behavior, Somatic Complaints, Thought Problems, and Attention Problems. Relevant to the current study, the Anxious/Depressed and Withdrawn scales were summed to create a broadband Internalizing scale, while the Intrusive Behavior, Aggressive

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Behavior, and Delinquent Behavior scales were summed to create a broadband Externalizing scale. The YASR is widely used and has demonstrated good reliability and validity (Achenbach, 1997).

Partner personality pathology. Romantic partners were also administered the Personality Diagnostic Questionnaire (PDQ-4+; Hyler, 1994). The PDQ-4+ is a self-report measure that assesses for personality traits that are consistent with Axis II psychopathology. The measure includes twelve scales, reflecting each of the ten personality disorders included in the DSM-IV-TR: paranoid, schizoid, schizotypal, histrionic, narcissistic, borderline, antisocial, avoidant, dependent, and obsessive-compulsive plus two additional scales (negativistic and depressive) reflecting former personality disorders that were moved to the appendix in DSM-IV. For the purposes of the current study, only items that mapped onto the ten DSM-IV personality disorders were included in study analyses. Each item of the PDQ-4+ can be endorsed with either a 0 (false) or a 1 (true). Sample items include "I've been in trouble with the law several times (or would have been if I had been caught)," from the antisocial PD subscale, and "I have accomplished far more than others give me credit for," from the narcissistic PD subscale. Both the composite score of the 10 DSM-IV-TR personality disorder subscales and composite scores for the traditional subcategories of personality disorders—Cluster A (paranoid, schizoid, schizotypal), Cluster B (histrionic, narcissistic, borderline, antisocial), and Cluster C (avoidant, dependent, obsessive-compulsive)—were used for study analyses. Means and standard deviations for these variables, as well as correlations with other variables, are included in Table 1.

Previous studies have reported significant, though at times modest, agreement between the PDQ-4+ and other diagnostic measures of personality disorders, such as the SCID-II

(Davison, Leese, & Taylor, 2001; Fossati et al., 1998; Bouvard, Vuachet, & Marchand, 2011).

Previous research has also found high internal consistency for the continuous total scale score

(e.g. kappa = 0.87; McHoskey, 2001). This measure also includes two validity scales ("too

good" and "suspect") with items such as "I have never told a lie" and "I have lied a lot on this

questionnaire" that can be used to eliminate cases in which participants may be misrepresenting

themselves.

Mother-child relationship quality. Mother-child relationship quality at age 15 was

assessed as a latent factor with three separate measures as indicators: youth-reported chronic

stress in family relationships, mother-reported chronic stress in the mother-child relationship,

and youth report of mother's psychologically controlling behavior. The first two of these

indicators were assessed using the Life Stress Interview, administered separately to mother and

child. Intraclass correlations of agreement among raters were 0.84 for youth-reported family

relationships and 0.82 for mother-reported relationship with youth.

Maternal controlling behavior was assessed using the Psychological Control scale of the

revised Children's Report of Parental Behavior Inventory (CRPBI; Schludermann &

Schludermann, 1988). Items include maternal controlling behaviors such as "tells me all of the

things she has done for me." The CRPBI has demonstrated good reliability and validity (e.g.,

Safford, Alloy, & Pieracci, 2007).

Attachment style. At age 15, participants completed a questionnaire by Bartholomew

and Horowitz (1991) that assesses self-reported alignment with four attachment prototypes:

Secure (comfortable being close to, counting on others, and being counted on, not bothered by

being alone), Dismissing (do not need to be close to others, important to take care of self, prefer

not to count on others or be counted on), Preoccupied (want to be closer to others than they

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would like, uncomfortable not being close for others, worry about extent of others' care for

them), and Fearful (uncomfortable getting close to others, difficult trusting others, worried about

being hurt by others). For each prototype, participants rated the similarity of each to their own

views on a scale from 1 (not at all like me) to 7 (very much like me). Scores on this measure

have been found in previous research to significantly predict relationship functioning (i.e.,

Carnelley, Pietromonaco, & Jaffe, 1994).

Harshness of childhood home environment. Harshness of the childhood home

environment was assessed as a count of participants' answers to yes/no questions about

childhood experiences up to age 15 including death of father or sibling, past serious illness or

accident, family member's serious illness or accident, physical abuse, and experience as a victim

of violence. One point was added to this measure if annual family income was AU$25,000 or

less (lowest 30% of subsample).

Unpredictability of childhood home environment. Unpredictability was assessed by a

count of the significant changes experienced during childhood and adolescence. Questions,

asked of participants or their mothers at youth age 15, included, for participants, "Did your

parents get divorced or separated?" and, for mothers, "Do you have a different partner than the

father of your child?" and "Has your child lived with someone other than you?"

<div align="center">

Results

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Predictors of Partner Internalizing Symptoms

Descriptive statistics and bivariate correlations among all observed variables are

presented in Table 1. The first hypothesis that was evaluated was the prediction that individuals

with previous depressive symptoms would have partners with elevated levels of internalizing

symptoms. This hypothesis was evaluated using a linear regression model, controlling for

gender, with depressive symptoms at age 15 as the independent variable and partner internalizing symptoms as the outcome variable. Analysis revealed no significant prediction of partner internalizing symptoms by age 15 depressive symptoms (ß = .07, SE = .08, t = 1.04, p = .30).

Next, two separate models were run to examine the role of depression history on partner's level of internalizing symptoms: one with early-onset depressive episodes as the independent variable (any depressive episode prior to age 15) and another with proximal depression history (any depressive episode between ages 15 and 20) as the independent variable. Both models controlled for gender. Neither early-onset depression (ß = -.01, SE = 1.59, t = -0.13, p = .90) nor proximal depressive episode (ß = .07, SE = 1.18, t = 1.10, p = .28) significantly predicted partner's internalizing symptoms. In sum, these three models found no support for a relationship between an individual's distal or recent history of depressive symptoms or episodes and partner's level of internalizing symptoms.

To examine gender moderation, all three of these models were re-run including an interaction term of gender and the relevant depression variable. Gender was not a significant moderator in any of these models.

Predictors of Partner Externalizing Symptoms

The same three models evaluated for prediction of partner's internalizing symptoms were run to evaluate prediction of partner's externalizing symptoms by changing the outcome variable accordingly. Controlling for gender, partner's externalizing symptoms were not predicted by age 15 depressive symptoms (ß = .09, SE = .06, t = 1.37, p = .17), early-onset depressive episode (ß = -.01, SE = 1.28, t = -0.21, p = .83), or proximal depressive episode (ß = .09, SE = .96, t = 1.40, p = .16). Thus, similar to partner's internalizing symptoms, there was no support for a relationship between depressive episodes or symptoms and partner's externalizing symptoms.

Also similar to partner's internalizing symptoms, models that included an interaction term yielded no support for a moderating role of gender in these relationships.

Predictors of Partner Personality Pathology

Similar to analyses related to partner's internalizing and externalizing symptoms, three linear regression models were run in which partner's total personality pathology was included as the outcome variable. Results indicated that, controlling for gender, age 15 depressive symptoms significantly predicted partner personality pathology (ß = .17, SE = .12, t = 2.59, p = .01). Partner personality pathology was additionally predicted by presence of a proximal depressive episode (ß = .13, SE = 1.82, t = 2.03, p < .05) but not by presence of a depressive episode prior to age 15 (ß = -.07, SE = 2.45, t = -1.12, p = .27). These models were also run including relevant interaction terms to examine potential gender moderation effects. The interaction terms were not significant for any of the three models, suggesting no moderation by gender.

Given the two significant main effects in the prediction of total personality pathology, further regression models were run to determine whether depressive symptoms and episodes predicted specific variants of personality pathology. Using the traditional separation of personality disorders into three types—Cluster A (odd-eccentric), Cluster B (dramatic-erratic), and Cluster C (anxious-fearful)—analyses were run with each of these three clusters of symptoms as outcome variables. Findings revealed that, controlling for gender, age 15 depressive symptoms significantly predicted partner's Cluster A (ß = .18, SE = .04, t = 2.78, p < .01), Cluster B (ß = .14, SE = .06, t = 2.10, p < .05), and Cluster C (ß = .14, SE = .04, t = 2.23, p < .05) traits. Presence of a depressive episode between ages 15 and 20 significantly predicted Cluster B traits (ß = .14, SE = .84, t = 2.23, p < .05), marginally significantly predicted Cluster A

traits (ß = .11, SE = .60, t = 1.78, p < .08), and did not significantly predict Cluster C traits (ß = .09, SE = .61, t = 1.49, p = .14). Gender moderation analyses yielded no significant findings.

To account for the possibility that involvement in these romantic relationships contributed to participant's depressive symptoms and episodes, all main models (total PDQ, Cluster A, Cluster B, Cluster C) were re-run eliminating participants whose depression onset may have followed relationship initiation. 8 participants with a depressive episode in the past 5 years experienced their first depressive episode after they began their current romantic relationship. Models that included presence of a proximal depressive episode as a predictor were re-run without these 8 participants. The pattern of results was the same with the exception that presence of a proximal major depressive episode was now a marginally significant predictor of Cluster C traits (ß = .12, b = 1.23, SE = .64, t = 1.92, p = .06). Similarly, models that included age 15 depressive symptoms were re-run eliminating the 13 participants whose relationships began prior to age 15, and the pattern of results was the same.

Depression and Partner Personality Pathology: Mediation Model

Following from significant findings regarding the relationship between age 15 depressive symptoms and partner personality pathology, structural equation modeling was used to examine the hypothesized mediators of this relationship. (As participants' depression symptoms and histories were not predictive of partner internalizing or externalizing symptoms, these constructs were excluded from the model.) The four proposed mediators were: 1) mother-child relationship quality, 2) secure attachment, 3) harshness of the home environment, and 4) unpredictability of the home environment. The first step necessary for running this structural equation model was to run a confirmatory factor analysis to support the validity of the latent factors to be included in these analyses. Three of the variables in the proposed structural model were latent factors: 1)

mother-child relationship quality, 2) secure attachment, and 3) partner personality pathology. The three indicators of mother-child relationship quality were 1) participant-reported maternal psychological controlling behavior, 2) mother-reported mother-child relationship stress, and 3) youth-reported family relationship stress. The attachment style factor had four indicators: 1) secure attachment, 2) preoccupied attachment, 3) dismissing attachment, and 4) fearful attachment. Partner personality pathology had three indicators: 1) cluster A symptoms, 2) cluster B symptoms, and 3) cluster C symptoms. Thus, a confirmatory factor analysis, with these 10 observed variables and 3 proposed latent factors, was run employing robust maximum likelihood procedures. Fit statistics indicated good model fit ($\chi^2(32) = 54.51$, $p < .01$; comparative fit index =.96 [CFI; Hu & Bentler, 1999]; root mean square error of approximation =.05 with a 90% confidence interval of .03-.08 [RMSEA; Browne & Cudeck, 1993]; standardized root mean square residual =.06 [SRMR; Muthén & Muthén, 1998-2010]). Standardized factor loadings for the mother-child relationship quality and partner personality pathology latent factors ranged from |0.58| to |0.91|. However, standardized factor loadings for the attachment factor ranged from |0.24| to |1.00|. Given the low factor loading for the dismissing attachment indicators, the confirmatory factor analysis was re-run excluding this indicator of attachment. When the model was re-run all indicators of goodness-of-fit were improved ($\chi^2(24) = 35.01$, $p = .07$, CFI = .98, RMSEA = .04 with a 90% confidence interval of .00-.07, SRMR = .05). Standardized factor loadings of the personality pathology and mother-child relationship factors ranged from |0.58| to |0.91|. Standardized factor loadings of the attachment factor ranged from |0.33| to |0.87|.

As a second step, four separate models, all employing robust maximum likelihood procedures, were run to assess whether each of the four mediators independently predicted the personality pathology latent factor. From these analyses, it was determined that neither

harshness of the home environment ($\beta = 0.11$, $SE = 0.08$, $z = 1.43$, $p = .15$), unpredictability of

the home environment ($\beta = 0.05$, $SE = 0.08$, $z = 0.62$, $p = .54$), nor mother-child relationship

quality ($\beta = 0.14$, $SE = 0.10$, $z = 1.44$, $p = .15$) were significant predictors of partner personality

pathology. In contrast, secure attachment was significantly, negatively predictive of partner

personality pathology ($\beta = -0.26$, $SE = 0.10$, $z = -2.70$, $p < .01$). Thus, of the four proposed

mediators, only secure attachment was significantly related to the outcome variable, indicating

that only this variable was an appropriate candidate for the mediation analysis.

A mediation model was run in which age 15 depressive symptoms was the independent

variable, secure attachment was the mediator, and partner personality pathology was the outcome

variable. The model included a direct path from depressive symptoms to partner personality

pathology in addition to an indirect path via the mediator. Gender was included in this model as

a statistical control. Of note, this model was run excluding all participants who began their

romantic relationships prior to age 15. Fit statistics were mixed with respect to model fit ($\chi^2(16)$

$= 38.04$, $p < .01$, CFI $= .95$, RMSEA $= .08$ with a 90% confidence interval of .05-.11, SRMR $=$

.04). Given that gender was not a significant predictor of the mediator (attachment) or the

outcome variable (partner personality pathology), the model was re-run without gender as a

control in an effort to improve model fit. Once gender was removed, the model was an excellent

fit to the data ($\chi^2(12) = 14.64$, $p = .26$, CFI $= .99$, RMSEA $= .03$ with a 90% confidence interval

of .00-.08, SRMR $= .03$). Results revealed that attachment was significantly predicted by age 15

depressive symptoms ($\beta = -0.58$, $SE = 0.08$, $z = -7.06$, $p < .001$) and was a significant predictor

of partner personality pathology ($\beta = -0.29$, $SE = 0.13$, $z = -2.26$, $p < .05$). In this model, the path

from depressive symptoms to partner personality pathology was not statistically significant ($\beta = -$

0.03, $SE = 0.10$, $z = -0.32$, $p = .75$). A test of the indirect effect of depressive symptoms on

partner personality pathology via attachment revealed that attachment was a significant mediator of this relationship (standardized estimate = 0.17, SE = 0.09, z = 1.98, p < .05). See Figure 1 for the full mediation model.

To examine potential gender differences in this model, two versions of the model were compared, one in which all paths were constrained to be equal across genders, and another in which all paths were free to vary across genders. A Satorra-Bentler chi-square difference test (Satorra & Bentler, 2001) revealed no significant difference in model fit between the more restrictive and less restrictive models (χ^2_{diff} (3) = 0.05, p >.99), suggesting no significant gender moderation of the overall model. Furthermore, the model in which paths were free to vary across genders demonstrated a similar pattern of significant and non-significant paths of interest for males and females.

Partner Psychopathology and Romantic Stress

The fifth proposed hypothesis predicted that partner psychopathology (internalizing, externalizing, and personality disorder symptoms) would moderate the relationship between participant's own depression history and stress in the romantic relationship (both acute and chronic stress). To evaluate this hypothesis, several regression models were run that included partner's history of any depressive episode prior to age 20, partner symptoms of interest (internalizing, externalizing, or personality pathology), and the interaction term as predictors. Gender was included as a control variable. These models were run separately for chronic stress and presence/absence of significant acute stress as outcome variables, totaling 6 models (three linear regression and three logistic regression). All continuous variables were centered prior to running analyses to account for problems of multicollinearity and improve interpretability of results.

For all three linear regression models in which chronic stress was included as the outcome variable, the predictor variables accounted for a significant amount of the variance in chronic stress (R^2 = .05, p < .05). In all three models, history of a major depressive episode was significantly predictive of chronic romantic relationship stress (b = .29, SE = .11, ß = .18, p < .01). Across the three models, neither partner internalizing symptoms (b = .01, SE = .01, ß = .07, p = .37), partner externalizing symptoms (b = .01, SE = .01, ß = .07, p = .36), nor partner personality symptoms (b = .01, SE = .01, ß = .09, p =.27) predicted chronic romantic relationship stress. None of the three models had a significant change in R^2 as a result of including the interaction term (R^2 change = .00, p > .40 for all models).

For the logistic regression model in which presence of acute stress was included as an outcome variable and depression history, partner internalizing symptoms, and their interaction, as well as gender, were included as independent variables, results indicated that the overall model was significant (chi-square = 13.79, p < .01). Participant's depression history (OR = 2.72, 95% CI [1.32, 5.63], Wald statistic = 7.34, p < .01), but not partner internalizing symptoms (OR = 0.96, 95% CI [0.90, 1.02], Wald statistic = 1.83, p = .18), significantly predicted likelihood of having significant acute romantic stress. Additionally, the interaction between participant depression history and partner internalizing symptoms was a significant predictor in this model (OR = 1.11, 95% CI [1.01, 1.22], Wald statistic = 4.86, p < .05). To further explore the nature of this interaction, separate logistic regression models (IVs = gender, partner internalizing symptoms, DV = acute stress) were run for participants with a history of depression and those with no history of depression. For participants with no history of depression, partner internalizing symptoms were not predictive of presence of acute stress (OR = 0.95, 95% CI [0.89, 1.01], Wald statistic = 2.41, p = .12). In contrast, for participants with a history of

depression, partner internalizing symptoms significantly predicted presence of acute stress (OR = 1.08, 95% CI [1.00, 1.16], Wald statistic = 4.03, p < .05). (See Figure 2.)

Given this significant finding, an additional analysis was conducted to determine whether gender served as a moderator of any of the significant effects. Thus, an additional logistic regression model was run that included the three predictor variables (gender, partner internalizing symptoms, depression history), all two-way interactions, and a three-way interaction term. The overall model was significant (chi-square = 22.46, p < .01). In this model, the interaction between depression history and partner internalizing symptoms was marginally significant (OR = 1.30, 95% CI [0.99, 1.72], Wald statistic = 3.49, p = .06), and there was a significant interaction between depression history and gender (OR = 25.10, 95% CI [1.00, 632.46], Wald statistic = 3.83, p = .05). The three-way interaction term was not a statistically significant predictor of acute stress (OR = 0.92, 95% CI [0.67, 1.27], Wald statistic = 0.27, p = .60).

To further explore the two-way interaction between depression history and gender in the prediction of acute stress, separate logistic regressions were run for males and females. For males, depression history was not predictive of acute stress (OR = 1.56, 95% CI [0.44, 5.51], Wald statistic = 0.48, p = .49); for females, this relationship was significant (OR = 3.55, 95% CI [1.50, 8.44], Wald statistic = 8.24, p < .01).

A similar data analytic procedure was used to evaluate the role of partner externalizing symptoms in the prediction of acute stress. In a logistic regression model with gender as a control, participant depression history, partner externalizing symptoms, and their interaction as independent variables, and acute stress as the outcome variable, depression history was a significant predictor (OR = 2.34, 95% CI [1.13, 4.86], Wald statistic = 5.21, p < .05), partner

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externalizing symptoms were not significant (OR = 1.00, 95% CI [0.93, 1.08], Wald statistic = 0.01, p = .95), and the interaction term was marginally significant (OR = 1.10, 95% CI [0.99, 1.23], Wald statistic = 2.83, p = .09). Given the marginal significance of the interaction term, separate analyses were run for participants with and without a depression history. Similar to the findings with partner internalizing symptoms, partner's externalizing symptoms significantly predicted acute stress for participants with a depression history (OR = 1.10, 95% CI [1.01, 1.20], Wald statistic = 4.89, p < .05), but not for those without a depression history (OR = 1.01, 95% CI [0.94, 1.08], Wald statistic = 0.04, p = .90). Gender moderation was examined using the same procedure as was used in examination of partner internalizing symptoms. The final model yielded no significant two-way or three-way interactions with gender.

The final moderation analysis examined the role of partner personality pathology, participant depression history, and their interaction, controlling for gender, in the prediction of acute stress. The overall model was significant (chi-square = 9.89, p < .05). Depression history was, again, a significant predictor of acute stress (OR = 2.57, 95% CI [1.27, 5.20], Wald statistic = 6.89, p < .01). Neither partner personality pathology (OR = 1.01, 95% CI [0.97, 1.05], Wald statistic = 0.24, p = .62) nor the interaction term (OR = 1.01, 95% CI [0.96, 1.07], Wald statistic = 0.18, p = .67) was a significant predictor. For consistency with previous analyses, this model was modified to include two-way and three-way interactions with gender. No two-way or three-way interactions with gender were statistically significant, suggesting no gender moderation.

Partner Personality Pathology and Depression Over Time

The sixth proposed hypothesis predicted that partner psychopathology would contribute to increases in depressive symptoms over time, possibly by way of chronic or acute relationship stress. Given that partner personality pathology, but not partner internalizing or externalizing

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symptoms, was predicted by age 15 depressive symptoms, a model was tested that specifically examined the role of partner personality pathology in the relationship between past and future depressive symptoms. This was examined using structural equation modeling techniques in Mplus version 7.0 (Múthen & Múthen, 1998-2012).

The first tested model included depressive symptoms at age 15, 20, and 22-25 as observed variables. Chronic relationship stress was included as an observed, continuous variable, and serious acute relationship stress was included as a binary observed variable. Partner personality pathology was included as a latent factor with three indicators: cluster A symptoms, cluster B symptoms, and cluster C symptoms. Due to the inclusion of the binary acute stress variable as both an independent and outcome variable, robust weighted least squares procedures were employed. Missing data were accounted for using maximum likelihood estimation based on observed covariates, consistent with standard procedures used with the WLSMV estimator in Mplus (see Múthen & Múthen, 1998-2012).

The first attempt at analyzing this model yielded unreliable findings due to problems with linear dependency resulting from the chronic romantic relationship stress variable. Examination of correlations among variables in this model suggested that chronic stress was not significantly related to age 15 depression or age 22-25 depression, suggesting that it does not play a significant role in the longitudinal propagation of depressive symptoms. Thus, it was deemed unnecessary to include this variable in the model. The model was re-run eliminating this variable.

When analyzing the revised model, the model terminated normally, suggesting reliable findings. Fit indices suggested that the model was an excellent fit to the data. The comparative fit index (CFI) was 0.97 and the root mean square error of approximation (RMSEA) was 0.06

with a 90% confidence interval of 0.00-0.11. The chi-square test statistic was nonsignificant, further supporting goodness of model fit (χ^2 (11) = 17.88, p = .08). All three indicators of partner personality pathology loaded significantly onto the latent factor at p < .001. Standardized factor loadings ranged from .73 to .90.

Results revealed that depressive symptoms at age 15 significantly predicted partner personality pathology (β = .22, SE = .04, z = 2.88, p < .01). Partner personality pathology was also significantly correlated with age 20 depressive symptoms (β = .15, SE = 1.18, z = 2.07, p < .05) and marginally significantly predictive of age 22-25 depressive symptoms (β = .11, SE = .17, z = 1.79, p = .07). Acute stress was not significantly related to any variables included in the model. The indirect pathway from age 15 depressive symptoms to age 22-25 depressive symptoms, via partner personality pathology was not statistically significant (effect = .03, SE = .02, z = 1.57, p = .12). (See Figure 3.)

To assess for gender moderation, chi-square difference testing for the WLSMV estimator was run, comparing a model in which all paths were constrained to be equal across gender to a model in which all paths are free to vary across gender. There was no significant difference in goodness of fit between the two models (χ^2_{diff} (9) = 7.84, p = .55).

Discussion

The current study sought to achieve three primary objectives: 1) identify whether individuals with depressive symptoms and histories have romantic partners with higher levels of internalizing, externalizing, and personality pathology; 2) identify mechanisms of the link between youth depression and romantic partner psychopathology; 3) examine the role of romantic partner characteristics in the processes of stress generation and maintenance of

depressive symptoms over time. The study utilized a multi-method, multi-informant, longitudinal design with a large community sample to explore these phenomena.

Results did not yield support for hypotheses that individuals' histories of depressive symptoms and disorders would predict having a partner with elevated levels of internalizing and externalizing symptoms. This finding contrasts with previous literature demonstrating the higher rates of mood disorders and other forms of psychopathology (i.e., GAD, alcoholism, etc.) among partners of depressed individuals (i.e., Mathews & Reus, 2001; van Grootheest et al., 2008). Further research is needed to explore potential explanations for this discrepancy, but a likely contributor is the fact that the current study was longitudinal in nature, whereas past studies have tended to be cross-sectional. Notably, significant correlations were found in the current sample between age 20 depressive symptoms and partners' internalizing and externalizing symptoms, which is consistent with past cross-sectional findings. Another potential factor is the use of the Young Adult Self-Report Measure to assess partner psychopathology in the current sample. A diagnostic interview or the use of disorder-specific self-report inventories (e.g., BDI, BAI, etc.) would have allowed for better measurement of clinically significant psychopathology, which could have affected results.

Results did reveal, however, that participants' depressive symptoms at age 15 predicted selection into relationships with partners with higher levels of partner personality pathology, overall and across all domains of personality dysfunction (Cluster A, Cluster B, and Cluster C). Additionally, individuals who experienced a major depressive episode between ages 15 and 20 had romantic partners with elevated levels of overall personality pathology and Cluster B traits, and marginally significantly higher Cluster A and Cluster C traits. To confirm that onset of depressive symptoms and episodes preceded entering the relationship with their current partner,

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models were re-run excluding participants who began their relationship prior to age 15 or who had their first depressive episode after the beginning of their current relationship, and results were confirmed in these samples. Thus, depression symptoms and histories seem to confer risk for selection into relationships with romantic partners with elevated levels of personality pathology, consistent with previous literature with similar findings (i.e., Daley & Hammen, 2002; Galbaud du Fort et al., 1998).

Structural equation modeling was utilized to explore potential mechanisms for the link between age 15 depressive symptoms and partner's personality pathology. It was hypothesized that, consistent with theories from evolutionary psychology and attachment frameworks, constructs such as harshness of the home environment, unpredictability of the home environment, lower quality mother-child relationships, and insecure attachment would serve to explain why individuals with elevated depressive symptoms may select into relationships with individuals with these personality characteristics. Unpredictability, harshness, and mother-child relationship quality were not found to be significant predictors of partner personality pathology. However, attachment security was found to significantly mediate the relationship between depressive symptoms and partner personality pathology, such that those with higher levels of depressive symptoms at age 15 also had lower levels of secure attachment and, in turn, by age 20, had partners with higher levels of personality pathology. While the exact mechanisms of the link between attachment insecurity and partner pathology in this sample is unknown, this finding follows from previous research supporting the negative effects of insecure attachment on discriminating between supportive and unsupportive partners during laboratory tasks (i.e., Turan & Vicary 2010) as well as the higher likelihood of intimate partner violence victimization for insecurely attached individuals (i.e., Bond & Bond, 2004; Henderson, Bartholomew, Trinke, &

Kwong, 2005). Overall, given the nonsignificant relationship between depressive symptoms and partner personality pathology when attachment security was included in the model, insecure attachment appears to be responsible for this relationship.

While the lack of significant findings related to the other hypothesized mediators may, in fact, reflect that these are not significant predictors of partner personality pathology, study limitations may have contributed to these results. It is possible that these factors play a small, but significant role in the romantic partner choices of depressed individuals, but that a sample size of N = 252 was insufficient to detect these effects. It is also possible that these constructs exert their effects indirectly through more proximal attitudes and beliefs, which were not examined in the current study. Additionally, given that the larger study was not designed to address this specific question, assessment of harshness and unpredictability of the home environment were restricted to a small number of yes/no questions that mapped onto these constructs. Future studies may wish to examine these potential mediators utilizing more comprehensive measures of harshness and unpredictability in the home environment and including measures of related proximal constructs, such as attachment-related beliefs and cognitive styles.

The lack of mediation by mother-child relationship quality was surprising given that this latent factor (assessed at age 15 with the same indicators) was significantly related to both depression history and later romantic relationship difficulties in a prior study (Katz, Hammen, & Brennan, 2013). It may be that this construct directly maps onto interpersonal relationship difficulties, but does not directly predict specific partner characteristics. Rather, it may exert an indirect effect on selection of partners with personality pathology via attachment style. Future research, in which a larger sample size is available, may seek to evaluate a more comprehensive

path model of depression and mate selection which includes both mother-child relationship quality and attachment style.

The current study additionally hypothesized that partner psychopathology would play a role in the stress generation process by moderating the link between depression and later relationship stress. Results revealed no direct relationship between partner characteristics and concurrent chronic and acute stress. However, analyses yielded support for an interaction effect in which partner internalizing symptoms were significantly related to likelihood of experiencing significant acute relationship stress for individuals with a history of major depressive disorder, but not for those without an MDD history. A similar, marginally significant interaction effect was found with regards to partner externalizing symptoms, but not for personality pathology. These findings imply that partner internalizing and externalizing symptoms may be especially problematic in creating stress for individuals with a depression history. This is consistent with previous studies that have demonstrated that marital quality is especially poor for couples in which both partners struggle with depression (e.g., Whisman, Uebelacker, & Weinstock, 2004). In this way, having a partner with elevated levels of psychopathology may be especially problematic, particularly in the creation of relational stressors, when individuals have their own depression histories. Prior literature on co-rumination, or shared ruminative discussion of problems and negative occurrences within the context of an interpersonal relationship, speaks to potential mechanisms for this association. For example, research by Hankin, Stone, and Wright (2010) found that, among adolescents, depressive symptoms contribute to co-rumination in relationships, which, in turn, contribute to greater interpersonal stressors. While co-rumination has primarily been studied within the context of friendships, it is possible that a similar phenomenon occurs among young adults in romantic relationships and that partners who are both

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prone to depressive, internalizing, or other psychopathological symptoms are especially likely to engage in co-rumination, contributing to greater stress, dysfunction, and perhaps exacerbation of symptoms. Additional factors related to depressive symptoms, such as reassurance seeking, problem solving deficits, dependency, and maladaptive cognitions may also prove especially problematic when present for both members of a dyad. Further research is needed to evaluate mechanisms of the relationship between shared psychopathology and stress among young adult romantic partners.

Finally, structural equation modeling allowed for examination of a full model in which depressive symptoms at age 15 predict partner personality pathology and romantic stress at age 20, which in turn, contribute to increases in depressive symptoms by ages 22-25. In this model there was a significant relationship between age 15 depression and partner personality pathology, and a marginally significant relationship between partner personality pathology and depression at ages 22-25, even controlling for age 20 depression. These findings suggest that partner personality pathology plays a (marginally significant) unique role in the increase of depressive symptoms over time. Overall, this model supports a phenomenon whereby teenagers with elevated levels of depression end up in relationships with partners with higher levels of personality pathology, which in turn perpetuates depression over time. Interestingly, age 20 relationship stress did not seem to play a significant role in this association. Thus, further longitudinal research is needed, ideally with several time points throughout the relationship duration, to determine the specific mechanisms by which partner personality promotes depression over time.

Though gender moderation was examined for all analyses, only one gender difference was found in the current study: the relationship between depression history and the experience of

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serious acute relationship stress was significant for females but not males. This is consistent with past literature that has supported stronger stress generation effects for females than males (Liu & Alloy, 2010). However, no gender differences were found for the relationships between depression and romantic partner characteristics or the path models tested. While these findings suggest that these phenomenon similarly occur for males and females, these results should be interpreted with caution as the sample size may have been insufficient to detect gender differences with small effect sizes.

Strengths of the current study include the longitudinal design, spanning three time points throughout adolescence and early adulthood, the use of structural equation modeling to allow for reduction of measurement error and evaluation of complex path models, multiple informants (participants, partners, and mothers), and valid and reliable measures of depression and stress. In addition to the aforementioned limitations of study sample size, lack of longitudinal assessment spanning relationship duration, and its less-than-ideal measures of harshness and unpredictability of the home environment, the study was also limited in its assessment of partner psychopathology. While the YASR and PDQ have been validated in previous research, semi-structured diagnostic interviews like the SCID and SCID-II better capture clinical diagnoses and rely on assessment by trained interviewers as opposed to self-report. Future studies should seek to replicate the findings of the current study utilizing diagnostic interviews to assess partner pathology. It is also advisable that future research examines these research questions in older samples or samples of individuals who are married or in long-term partnernships, as findings may differ in these groups.

Taken together, study findings highlight the important role of romantic partner characteristics in stress generation and the propagation of depressive symptoms over time.

Depressed individuals are at greater risk for selection into relationships with partners whose characteristics, namely personality pathology, ultimately promote more depression, apparently due to less secure attachment among individuals with higher levels of depressive symptoms. Depressed individuals also seem to be at greater risk for experiencing stress as a result of some forms of partner psychopathology, namely partner internalizing and externalizing symptoms. Given these significant negative consequences of certain romantic partner choices, the mate selection process may be a crucial area of scholarly inquiry and, eventually, intervention for individuals with depression histories. Future studies should seek to address additional mechanisms that contribute to dysfunctional mate selection and the specific ways in which partner characteristics promote stress and depression. Romantic partner choice has been largely ignored thus far in the depression literature, and the results of the current study suggest that it is a potentially fruitful and important area of future research. Ideally, further inquiry into dysfunctional mate selection patterns of individuals prone to depression can ultimately lead to interventions that help these individuals make wiser choices regarding romantic partners. Such interventions may be an important step in curbing the cycle of stress and depression, not only for one individual, but perhaps for their offspring and future generations as well.

Study 2: The Role of Depression in the Evaluation of Neutral and Antisocial Potential Mates:

Findings from a Mock Online Dating Laboratory Paradigm

Women may be an especially vulnerable population when it comes to questions of depression and romantic partner choice. Women are approximately twice as likely to experience major depression at some point in their lifetime than are men (Seedat et al., 2009). Women also seem to have increased reactivity to interpersonal stressors compared to men, such that females are more likely to become depressed following interpersonal stressors than are males (e.g. Shih, Eberhart, Hammen, & Brennan, 2006). Thus, women may be especially affected by romantic partners who bring conflict, stress, or a lack of support to intimate relationships. For women, the negative consequences of being in an unsupportive or conflictual relationship not only include women's own mental health outcomes (e.g. Horwitz et al., 1998), but could extend to the wellbeing of offspring born within that relationship as well. Thus, healthy, supportive, emotionally close relationships are particularly important for women, perhaps especially at times when new stressors and childbearing are likely to occur, such as during the transition to adulthood.

Unfortunately, despite the fact that supportive relationships are especially important for young women with a depression history, previous research has demonstrated that these women specifically may be *less* likely to find themselves in such relationships. In fact, previously depressed women may be disproportionately likely to end up in unsupportive, unstable, and even unsafe romantic relationships.

One body of evidence for the risk of depressed women to find themselves in unsafe relationships regards the association between depression and intimate partner violence. In their meta-analysis of 85 studies, Stith, Smith, Penn, Ward, and Tritt (2004) found that depression

among women served as a moderately strong risk factor for victimization by a romantic partner. While this meta-analysis did not discriminate between longitudinal and cross-sectional studies, prospective studies have found that depressive episodes and symptoms predict later victimization by an intimate partner (Cleveland, Herrera, & Stuewig, 2003; Keenan-Miller, Hammen & Brennan, 2007). Other research finds that depressed women may find themselves in romantic relationships with partners who have elevated levels of personality symptoms and disorders, including antisocial personality disorder (Galbaud du Fort et al., 1998), which in turn confer risk for perceived lack of support (Daley & Hammen, 2002) and potential harm (e.g. White & Widom, 2003).

The aforementioned research tends to explore the selection of problematic mates in a naturalistic way, gathering data from individuals and their actual partners. However, this methodology is unable to address whether depressed women differ from never-depressed women at the initial point of evaluating and choosing a romantic partner or if depressed women are simply more likely than never-depressed women to find themselves in social situations with potential romantic partners with these characteristics. For example, given that low socioeconomic status is associated with both depression (Gilman, Kawachi, Fitzmaurice, & Buka, 2002) and antisocial personality disorder (Compton et al., 2005), it may be the case that individuals with both forms of psychopathology tend to be part of the same neighborhoods, social circles, and work environments, resulting in dating and coupling.

In contrast, the current study is interested in exploring whether such differences in mate selection emerge in isolation of external factors. Do women prone to depression behave differently than never-depressed women in their initial evaluation of potential romantic partners, especially when these partners exhibit traits indicative of underlying psychopathology? The

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proposed study aims to simulate the experience of evaluating and choosing romantic partners through a mock online dating paradigm in order to identify whether differences occur in willingness to date individuals who exhibit "red flags" or "warning signs" of underlying antisocial personality pathology as a function of current depression or depression history. Antisocial personality traits were chosen for their consistency with previous research on this phenomenon as well as their inherent indication of instability, lack of provision of emotional support, and aggressive conflict in interpersonal relationships. By manipulating these traits in online dating profiles, the current study aims to identify how past depression history and current depressive symptoms influence willingness to date problematic romantic partners. Given that mate selection is a dyadic process, which, in the real world, includes feedback regarding interest (or lack thereof) from potential mates, the study additionally seeks to explore how depression affects willingness to "compromise" when provided with information that an undesirable mate has expressed romantic interest. It may be the case that women with a history of depression or depressive symptoms, though initially no different than never-depressed individuals in willingness to date partners with risky traits, would be more likely to "give in," despite warning signs, if provided with positive feedback from a select few out of several possible partners. This may be related to constructs such as low self-esteem or interpersonal dependency.

As previously reviewed in the Introduction, very little is known about the potential mechanisms that may account for depressed partners choosing problematic mates. However, attachment theory, life history theory, and mate value theory, as well as literature on self-esteem, interpersonal dependency, and knowledge of indicators of supportiveness, all point to possible individual difference constructs that may play a role in this process. For example, previous research has found that depression is related to lower self-perceived mate value (Kirsner et al.

2003) and lower self-esteem (e.g., Roberts & Kendler, 1999), which in turn have predicted openness to dating a wider range of potential mates, including those found to be less desirable by others (Back et al., 2011; Taylor et al., 2011). Insecure attachment, which has also been linked to depression (e.g., Burnette et al., 2009), has additionally been found to influence evaluation of romantic partners, specifically when it comes to discriminating between supportive and unsupportive partners (e.g., Turan & Vicary, 2010). Finally, evidence suggests that a faster life history strategy, or an accelerated and less restricted sexual trajectory, which is also related to depression (e.g., Hammen et al., 2011; Rink et al., 2007), predicts decreased interest in partner characteristics such as kindness and loyalty (Simpson & Gangestad, 1992) and increased interest in traits such as social dominance and adventurousness (Durante et al., 2012). Following from this literature, individual difference measures of attachment style, life history strategy, self-perceived mate value, self-esteem, interpersonal dependency, and knowledge of indicators of supportiveness, as well as perceived similarity to partners, were hypothesized to be putative mediators in the relationship between depression and choosing problematic romantic partners.

Hypotheses

1. Women with a history of major depressive disorder will be more likely than never-depressed counterparts to endorse an initial willingness to date individuals with apparent antisocial personality traits. We similarly hypothesize that current depressive symptomatology will also predict initial willingness to date such individuals.

2. It is expected that individuals with depression histories and/or current depressive symptoms will be more likely than non-depressed individuals to increase their interest in a "problematic" potential partner when provided with information that the potential partner is interested in them. Moreover, it is hypothesized that they will be more likely to

change an initial negative endorsement of this partner to a positive one following receipt of this information.

3. It is hypothesized that self-perceived mate value, self-esteem, insecure attachment style, limited knowledge of indicators of trustworthiness, interpersonal dependency, faster life history strategies (i.e. tendency to engage in short-term rather than long-term mating behavior), and perceived similarity will serve as independent mediators of the relationship between depression and willingness to date individuals with antisocial features as well as the relationship between depression and change in level of interest in these partners following the aforementioned manipulation. No preconceived hypotheses are made as to which possible mechanisms will exert effects over and above others.

Method

Participants

The study sample was comprised of 102 female students from the introductory psychology course at the University of California, Los Angeles. A subset of the sample was actively recruited for study participation after completing a pre-screening questionnaire in their psychology course, which included three items from the Inventory to Diagnose Depression-lifetime version (IDDL; Zimmerman & Coryell, 1987). These questions asked participants to reflect on the week in their life when they felt most depressed. The questions specifically inquired about low mood, disinterest, and limited enjoyment of activities during this week. To assess for possible caseness, a follow-up question for each item asked whether these feelings lasted for more or less than two weeks. Students who scored above the clinical cutoff for at least one of these three items and who reported having the endorsed feeling for at least two weeks were actively recruited for participation in the study by e-mail or phone call. Those participants

who were not actively recruited signed up for the study through UCLA's online system for psychology study participation. All participants received introductory psychology course credit for participation in the study.

Eligibility requirements included female gender, age 18 or older, and enrollment in UCLA's introductory psychology course. Though sexual orientation was not inquired about during pre-screening for the study, participants who identified as homosexual on a questionnaire administered during the study session were omitted from the final sample due to the availability of only male dating profiles. Thus, though 105 individuals completed study participation, only 102 were included in the final sample. Of these 102, 3 identified as bisexual and 1 as pansexual.

The demographic makeup of the study sample was as follows: 30% Asian, 26% Caucasian, 20% Latina/Hispanic, 11% Biracial/Multiracial, 5% Black/African American, 4% Indian, and 3% Middle Eastern. The sample represented a range of annual family incomes: 17% $0k-$40k, 14% $40k-$60k, 14% $60k-$80k, 7% $80k-$100k, 23% $100k+, 27% declined to answer. Ages ranged from 18 to 28, with a mean age of 19.13 (S.D. = 1.32).

Procedures

Participants who chose to enroll in the study attended a 1 to 2 hour in-person session. All participants provided informed consent prior to study participation. The session began with a laboratory task in which participants are asked to imagine that they were using an online dating website to find a long-term romantic partner. Participants were encouraged to imagine that they were really in the situation and to answer all questions consistent with their true responses and preferences, rather than how they think other people would answer. In order to improve the ecological validity of the lab task, slight deception was used in which participants were informed that the profiles were created by actual UCLA students in a previous study on "personality and

self-perceptions." However, participants were told that they would not have the opportunity through the study to actually meet or date these individuals. (At the end of the study session, participants were debriefed and informed that the profiles that they viewed were not based on actual UCLA students.)

Participants were then asked to view eight profiles of potential romantic partners and answer a series of questions regarding their willingness to date each person. Profiles were presented to each participant such that three of the eight profiles included antisocial features and three included traits that may be perceived as character flaws but are unrelated to antisocial personality difficulties. The other two were "filler" profiles, included to mask study aims. Profiles also included information about hobbies, interests, and unrelated personality traits.

Participants were assigned to one of two groups (Condition 1 or Condition 2) related to what profiles they viewed. Individuals in Condition 1 saw profiles 1, 3, and 5 with antisocial features, while individuals in Condition 2 saw profiles 1, 3, and 5 without antisocial features. Individuals in Condition 1 viewed profiles 2, 4, and 6 without antisocial features, while individuals in Condition 2 viewed profiles 2, 4, and 6 with antisocial features. For example, if profile 1 portrayed a biology major who is extraverted, enjoys skiing, likes camping, and is in a band, Condition 1 would see this profile with embedded indicators of antisocial personality disorder, while Condition 2 would see this profile with neutral traits and relatively benign character flaws (e.g., procrastination) in place of those indicators. These two conditions were included to allow for counterbalancing to ensure that traits unrelated to antisocial personality disorder did not influence study findings. Profiles 7 and 8, the "filler" profiles included no antisocial features, were the same for all participants, and were not examined in study analyses.

Profile order was randomized for all participants in order to account for potential order effects. Thus, one participant, for example, may have viewed profiles in the following order: profile 6, profile 8, profile 1, profile 2, profile 4, profile 5, profile 3, profile 7.

After participants answered questions regarding willingness to date each potential romantic partner, they were instructed to next imagine that they had created their own profile on this website and that all eight individuals viewed their profile. They were then shown the profiles of those people who, hypothetically, were interested in them. All participants were shown one antisocial and one neutral profile. Participants were then asked to re-answer all questions about willingness to date these individuals.

During the latter portion of the in-person session, participants were asked to complete a battery of questionnaires, including the measures discussed below. Participants were then administered the mood disorders module of the SCID-IV. Study sessions were conducted by the primary researcher of this study or graduate-level or post-bachelor's-level research assistants. All research assistants were trained on administration of study procedures, including SCID-IV administration and scoring, by the primary researcher.

Stimuli

For the mock "online dating" experience, participants viewed eight profiles designed to look like actual online dating profiles. In order to eliminate confounding effects of physical attractiveness, all profiles were presented without photographs or images representing the person portrayed in the profile. Participants were told that photographs could not be included for "confidentiality reasons."

Each profile included the hypothetical individual's initials and college major. There was additionally a section entitled "5 Things About Me," followed by a description of what the

hypothetical individual was asked to do in creating their profile: "Instructions: In 100 words or less, please tell us five things about yourself. Three of the statements should be about your hobbies and interests. Two statements should be about your personality style." For all profiles, one of the "personality style" statements was a positive statement (e.g. "I think I'm pretty funny. I always seem to make people laugh." "I'm adventurous and love to explore new places," etc.). The other "personality style" statement in each profile reflected a negative attribute. For the "antisocial" profiles, this statement was designed to reflect traits related to antisocial personality disorder, including callousness, or indifference to the needs or rights of others (e.g. "I hate listening to other people's problems. I think that people should be able to handle their own issues," "I don't have patience for ignorance. If you don't know what you're talking about, don't say anything.") and aggressiveness (e.g., "I don't let people push me around. People know not to get on my bad side"). For the control profiles, this statement reflected a relatively benign negative trait unrelated to interpersonal style (e.g. "I'm a procrastinator. I always wait until the last minute to do things, but I always get them done," "I'm a messy person. I spend too much time doing other things to really clean my apartment," etc.).

The next section of the profile was titled, "Personality Profile," and included the description, "How this person compared to other male UCLA students on 7 key personality traits." This description was followed by a graphical depiction of the extent to which the person had "more" or "less" of each trait (aggressive, kind, risk-taking, intellectual, ambitious, creative, and extraverted) compared to the average student. The traits, "aggressive," "kind," and "risk-taking" were chosen due to their relevance to antisocial personality disorder. For all antisocial profiles, the individual was shown to be significantly "more aggressive," "less kind," and "more risk-taking" than average. For all neutral profiles, the individual was shown to be only slightly

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below or above average on each of these characteristics. While position on the remaining four

traits differed across the eight profiles, the traits were displayed equivalently across the two

conditions. For example, profile 6 was portrayed as "more extraverted," "more ambitious,"

"more intellectual," and "less creative" for participants both in Condition A and Condition B.

See Appendix for sample profiles.

To confirm that participants were gleaning the intended information from the profiles

(i.e., noticing that the "antisocial" individuals were more aggressive, more risk-taking, and less

kind than the average individual), a manipulation check was included in the study procedure.

After participants viewed their first and fifth profiles, they were given a list of traits and asked to

report whether the profile they just viewed was higher than average on each of these traits. 71

manipulation checks were completed for antisocial profiles. Of these 71, 51 (71.83%) correctly

identified that the profile was higher than average for "aggressiveness," 67 (94.37%) correctly

identified that the profile was lower than average for "kindness," and 40 (56.34%) correctly

identified that the profile was higher than average for risk-taking. These findings demonstrate

that the majority of participants were able to recall the salient traits of these profiles. There was

no difference between previously depressed and never-depressed participants in their accuracy

regarding level of risk-taking ($\chi^2(1) = 0.16$, p = .69), aggressiveness ($\chi^2(1) = -.29$, p = .59), or

kindness ($\chi^2(1) = 0.39$, p = .61) of the antisocial profiles. Depressive symptoms were similarly

not predictive of accuracy regarding these three traits (risk-taking: OR = 0.94, 95% CI [0.87,

1.01], Wald statistic = 2.71, p = .10; aggressiveness: OR = 1.06, 95% CI [0.97, 1.17], Wald

statistic = 1.69, p = .19; kindness: OR = 1.05, 95% CI [0.88, 1.25], Wald statistic = 0.26, p =

.61).

Participants seemed to have greatest difficulty recalling the risk-taking attribute of these

profiles, perhaps because this trait was represented in the "personality profile" section, but was

not captured in any of the "5 Things About Me" statements. In contrast, almost all participants

were able to correctly identify that the individuals in these profiles were unkind, likely as this

trait was reflected in both sections of the profiles. Of note, this manipulation check was likely a

challenging one, as participants were not cued to the fact that they would be asked to recall

elements of the profiles after viewing and rating them.

Measures

  Profile desirability ratings. For each of the eight profiles, participants were asked the

following questions on a 9-point Likert scale regarding their interest in dating the individuals in

each profile: "How romantically desirable is this person to you?" "How willing would you be to

engage in online communication with this person?" "How willing would you be to go on a date

with this person?" "How willing would you be to establish a romantic relationship with this

person?" These 4 questions were summed for each profile to create a measure of romantic

interest in each profile. This scale was found to have strong internal consistency, with

Cronbach's alphas ranging from .95 to .98. As a final question, participants are asked the yes/no

question, "Would you be willing to date this person?"

  Profile similarity ratings. For each profile, participants were asked a single question

about how similar they believe they are to the person in the profile on a 9-poimt scale.

  Depressive symptoms. Participants completed the Beck Depression Inventory (BDI-II;

Beck, Steer, & Brown, 1996) to assess for current depressive symptomatology. The BDI-II is a

well-validated 21-item self-report measure of depressive symptoms during the past two weeks.

Depression history. Trained interviewers administered the mood disorder module of the Structured Clinical Interview for DSM-IV (SCID-IV; First et al., 1995) to assess for lifetime history of major depressive disorder. To ensure inter-rater reliability, interviews were audiotaped, and three interviewers provided independent diagnostic ratings (history of MDD vs. no history of MDD) for a subset (N = 12) of the interviews. Interviews were selected randomly from the total sample, with the strict criteria that interviews were longer than two minutes in length, to prevent inflated estimates of reliability based on ratings of interviews in which no variability was expected among raters (i.e. interviews in which respondents answered "no" to all initial questions). There was good reliability among raters (Kappa = .77).

Perceived mate value. Participants were asked to rate their perceived value as a potential mate, that is, how they rank on various qualities that are considered to be desirable in a romantic partner. To assess for perceived mate value, participants completed the Mate Value Inventory (MVI; Kirsner et al., 2003). This is a 17-item self-report in which individuals rate the extent to which they embody different desirable characteristics (e.g. "attractive face," "good sense of humor," "healthy," "loyal") on a scale from -3 to +3. Original scale construction included sampling items from previously established measures of romantic partner attributes and paring down the scale based on redundancy of items. Previous literature cites internal consistency ratings of .83 or higher (Fisher, Cox, Bennett, & Gavric, 2008; Kirsner et al., 2003). In the sample used in the current study, Cronbach's alpha =.84. This measure has also been found to significantly, moderately correlate with other measure of perceived mate value (i.e. SMSS; Landolt, Lalumiere, & Quinsey, 1995).

Self-esteem. Participants completed a measure of global self-esteem, the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). This is a widely used, 10-item self-report measure

of self-esteem. It includes items such as "I feel that I am a person of worth, at least on an equal basis with others," and "At times I think I am no good at all." Participants reported the extent to which they agreed or disagreed with each statement. The RSES has demonstrated considerable convergent and discriminant validity and test-retest reliability (Blascovich & Tomaka, 1991).

Attachment style. Insecure attachment was assessed using the Experiences in Close Relationships Scale (ECR-R; Fraley, Waller, & Brennan, 2000). This 36-item measure is divided into two subscales, one capturing anxious attachment and the other covering avoidance attachment. Eighteen items are included in each subscale, and items are rated on a 7-point Likert scale. Participants were asked the extent to which they agreed or disagreed with items such as "I prefer not to show a partner how I feel deep down" (avoidant) and "I often worry that my partner will not want to stay with me" (anxious). Each subscale of the ECR-R has been found to significantly correlate with more widely used measures of anxious and avoidant attachment styles (i.e. Relationship Questionnaire; Bartholomew & Horowitz, 1991), to have strong test-retest reliability, and to adequately account for between-person variance in relevant relationship-related emotions and behaviors in a daily diary study (Sibley, Fischer, & Liu, 2005). In this sample, the anxious attachment subscale, avoidant attachment subscale, and total attachment scale demonstrated strong internal consistency, with Cronbach's alphas of .94, .95, and .95, respectively.

Knowledge of indicators of supportiveness. Participants completed a short task, the Knowledge of Indicators of Supportiveness task (KNOWI; Turan & Horowitz, 2007), designed to assess knowledge of indicators of supportive behavior in a romantic relationship. The task consists of a list of 41 behaviors that a romantic partner may engage in. The list includes eleven good indicators of supportiveness, eleven poor indicators of supportiveness, and nineteen "filler"

items. The participant is asked to, on a scale from 1 to 8, "please rate each indicator to tell to what extent it would increase your confidence that a potential partner will be there for you." Scoring reflects an individual's ability to discern supportive behaviors from poor indicators of supportiveness (average rating of good indicators minus average rating of bad indicators). Performance on this task has been found to predict an individual's ability to discern supportive from unsupportive relationship behaviors in a fictional story (Turan & Vicary, 2010). Sample items include "asks you if you're OK when getting the feeling that you're not," "remembers an upcoming stressful event you mentioned and asks you about it afterwards," "is outgoing," and "has interests in common with you." On average, participants in this sample endorsed significantly higher confidence in "good indicators" (M = 7.10, SD = 0.67) than "bad indicators" (M = 5.74, SD = 1.43) as predictors of supportiveness (t(101) = 10.25, p < .001), lending further support for the validity of this measure.

Interpersonal dependency. Interpersonal dependency was measured using the Interpersonal Dependency Inventory (IDI; Hirschfield et al., 1977). This is a 48-item measure consisting of three scales: Emotional Reliance on Another Person, Lack of Social Self-Confidence, and Assertion of Autonomy. Participants rated their extent of agreement with items on a 4-point scale. Items include "I would be completely lost if I didn't have someone special," "I would feel helpless if deserted by someone I love," and "I have a lot of trouble making decisions by myself." Research supports the construct validity and test-retest reliability of this scale (Bornstein, 1994). In this sample, Cronbach's alphas for the subscales were .83 for Emotional Reliance on Another Person, .78 for Lack of Social Self-Confidence, and .80 for Assertion of Autonomy. Cronbach's alpha for the total dependency measure was .78.

Life history strategy. The Sociosexual Inventory-Revised (SOI-R; Penke & Asendorpf, 2008) was included as a measure of interest and tendency to engage in short-term mating relationships, indicative of a "faster" life history strategy. Penke & Asendorpf (2008) demonstrated adequate construct validity of this measure and identified three factors included in the measure: sociosexual behaviors, sociosexual attitudes, and sociosexual desire. For the purposes of the current study, only the sociosexual behaviors and sociosexual attitudes subscales were administered, totaling 6 items. Sample items include: "With how many different partners have you had sex within the past 12 months?" "I can imagine myself being comfortable and enjoying 'casual sex' with different partners," and "I do not want to have sex with a person until I am sure that we will have a long-term, serious relationship." Cronbach's alpha for this 6-item measure was .83.

Results

Descriptive statistics and bivariate or polychoric correlations among all observed variables are presented in Table 2. 45 participants (44.1%) met criteria for a lifetime history of major depressive disorder, while 57 participants (55.9%) never experienced major depressive disorder. Chi-square tests indicated that the two groups (non-depressed vs. depressed) did not significantly differ in their proportion of students identifying as Black/African-American ($\chi^2(1) = 0.03$, p > .99), Asian ($\chi^2(1) = 2.33$, p = .13), Latina/Hispanic ($\chi^2(1) = 2.74$, $p = .10$), Indian ($\chi^2(1) = 0.58$, p = .63), Middle Eastern ($\chi^2(1) = 0.67$, p = .58), Caucasian ($\chi^2(1) = 2.16$, $p = .14$), or Biracial/Multiracial ($\chi^2(1) = 3.24$, p = .11). The two groups also did not significantly differ in their proportion of students with annual family incomes of $0-40,000 ($\chi^2(1) = 0.03$, p = .87), $40,000-60,000 ($\chi^2(1) = 0.15$, p =.70), $60,000-80,000 ($\chi^2(1) = 0.15$, p =.70), $80,000-100,000 ($\chi^2(1) = 0.43$, p =.70), or over $100,000 ($\chi^2(1) = 1.49$, p =.22), The mean age of individuals with

a history of depression (M = 19.43, SD = 1.69) was older than that of individuals with no history

of depression (M = 18.89, SD = 0.88) (t(99) = -2.07, p < .05). There were additionally no

significant effects of race, socioeconomic status, or age on outcome variables of interest,

including liking antisocial profiles (race: F(6,93) = 0.67, p = .68; socioeconomic status: F(4,69) =

1.64, p = .18; age: r = .15, p = .14), liking neutral profiles (race: F(6,93) = 0.72, p = .63;

socioeconomic status: F(4,69) = 1.89, p = .12; age: r = .03, p = .79), change in interest in

antisocial profiles (race: F(6,93) = 0.54, p = .78; socioeconomic status: F(4,69) = 1.34, p = .26;

age: r = -.01, p = .89), and change in interest in neutral profiles (race: F(6,93) = 0.42, p = .87;

socioeconomic status: F(4,69) = 1.44, p = .23; age: r = -.02, p = .87).

Hypothesis 1: Depression histories and symptoms predict interest in antisocial profiles.

To evaluate the role of history of major depressive disorder on interest in dating an

individual with antisocial personality traits, a mixed design, repeated measures ANOVA was

conducted. Depression history (yes vs. no) was included in the model as a between-subjects

variable and profile type (antisocial vs. neutral) as a within-subjects variable. The model also

included the interaction term, depression history x profile type. The outcome variable was the

summary score of total liking across the three profiles in each category (i.e., total liking of

normal profiles, total liking of antisocial profiles). To control for any systematic differences that

could have arisen from the randomization into condition 1 or condition 2, profile condition,

profile condition x profile type, and a three-way interaction of profile condition x profile type x

depression history were also included in this model. When this model was run, there was a

significant main effect of profile type (F(1, 97) = 89.33, p < .001)) on the outcome variable,

suggesting that participants were systematically "liking" antisocial and neutral profiles

differently. An examination of the means reveals that the total liking of antisocial profiles was

lower than the total liking of neutral profiles (M = 49.13 and M = 67.34, respectively). There was

no significant main effect of profile condition on liking profiles ($F(1, 97) = 0.18$, $p = .67$).

However, there was a significant profile condition x profile type interaction ($F(1,97) = 8.76$, $p <$

.01), such that antisocial profiles in condition 1 (M = 45.40, SD = 17.53) were liked less than

antisocial profiles in condition 2 (M = 52.51, SD = 17.88) ($t(99) = -2.02$, $p < .05$). There was no

difference in likeability of neutral profiles between conditions 1 and 2 ($t(99) = 1.38$, $p = .17$).

Regarding the study hypothesis, there was no significant main effect of depression history

($F(1,97) = .01$, $p = .91$), nor was there a significant profile type x depression history interaction

effect ($F(1, 97) = .51$, $p = .48$). Thus, findings suggest partial nonsupport for hypothesis 1 as

depression history was not predictive of overall liking of profiles nor did individuals with a

history of depression differentially like antisocial profiles, compared to neutral profiles. See

Table 3 for group means.

A mixed design, repeated measures ANOVA, with both categorical and continuous

predictors, was also conducted to assess for the role of current depressive symptoms on liking of

antisocial profiles. The model was identical to the previously described model with the

exception that instead of the between-subjects depression history variable, depressive

symptomatology was included as a covariate and was used in an interaction term with profile

type. There was no significant main effect of depressive symptomatology ($F(1,98) = .53$, $p =$

.47), nor was the depressive symptoms x profile type interaction term significant ($F(1,98) = 1.66$,

$p = .20$).

To further test the relationship between depression and interest in antisocial profiles, both

MDD history and depressive symptoms were examined as predictors of the binary endorsement

(yes or no) of willingness to date any of the three antisocial individuals. 66% of the sample

endorsed willingness to date at least one of the three antisocial individuals, 31% were unwilling

to date any of these three men, and 3% had missing data regarding this question. In contrast,

91% were willing to date at least one of the three neutral individuals, 7% were unwilling to date

any of these three men, and 2% had missing data regarding this question. Using separate binary

logistic regressions, controlling for profile condition and binary endorsement of any of the

neutral men, neither MDD history (OR = 1.44, 95% CI [0.60, 3.46], Wald statistic = 0.66, p =

.42) nor depressive symptoms (OR = 0.98, 95% CI [0.93, 1.04], Wald statistic = 0.41, p = .52)

predicted likelihood of endorsing willingness to date at least one of the three antisocial

individuals.

Mediation of Depression and Interest in Antisocial Profiles

While neither major depression history nor depressive symptoms significantly predicted

the continuous measure of interest in antisocial profiles in the aforementioned models, further

analyses examined whether each of the proposed mediators significantly predicted this variable.

Of all of the seven proposed mediators (mate value, self-esteem, life history strategy,

dependency, insecure attachment style, knowledge of indicators of supportiveness, perceived

similarity), only self-esteem and perceived similarity to antisocial profiles were correlated with

total liking of antisocial profiles. As expected, perceived similarity to antisocial profiles was

positively correlated with liking antisocials (r = .62, p < .001). Contrary to expectations, self-

esteem was also positively correlated with liking antisocials (r = .24, p < .05). Given these

significant correlations, two separate hierarchical linear regression models were run to determine

whether each proposed mediator significantly predicted liking antisocial profiles, controlling for

liking normal profiles; in other words, did these variables uniquely predict liking antisocial

profiles, as opposed to general liking of profiles? Controlling for liking of normal profiles,

similarity to antisocial profiles significantly predicted liking of antisocial profiles (β = .60, SE =

.31, t = 7.54, p < .001). Controlling for liking of normal profiles, self-esteem also significantly

predicted liking of antisocial profiles (β = .25, SE = .27, t = 2.61, p < .05). To determine whether

these variables could meet criteria for mediation of the relationship between depression

history/symptoms and liking antisocial profiles, separate linear regression models were run to

determine whether depression history significantly predicted self-esteem or similarity to

antisocial profiles. While history of major depressive disorder did not significantly predict self-

esteem, depressive symptoms significantly predicted self-esteem in the expected direction (β = -

.46, t = -5.20, p < .001). While depressive symptoms did not significantly predict perceived

similarity to antisocial profiles, history of major depressive disorder marginally predicted lower

perceived similarity to antisocial profiles (β = -.18, SE = .92, t = -1.86, p < .07).

Given these findings, two separate mediation analyses were run: 1) the relationship

between depressive symptoms and liking antisocial profiles, mediated by self-esteem; 2) the

relationship between history of MDD and liking antisocial profiles, mediated by perceived

similarity with antisocial profiles. Both of these models included liking of normal profiles as a

covariate. These analyses were run using the PROCESS Macro for SPSS (Hayes, 2013), which

allows for tests of mediation based on bias-corrected bootstrapping procedures. From these

analyses, it was determined that, though the direct effect of depressive symptoms on liking

antisocial profiles was nonsignificant (effect = .04, p = .86), there was a significant negative

indirect effect of depressive symptoms on liking of antisocial profiles by way of self-esteem

(effect = -.26, 95% CI [-.57, -.01]). Similarly, though history of MDD did not directly predict

liking of antisocial profiles (effect = 3.27, p = .25), there was a significant negative indirect

effect of MDD history on liking of antisocial profiles by way of perceived similarity to these

profiles (effect = -4.09, 95% CI [-8.95, -.01]. Taken together, these results suggest that both

depression history and current depressive symptoms indirectly predict *lower* interest in antisocial

profiles by way of lack of perceived similarity to the profiles and lower self-esteem, respectively.

As with examination of the continuous measure of interest in antisocial profiles, analyses

similarly examined predictors of binary endorsement of willingness to date at least one of the

three antisocial individuals. All 7 potential mediators were examined in separate logistic

regression models to determine which, if any, significantly predicted willingness to date

antisocial individuals. All regression models additionally controlled for binary endorsement of

willingness to date neutral individuals and profile condition. Of the seven potential mediators,

two significantly predicted likelihood of endorsement of antisocial profiles, over and above

endorsement of neutral profiles: perceived similarity to antisocial profiles (OR = 1.24, 95% CI

[1.09, 1.40], Wald statistic = 10.90, p = .001) and faster life history strategy (OR = 1.06, 95% CI

[1.00, 1.13], Wald statistic = 4.29, p < .05). As faster life history strategy was not predicted by

MDD history (ß = .09, SE = 1.77, t = .94, p = .35) or depressive symptoms (ß = .07, SE = .11, t =

.75, p = .46), this was not deemed an appropriate candidate for mediation analysis. However, as

perceived similarity to antisocial profiles was predicted by MDD history (as noted above), this

mediator was deemed an appropriate candidate for mediation analysis of the relationship

between MDD history and binary endorsement of an antisocial individual. Thus, a mediation

model was run with the binary endorsement of an antisocial profile as the outcome variable,

MDD history as the independent variable, perceived similarity to antisocial profiles as the

mediator, and binary endorsement of a neutral profile as a control variable. This analysis

revealed a marginally significant positive direct effect of MDD history on the outcome variable

(effect = .99, 95% CI [-.03, 2.00], p = .056) and a statistically significant negative indirect effect

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of MDD history on the outcome variable via perceived similarity to antisocial profiles (effect = -.47, SE = .29, 95% CI [-1.20, -.03]. (See Figure 4 for all significant mediation models.)

The marginally significant, positive direct effect of MDD history on willingness to date at least one antisocial individual found in the aforementioned mediation model suggested that, controlling for perceived similarity with antisocial individuals, participants with a history of MDD were, marginally, more likely to endorse dating these individuals. In other words, given the same level of perceived similarity with the antisocial men in the profiles, a woman with an MDD history would be more likely to endorse a willingness to date one of these men than a woman without an MDD history. See Figure 5 for a graphical representation of this phenomenon. Interestingly, willingness to date individuals with neutral profiles was not predicted by MDD history, either independently or controlling for perceived similarity to neutral profiles.

Results of these analyses suggest that the hypothesized variables of perceived mate value, interpersonal dependency, insecure attachment, knowledge of indicators of supportiveness, and fast life history strategy were not mediators of the relationship between depression histories or symptoms and demonstrated interest in antisocial profiles. Self-esteem and perceived similarity to antisocial profiles served as mediators in a link between depressive symptoms or history (respectively) and liking antisocial profiles, but in the direction opposite to expectations. Depressive symptoms were inversely related to self-esteem, which positively predicted liking antisocial profiles. MDD history was inversely related to perceived similarity to antisocial individuals, which was positively related to liking these profiles.

Exploratory Moderation Analyses with Perceived Similarity

Following from the aforementioned finding that women with a history of depression were more willing than their never-depressed counterparts to date antisocial individuals at similar levels of perceived similarity, an exploratory moderation analysis was run to determine whether the slope of the relationship between perceived similarity and interest in antisocial profiles also differed as a function of MDD history. This was examined both using binary logistic regression, with binary endorsement of one of the three antisocial profiles as the outcome variable and using linear regression with the continuous measure of interest in the antisocial profiles as the outcome variable. Both models included binary or continuous interest in neutral profiles (consistent with outcome variable) as a statistical control and perceived similarity to antisocial profiles, MDD history, and the interaction of similarity and MDD history as predictors. In the binary logistic regression, perceived similarity was a significant predictor of the outcome variable (OR = 1.23, 95% CI [1.06, 1.44], Wald statistic = 7.00, p < .01), as was MDD history (OR = 3.96, 95% CI [0.97, 16.13], Wald statistic = 3.70, p = .05), but the interaction term did not significantly predict binary endorsement of antisocial individuals (OR = 1.18, 95% CI [0.84, 1.65], Wald statistic = 0.88, p = .35). In the linear regression in which the continuous measure of interest in antisocial profiles was included as the outcome variable, MDD history was not a significant predictor (ß = .08, SE = 2.81, t = 1.07, p = .29), while both perceived similarity to antisocial individuals (ß = .76, SE = 0.41, t = 7.17, p < .001) and the similarity X MDD history interaction term (ß = -.21, SE = 0.60, t = -2.04, p < .05) were significant. To further explore the nature of this interaction, separate linear regression models were run for those with and without a history of MDD. Results indicated that, while perceived similarity to antisocial individuals served as a significant predictor of romantic interest for both of these groups, it was a comparatively stronger predictor for those without a depression history (ß = .70, SE = 0.42, t = 7.12, p < .001) than for those with

a depression history (ß = .47, SE = 0.45, t = 3.63, p < .01). For a graphical representation of this analysis, see Figure 6. To examine whether this phenomenon was unique to liking of antisocial, as opposed to neutral, profiles, a similar model was run with interest in neutral profiles as an outcome variable. There was no significant effect of the perceived similarity to neutral individuals X MDD history interaction term (ß = .13, SE = 0.56, t = 1.17, p = .25), suggesting that the differential relationship between perceived similarity and romantic interest amongst previously depressed and never depressed individuals is specific to ratings of the antisocial profiles. In sum, these analyses suggest that when considering interest in antisocial men, the expressed interest of women without a history of depression is strongly related to how similar they believe they are to these individuals while the interest of women with a depression history is less strongly contingent upon the degree to which they perceive themselves as similar to these men.

Hypothesis 2: Depression histories and symptoms predict change in interest in antisocial profiles following imagined positive feedback.

Analyses were run to determine whether depression history or depressive symptoms significantly predicted the extent to which participants increased their liking of antisocial profiles when prompted to imagine that these individuals had expressed interest in them. Mixed design repeated measures ANOVAs were run to test these hypotheses. In the first model, history of MDD was included as the between-subjects variable, profile type (normal vs. antisocial) was included as the within-subjects variable, and change in interest score from pre-manipulation to post-manipulation was the outcome variable. A depression history x profile type interaction term was included, and profile condition and the profile condition x profile type interaction term served as statistical controls. Results indicated no significant effect of profile type (F(1,98) =

1.77, p = .19), MDD history (F(1,98) = 1.24, p = .27), or the interaction term (F(1,98) = 2.14, p = .15) in the prediction of change in interest in these profiles.

The second model was the same as the first model, with the exception that depressive symptoms were included as a continuous covariate, in place of MDD history. As in the first model, neither profile type nor depressive symptoms exerted a significant effect on change in liking of the profiles. However, there was a significant depressive symptoms x profile type interaction effect (F(1,98) = 5.89, p < .05), suggesting that depressive symptoms differentially predicted change in liking of antisocial, compared to neutral, profiles. This interaction effect was examined further by separately testing the relationship between depressive symptoms and change in liking scores for the neutral and antisocial profiles. First, a linear regression model was run with depressive symptoms as an independent variable and change in liking of the *neutral profile* as the outcome variable. In this model, the relationship between depressive symptoms and change in liking scores was nonsignificant (ß = -.09, SE = .07, t = -.94, p = .35); thus, current depressive symptoms did not significantly predict the extent to which individuals changed their interest in neutral profiles after imagining that the individual from that profile expressed interest in them. Next, the same model was run but with change in liking of *antisocial profiles* as the outcome variable. In this model, there was a significant positive relationship between depressive symptoms and change in liking score (ß = .21, SE = .07, t = 2.18, p < .05). Taken together, these results suggest that, while current depressive symptoms do not predict whether an individual will increase interest in a neutral individual when asked to imagine that this person is interested in them, current depressive symptoms do predict greater changes in interest in antisocial individuals after imagining that these individuals are interested in them. To account for the possibility that this finding was merely an artifact of the (nonsignificantly) lower initial liking scores of these

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antisocial profiles for individuals with higher depressive symptoms (r = -.13, p = .19), this model was re-run controlling for initial liking of these antisocial profiles. Depressive symptoms remained a significant predictor of change in liking of these profiles (ß = .19, SE = .07, t = 1.97, p = .05). (For a graphical representation of change in liking scores of each type of profile as a function of BDI score, see Figure 7.)

Further support for the relationship between depressive symptoms and changes in liking of antisocial profiles was found when answer to the question, "Would you date this individual?" was used as the outcome variable. Following the manipulation, 9 out of the 101 participants with complete data changed their answers to this question from "no" to "yes" for the antisocial profile following the manipulation. (For comparison, 14 out of the 101 participants made a similar change for the neutral profile.) In a binary logistic regression analysis, depressive symptoms significantly predicted the likelihood of making this change, even controlling for whether a similar change was made for the neutral profile (OR = 1.10, 95% CI [1.02, 1.19], Wald statistic = 6.02, p < .05). Thus, individuals with greater depressive symptoms had an increased likelihood of "changing their mind" about dating antisocial individuals (in the positive direction) after being prompted to imagine that these individuals were interested in them.

Mediation of Change In Liking of Antisocial Profiles

Given the significant relationship between current depressive symptoms and change in liking score for antisocial profiles when participants were prompted to imagine that the individual from the profile was interested in them, analyses were run to determine which, if any, of the proposed variables significantly mediated this relationship. To determine candidacy for mediation, bivariate correlations between proposed mediators and change in liking score were examined. As evidenced in Table 2, of the 7 proposed mediators (mate value, self-esteem, life

history strategy, dependency, insecure attachment style, knowledge of indicators of supportiveness, perceived similarity), only dependency (r = .22, p < .05) was significantly correlated with change in antisocial liking score. Perceived mate value was marginally significantly related to change in scores in the inverse direction (r = -18, p < .07). Both of these variables were significantly related to depressive symptoms. Thus, utilizing the aforementioned PROCESS Macro for SPSS (Hayes, 2013), a multiple mediation was run in which depressive symptoms were the independent variable, change in antisocial liking score was the outcome variable, and dependency and mate value were the two mediators. Initial liking of relevant antisocial profiles and change in scores for the neutral profile were included as covariates. In this model, neither mate value (effect = .02, 95% CI [-.03, .07]) nor total dependency (effect =.03, 95% CI [-.03, .12]) significantly mediated the relationship between depressive symptoms and change in liking of antisocial profiles. Each of these mediators was then examined as an independent mediator with similarly null findings. Based on these analyses, none of the proposed mediators significantly explained the relationship between depressive symptoms and change in liking of antisocial profiles.

A similar approach was taken to test mediation of the relationship between depressive symptoms and dichotomous change in willingness to date an antisocial individual. Of the 7 proposed mediators, dependency was the only variable predictive of changing a "no" to a "yes" in response to this question. (OR = 1.06, 95% CI [1.00, 1.11], Wald statistic = 4.41, p < .05). Thus, this variable was included as a mediating variable in a model with depressive symptoms as the independent variable and dichotomous change in interest of the antisocial profile as the outcome variable. Dichotomous change of interest in the neutral profile was included as a

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control variable. Findings did not support significant mediation of this relationship by dependency (effect = .03, 95% CI [-.02, .12]).

Discussion

The current study sought to explore the role of depression, both history of major depressive disorder and current depressive symptomatology, in women's romantic partner choices, particularly their assessment of romantic partners who exhibit traits characteristic of antisocial personality disorder. It was hypothesized that women with depression histories or higher rates of current depressive symptoms would endorse a greater interest in and willingness to date individuals with these traits, compared to those without depression. It was further hypothesized that, when women are asked to imagine that a potential partner with antisocial traits is interested in them, depression histories and symptoms would predict a greater positive change in their interest in that potential partner and a greater likelihood of changing an initial rejection of dating that partner to an expressed willingness to date them.   Individual differences such as self-esteem, perceived mate value, life history strategy, knowledge of indicators of partner supportiveness, insecure attachment, and interpersonal dependency, as well as perceived similarity to antisocial individuals, were hypothesized mechanisms of the predicted relationship between depression and endorsement of antisocial partners.

With regards to the first hypothesis, there was no direct effect of depression history or symptoms on interest in antisocial or neutral profiles. However, support was found for indirect *negative* effects of depressive symptoms on interest in antisocial profiles by way of self-esteem, and of depression history on interest in antisocial profiles by way of perceived similarity to the individuals in these profiles. Depressive symptoms, as expected, were related to lower levels of self-esteem, but, unexpectedly, self-esteem was positively related to liking antisocial profiles

(though, interestingly was not correlated with liking neutral profiles). In other words, individuals with higher self-esteem expressed greater interest in the antisocial profiles, contributing to an indirect inverse relationship between depressive symptoms and interest in these profiles. This finding was contrary to expectations that individuals with lower self-esteem, compared to those with higher self-esteem, would express greater interest in potentially "undesirable" mates, as was supported in the mock and actual online dating studies conducted by Taylor et al. (2011). Given the positive relationship between self-esteem and perceived similarity to the men in the antisocial profiles among study participants, it may be the case that perceived similarity was driving the relationship between self-esteem and interest in these profiles. It may be that the participants with the highest levels of self-esteem noticed a similarity between their own high self-esteem and the narcissism or inflated sense of self-importance inherent in some of the profiles and thus provided more favorable responses to these profiles.

Another possible explanation for the phenomenon of depressive symptoms and histories indirectly predicting lower interest in antisocial profiles comes from literature on "depressive realism." Depressive realism refers to the phenomenon that depressed individuals may make more accurate judgments (i.e., judgments that are less positively biased) in some domains than their non-depressed counterparts (for a meta-analytic review, see Moore & Fresco, 2012). While no known evidence has explored depressive realism in the context of assessing potential romantic partners, Gotlib & Melzer (1987) found depressed individuals to be harsher in their judgments of others in interpersonal situations than non-depressed individuals. Perhaps the participants in this study with higher rates of depressive symptoms and lower self-esteem were, realistically, harsher in their evaluation of the antisocial individuals than their non-depressed, higher self-esteemed counterparts. Further research would be needed to explore this possibility.

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Perceived similarity played a significant role in the relationship between depression history and interest in antisocial profiles. Those with an MDD history perceived themselves to be less similar to the individuals portrayed in the antisocial profiles than those without a depression history. In turn, this similarity was predictive of both overall interest in the three antisocial profiles as well as the likelihood of answering "yes" to at least one antisocial profile when asked if they would be willing to date the man in the profile. In this way, MDD history indirectly predicted less willingness to date antisocial individuals.

Several surprising findings emerged when examining the role of perceived similarity in the relationship between depression and interest in antisocial profiles. For one, there was a marginally significant, *positive* direct effect of MDD history on willingness to date at least one antisocial individual when perceived similarity was included in the model. Though MDD history was not predictive of willingness to date one or more antisocial individuals on its own, partialling out the variance attributed to perceived similarity to antisocial profiles caused this relationship to be marginally significant in the positive direction. This finding implies that at the same level of perceived similarity to the three antisocial individuals, individuals with a depression history have a higher likelihood of expressing a willingness to date at least one of them, compared to individuals without a depression history. This could also be interpreted such that the "threshold" for an acceptable level of perceived similarity to antisocial individuals in order to be willing to date them is lower for individuals with an MDD history compared to those without a similar history. This finding suggests that the relationship between MDD history and willingness to date antisocial individuals is more complex than originally hypothesized. On the one hand, the lower likelihood of feeling similar to an antisocial individual observed among women with a depression history contributes to their lower willingness to date these individuals;

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on the other hand, in the event that depressed women perceive themselves to be just as similar to the antisocial individuals as their non-depressed counterparts do, they (marginally significantly) display a greater willingness to date these men.

An additional significant finding related to perceived similarity is the significant moderating effect that depression history has on the relationship between perceived similarity and willingness to date antisocial profiles. While similarity is predictive of interest for both groups, this relationship is stronger for individuals without a depression history than for those with a depression history. While perceived similarity accounted for approximately 50% of the variance in willingness to date antisocial individuals for participants without a depression history it only accounted for approximately one-quarter of the variance for those without this history. A similar effect was not found in the evaluation of neutral profiles. This finding suggests that, while perceived similarity plays an important role in romantic interest of antisocial profile for never-depressed women, other factors may play a more prominent role for previously depressed women. Further research is needed to replicate this finding and explore the mechanisms contributing to this phenomenon.

Tests of the second hypothesis, that individuals with depression symptoms and histories will increase their interest in antisocial individuals following a manipulation in which they are asked to imagine that these individuals are interested in them, found partial support for this prediction. Specifically, depressive symptoms (though not depression history) predicted greater change in interest of antisocial individuals following this manipulation, even controlling for initial interest in these individuals. This was true for both change in a continuous measure of interest in these individuals as well as a change from a "no" to a "yes" when asked about willingness to date these individuals. Change in ratings of neutral profiles was unaffected by

current depressive symptoms. This finding suggests that individuals with higher current depressive symptoms may be more swayed by situations in which a potential partner, particularly one with aversive personality traits, expresses interest than them, where individuals with lower levels of depression may be more able to "stand their ground" in these scenarios. This finding suggests that, even if women with depressive symptoms initially have low interest in antisocial individuals, they could be more likely to end up in these relationships when provided with positive feedback and interest by a potential suitor.   This may explain findings from previous studies suggesting higher rates of intimate partner victimization (Stith et al., 2004) and greater likelihood of dating partners with antisocial personality disorder (Galbaud du Fort et al., 1998) among women who have been depressed.

Interestingly, interpersonal dependency was significantly correlated with change in interest in antisocial individuals following the manipulation and was predictive of changing a "no" to a "yes" following the manipulation. Perceived mate value was, marginally, inversely related to change in interest. Given that interpersonal dependency is the extent to which an individual feels dependent on others to provide practical and emotional support, validation, and reassurance, it is expected that individuals high on this trait would be especially responsive to a scenario in which they are receiving positive feedback from a potential partner. Additionally, it would be expected that individuals who perceive themselves to have low value as a potential mate might find the need to reciprocate a demonstration of interest by a potential partner, perhaps for fear that future romantic prospects may not find them to be a desirable mate. This finding is also supported by previous evidence by Back et al. (2011), which found that individuals with lower perceived mate value tended to be less choosy in terms of individuals they were willing to date in a speed dating paradigm. Though both of these variables were examined

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as mediators of the relationship between depressive symptoms and change in interest in antisocial individuals, neither variable significantly mediated this relationship. Thus, though these constructs are related to both depressive symptoms and change in interest for problematic partners, more factors are likely at play in this relationship that were not examined in the current study. Future research may explore the role of characteristics such as impulsivity, susceptibility to influence, and personality pathology in this relationship. Furthermore, as recent literature has highlighted the judgment and decision-making process inherent in making decisions about romantic relationships (Joel, MacDonald, & Plaks, 2013), and as deficits in executive functioning have been observed amongst depressed individuals (Snyder, 2013), future research may benefit from exploring this question from a decision-making paradigm and evaluate the role of impaired cognition and decision-making strategies in the phenomena observed in the current study.

The current study benefited from several strengths and was able to explore a phenomenon that has been paid little attention in previous research, namely mate selection in women with depression. One strength of the current study was the novel laboratory paradigm that allowed for direct manipulation of stimuli to explore how women would respond to certain personality traits in potential mates. In contrast to previous studies that have examined characteristics of actual partners of women with a history of depressive disorders or symptoms (e.g., Daley & Hammen, 2002; Galbaud du Fort et al., 1998; Maes et al., 1998), the current study was able to hone in on the process of evaluation of potential mates and, thus, eliminate the confounds of shared environments or social networks that make it difficult to examine the direct effect of depression on the process of choosing romantic partners. The study also benefitted from reliable and valid measures of depressive symptoms (i.e., BDI) and depressive disorders (i.e., SCID), as well as

related constructs like attachment style and self-esteem. Furthermore, the study sample was heterogeneous in terms of ethnic and socioeconomic backgrounds represented, providing support for the generalizability of results to a diverse population.

While the laboratory paradigm was a strength of the study for the aforementioned reasons, it was additionally limited in its ecological validity, as the participants of the study were not actually in a setting in which romantic partnerships could form. It is unknown whether participants would have responded differently to the profiles if they believed they could meet the people portrayed in the profiles after the study or, further, if they believed that certain partners were actually expressing interest in them. However, efforts were made to improve ecological validity and promote responding to the profiles consistent with actual feelings (i.e., verbal instructions to respond truthfully, slight deception suggesting that the profiles were made by participants of a previous study, use of a website and profiles designed to mimic an online dating experience, profiles that included a wide range of characteristics and interest, similar to those found on online dating sites). Ideally, future research would seek to replicate the findings of the current study utilizing scenarios, either real (i.e., use of actual online dating websites) or fabricated, in which participants would provide their evaluations of profiles with the belief that a romantic partnership could develop on the basis of their responses. Additionally, as this study was specifically designed to explore the initial interest stage of relationship formation, future research should more thoroughly explore components of the dyadic process of relationship formation that may contribute to dysfunctional mate selection for depressed women. Another study limitation was the relatively small sample size, which could have hindered the researchers' ability to find significant results. While a power analysis was conducted prior to study recruitment to ensure sufficient power to detect small to medium effect sizes for the main effects

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of interest, a sample size over 300, which was infeasible given the constraints of the current study, would have been needed to detect small effect sizes in the mediation analyses (Fritz & MacKinnon, 2007).   Another limitation was the use of only college-aged women, who may have different goals for romantic partnerships than an older or non-college educated demographic. Furthermore, the use of solely self-reported data may have contributed to response bias, and the use of collateral data, perhaps from a best friend or sibling, both for questionnaire-based measures and for questions related to participants' willingness to date and similarity to potential partners, may improve the accuracy of results.

In summary, current depressive symptoms and past depression histories do play a role in women's evaluation of potential romantic partners, particularly romantic partners who may be more aggressive and less supportive in a relationship context. Notably, the role of depression in this mate selection process is a complicated one. On the one hand, depressive symptoms and histories may make women initially less interested in these partners, due to factors such as low self-esteem and lower perceived similarity with these men. On the other hand, women with a depression history seem to be more willing to date these men than are women without a depression history at the same level of perceived similarity and are less sensitive to their own evaluations of perceived similarity when assessing their level of interest in these men. Furthermore, depressive symptoms put women at greater risk for choosing these men in situations where they receive feedback that these men are interested in them. These findings imply that while depressed women may have factors preventing them from expressing initial interest in dating problematic partners, they may be especially susceptible for entering into relationships with these partners when they notice commonalities or receive positive feedback in interactions, which is often part of the dyadic relationship formation process.   Unfortunately,

responding to these "positive" aspects of a burgeoning romantic relationship by choosing to commit to an individual with antisocial personality traits can set the stage for a highly stressful romantic relationship, perhaps marked by high levels of conflict, lack of support, and, in some cases, abuse. Thus, while further research is needed to corroborate the findings of the current study, women with depression histories may benefit from education about partner qualities conducive to supportive, as opposed to conflictual, or even dangerous, romantic relationships, and empowerment related to relying on one's initial instincts about "red flags" or "warning signs" when making decisions about who to date. As this phenomenon was evident among college-aged women, adolescence may be a crucial time to provide this psychoeducation. Overall, this study shed light on the role of depression in the mate selection process, and suggests that this is an area in need of further scientific inquiry, and perhaps, once more is known, psychotherapeutic intervention to curb the cycle of depression and stress among young women.

Project Summary

Following from literature on the longitudinal and intergenerational cycle of stress and depression, the current study sought to explore a piece of the stress-depression puzzle that has been relatively unexamined thus far: the mate selection process. A small body of prior research has demonstrated the elevated levels of Axis I and Axis II disorders and traits in the romantic partners of individuals with a history of depression (e.g., Daley & Hammen, 2002; Galbaud du Fort et al., 1997; Maes et al., 1998) and the high risk for intimate partner violence victimization among those with a history of depression (e.g., Keenan-Miller, Hammen, & Brennan, 2007). This project sought not only to confirm that depression portends risk for selecting into romantic relationships with partners with higher rates of psychopathology and personality pathology, but to expand upon this finding by identifying mechanisms of these romantic partner choices among depressed youth, examining the role of partner characteristics on relationship stress and the perpetuation of depressive symptoms, exploring whether this pattern of mate selection is present at the point of initial evaluation of potential partners, and considering the role of positive feedback during the mate selection process. The project was able to explore these questions in two different, but complementary studies: one utilizing a longitudinal, community sample of individuals and their partners during young adulthood (Study 1) and the other implementing a mock online dating laboratory paradigm in which college-aged females were asked to evaluate hypothetical romantic partners (Study 2). Thus, while one study allowed for examination of the actual partners chosen by individuals with differing depression histories, the other was able to hone in on the process of romantic partner evaluation and identify potential influences of depression at this specific stage of the mate selection process.

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The results from both studies point to problematic patterns of mate selection as a function of depression histories and symptoms. For one, according to findings from Study 1, elevated levels of depressive symptoms in adolescence were longitudinally predictive of selection into early adulthood relationships with partners who had higher levels of personality disorder traits. This was true across all domains of personality dysfunction, and was not specific to a certain subset of personality disorders. Notably and unexpectedly, youth's prior depressive symptoms were not predictive of partner internalizing or externalizing symptoms in this study. As assortative mating on the basis of mood disorders and symptoms has been demonstrated in previous research (Mathews & Reus, 2001; Segrin, 2004), the lack of significant prediction for partner internalizing symptoms was especially surprising. However, this may have been related to different measures administered to participants (BDI) and their partners (YASR), and using the same, clinically valid, measure for both members of the couple, as previous research has done, may have been more likely to yield significant results. Future research is needed to confirm or refute the nonsignificant findings of the current study.

Study 2 was able to shed further light on the tendency for individuals prone to depression to choose partners with personality pathology by exploring multiple components of the initial partner evaluation process. Results revealed that, while depressive symptoms did not make women more likely to endorse an initial willingness to date a partner with antisocial personality pathology, it did contribute to a tendency to "change their mind" about dating these partners when asked to imagine that these partners were interested in them. Taken together, these findings suggest that individuals prone to depressive symptoms seem to, indeed, be more likely to end up with partners with higher levels of personality pathology (Study 1), and this may be

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related to a tendency to be swayed by these potential partners' expressed interest, even if their initial instinct is to refrain from these relationships (Study 2).

An additional potentially problematic pattern revealed in Study 2 was the tendency for women with a history of depression to be less influenced by similarity when making decisions about dating antisocial men. The relationship between how similar a woman believed she was to the antisocial men portrayed in the profiles and the level of romantic interest she expressed towards these men was less strongly correlated for women with a depression history than those without a depression history. Relatedly, when depressed and never-depressed women felt equally similar to the antisocial men, depressed women were (marginally) more willing to date them than were never-depressed women. While the complexities and consequences of these phenomena should be examined in greater detail in future research studies before drawing conclusions, previous research suggests that similarity with one's partner can have positive consequences for a relationship (e.g., Gonzaga, Campos, & Bradbury, 2007). Thus, if depressed women are paying less attention to similarity when choosing a romantic partner, this could prove detrimental in the long-term.

In light of this identified role of depressive symptoms on problematic mate selection patterns, both studies sought to identify potential mechanisms of this relationship. While several hypothesized mechanisms were examined in both studies, only insecure attachment, in Study 1, emerged as a significant mediator between youth depressive symptoms and problematic partner choices. Thus, it appears that individuals with a history of depressive symptoms may be more likely to choose partners with personality pathology as a function of their tendency to also have less healthy, or maladaptive, patterns in relationships. Such difficulties might include discomfort with emotional closeness, mistrust of others, overreliance on emotional closeness, or fear of

being alone or rejected. In fact, Study 1 found that multiple types of insecure attachment (fearful, preoccupied, and the inverse of secure) were all significantly, independently correlated with partner personality pathology. While it is already established that such attachment difficulties are more likely to exist for individuals with depression histories (e.g., Burnette et al., 2009; Lee & Hankin, 2009), it is also understandable why such difficulties might lead to choosing partners with personality pathology. For one, individuals who have a tendency towards emotional distance in relationships may choose partners who are similarly likely to avoid intimacy. Several personality disorders include tendency towards emotional distance from others as a criteria (i.e., schizoid personality disorder, paranoid personality disorder, avoidant personality disorder) and individuals with these traits may appear to be desirable mates for those fearful of emotional closeness. At the other extreme, individuals who are overly dependent on romantic relationships may either choose partners who seem to match on these domains (i.e., dependent personality disorder, borderline personality disorder) or be willing to start a relationship with any available partner, simply to avoid being alone. In contrast to both of these patterns, those with secure attachment would be expected to choose partners who they could expect to maintain healthy interpersonal relationships, and personality pathology is often marked by interpersonal difficulty of some kind. Though Study 2 did not find attachment to be a significant predictor of problematic partner choices, interpersonal dependency did emerge as a predictor of changing one's mind about problematic partners when imagining positive feedback. This finding further supports the significant role of unhealthy views of relationships on decision-making during the mate selection process. Future research would benefit from further exploring the unique effects of different attachment styles on the types of romantic partners chosen as well

as proximal mechanisms of the relationship between attachment security and self-selection into relationships with disordered partners.

An additional aim of this dissertation was to demonstrate that partner choice does, in fact, matter in the maintenance of stress and depression. Indeed, Study 1 revealed that individuals who were in relationships with partners with higher levels of personality pathology trended towards higher levels of depressive symptoms 2-5 years later, over and above depression measured at the age 20 assessment. Thus, the partner choices made by those with depression may serve to exacerbate their symptoms over time. Study 1 additionally found that choosing a partner with higher levels of internalizing or externalizing symptoms was especially problematic for those with depression histories, as these couples tended to have higher levels of relationship stress. In these ways, partner characteristics seem to play a role in the propagation of both stress and depression, highlighting the need to further understand dysfunctional mate selection as an important step towards curbing the cycle of stress and depression.

The aforementioned findings seem to paint a grim picture for individuals with depression histories and symptoms. Such individuals seem to be making decisions regarding romantic partners that may not only result in dissatisfying, unhealthy, or even unsafe relationships, but that also may promote further depression. However, it is important to note that some findings from Study 2 suggest that depressive symptoms and histories may not be entirely detrimental during the mate selection process. Specifically, depressive symptoms and histories were indirectly predictive of less initial interest in antisocial partners, via mechanisms such as lower self-esteem and lower perceived similarity with these individuals. In other words, individuals prone to depression perceived themselves to be less similar to antisocial men and had lower self-esteem, and these factors, in turn, led to lower interest in dating antisocial individuals upon initial

evaluation.   It was not until asked to imagine positive feedback from these partners that depression exerted negative effects. Thus, women with depressive symptoms may, initially, be less interested in these partners for a number of possible reasons (fewer perceived commonalities, "depressive realism," perhaps concerns that these partners are unattainable). However, they may need intervention related to adhering to initial instincts about potentially unsuitable romantic partners and not allowing romantic decisions to be easily influenced by flattering feedback by a potentially harmful mate.

Overall, findings from this dissertation project suggest that the mate selection process is an important area of future inquiry in the study of depression and stress. The process of choosing a romantic partner is influenced by depression histories and symptoms in negative ways, and potentially poor partner choices may create stress and promote depression. Thus, future research on the cycle of depression and interpersonal stress would be amiss to continue to overlook the important role of choice of relational partners (romantic and otherwise) in the maintenance of mental health and psychosocial difficulties. Following from the aforementioned limitations of the current project (i.e., limited sample sizes, limitations of available measures, limits to ecological validity in Study 2, etc.), future research should address these limitations and continue to explore the relationship between depression and romantic partner choices in both naturalistic and laboratory samples. Once more is known about this process, interventions targeting depression in adolescents and young adults may benefit from incorporating psychoeducation about healthy and unhealthy relationships as well as warning signs when considering potential partners. Such interventions could also include exploration of attachment-related cognitions and patterns, as well as efforts to modify these thoughts and behaviors, particularly those that impede appropriate decision-making about relationships. Given the

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potential long-term consequences of romantic decisions made during the transition to adulthood

(marriage, reproduction, etc.), the impact of such interventions could have far-reaching

consequences, not only for an individual, but for offspring and future generations as well. The

mate selection process has the potential to be a crucial point of intervention for curbing cycles of

stress and depression that can continue throughout a lifetime and propagate through generations.

Table 1

Correlation Matrix of Study 1 Variables

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Age 15 Depressive Symptoms	1	.30**	.40**	.18**	.29**	.28**	.00	.03	.01	.11†	.17*
2. Age 20 Depressive Symptoms		1	.59**	.12†	.36**	.31**	.27**	.10	.15*	.21**	.21**
3. Age 22-25 Depressive Symptoms			1	.16*	.46**	.42**	.13†	.06	.05	.12	.26**
4. Any MDE before age 15				1	.21**	.55**	.10	.14*	-.05	.00	-.03
5. Any MDE between age 15 and 20					1	.86**	.22**	.19**	.04	.10	.11†
6. Any MDE before age 20						1	.19**	.19**	.02	.08	.08
7. Chronic Romantic Relationship Stress							1	.37**	.12†	.12†	.13*
8. Severe Acute Relationship Stress								1	.02	.12†	.06
9. Partner Internalizing Symptoms									1	.42**	.60**
10. Partner Externalizing Symptoms										1	.52**
11. Partner Cluster A Symptoms											1
12. Partner Cluster B Symptoms											
13. Partner Cluster C Symptoms											
14. Total Personality Pathology											
15. Mother-reported Mother-Child Stress											
16. Youth-reported Family Stress											
17. Maternal Psychological Control											
18. Harshness of Home Environment											
19. Unpredictability of Home Environment											
20. Secure Attachment											
21. Preoccupied Attachment											
22. Fearful Attachment											
Mean	5.99	6.18	7.26				2.39		11.74	10.03	6.03
SD	6.36	7.08	8.41				0.74		8.00	6.30	3.91

*Note: **p < .01, *p < .05, †p < .10; Table 1 continued on next page*

Variable	12	13	14	15	16	17	18	19	20	21	22
1. Age 15 Depressive Symptoms	.12†	.09	.14*	.13*	.27**	.23**	.24**	.10	-.32**	.28**	.39**
2. Age 20 Depressive Symptoms	.22**	.16*	.22**	.16*	.20**	.17*	.25**	.05	-.13*	.13*	.13*
3. Age 22-25 Depressive Symptoms	.22**	.09	.22**	.06	.27**	.24**	.22**	.01	-.22**	.28**	.21**
4. Any MDE before age 15	-.07	-.12†	-.09	.05	.18**	.08	.13†	.09	-.05	.00	.09
5. Any MDE between age 15 and 20	.13*	.06	.11†	.09	.12†	.26**	.13†	.10	-.14*	.05	.15*
6. Any MDE before age 20	.09	.03	.07	.09	.15*	.27**	.12†	.09	-.11†	.07	.16*
7. Chronic Romantic Relationship Stress	.13†	.02	.11†	.16*	.19**	.15*	.14*	.07	.02	-.02	.07
8. Severe Acute Relationship Stress	.09	.03	.07	.06	.05	.14*	.07	.06	-.10	.02	-.01
9. Partner Internalizing Symptoms	.55**	.71**	.69**	.22**	.07	.03	.10	.07	-.10	.11†	.15*
10. Partner Externalizing Symptoms	.72**	.46**	.66**	.11†	-.01	.04	.04	-.06	-.11†	.11†	.03
11. Partner Cluster A Symptoms	.69**	.59**	.85**	.16*	.09	.00	.16*	.11†	-.17**	.18**	.18**
12. Partner Cluster B Symptoms	1	.71**	.93**	.13*	.01	.02	.06	.02	-.10	.17**	.14*
13. Partner Cluster C Symptoms		1	.86**	.15*	.03	-.05	.11	.05	-.12†	.07	.10
14. Total Personality Pathology			1	.16*	.05	-.01	.12†	.06	-.14*	.17**	.16*
15. Mother-reported Mother-Child Stress				1	.36**	.37**	.19**	.24**	-.15*	.11†	.20**
16. Youth-reported Family Stress					1	.38**	.33**	.32**	-.16*	.00	.22**
17. Maternal Psychological Control						1	.24**	.07	-.03	.11	.25**
18. Harshness of Home Environment							1	.19**	-.04	.07	.15*
19. Unpredictability of Home Environment								1	-.17*	-.01	.12†
20. Secure Attachment									1	-.16*	-.26**
21. Preoccupied Attachment										1	.45**
22. Fearful Attachment											1
Mean	8.54	6.84	21.44	2.26	2.37	16.56	1.05	0.64	5.23	2.62	2.45
SD	5.57	4.11	12.10	0.46	0.57	3.94	1.00	0.88	1.70	1.59	1.69

Note: **p < .01, *p < .05, †p < .10

Table 2

Correlation Matrix for Study 2 Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. MDD History	1	.32**	-.03	.18†	-.14	.02	.06	.09	-.11	-.18†	.00	-.02	-.03	.17†
2. Depressive Symptoms		1	-.46**	.40**	-.39**	.29**	.05	.07	.01	-.12	.00	-.10	-.09	.21*
3. Self-Esteem			1	-.50**	.45**	-.33**	.06	.01	.03	.32**	-.01	.24*	-.03	-.07
4. Total Dependency				1	-.33**	.19†	.06	-.21*	.09	-.26*	.08	-.08	.05	.22*
5. Mate Value					1	-.37**	.00	.00	.22*	.30**	.10	.18†	-.01	-.18†
6. Insecure Attachment						1	.08	.13	.01	.02	-.02	.05	-.12	.08
7. Knowledge-Supportiveness							1	.27**	-.06	-.10	.25*	.06	.04	.16
8. Sociosexual Strategy								1	-.02	.08	.05	.04	.03	.13
9. Similarity to Neutrals									1	.34**	.52**	.10	.19†	.02
10. Similarity to Antisocials										1	.19†	.62**	.16	.00
11. Initial Interest-Neutrals											1	.26**	.05	.22*
12. Initial Interest-Antisocials												1	.08	.02
13. Change in Interest-Neutrals													1	.24*
14. Change in Interest-Antisocials														1
Mean		9.29	30.67	115.98	29.65	115.16	1.36	15.42	14.17	10.97	67.34	49.13	1.64	2.42
SD		7.88	6.33	15.16	10.91	37.23	1.34	8.89	4.40	4.66	14.59	17.98	5.20	5.30

*Note: **p < .01, *p < .05, †p < .10*

Table 3

Study 2 Means of Interest in Antisocial and Neutral Profiles by Depression History

	MDD History	Mean	SD	N
Interest in Neutral Profiles	No	67.30	14.28	57
	Yes	67.39	15.16	44
Interest in Antisocial Profiles	No	49.47	19.49	57
	Yes	48.68	16.03	44

Figure 1. Study 1 structural equation model with standardized coefficients of the mediation of depressive symptoms and partner personality pathology by attachment security. Nonsignificant paths are represented by dashed lines. **p < .01. *p < .05.
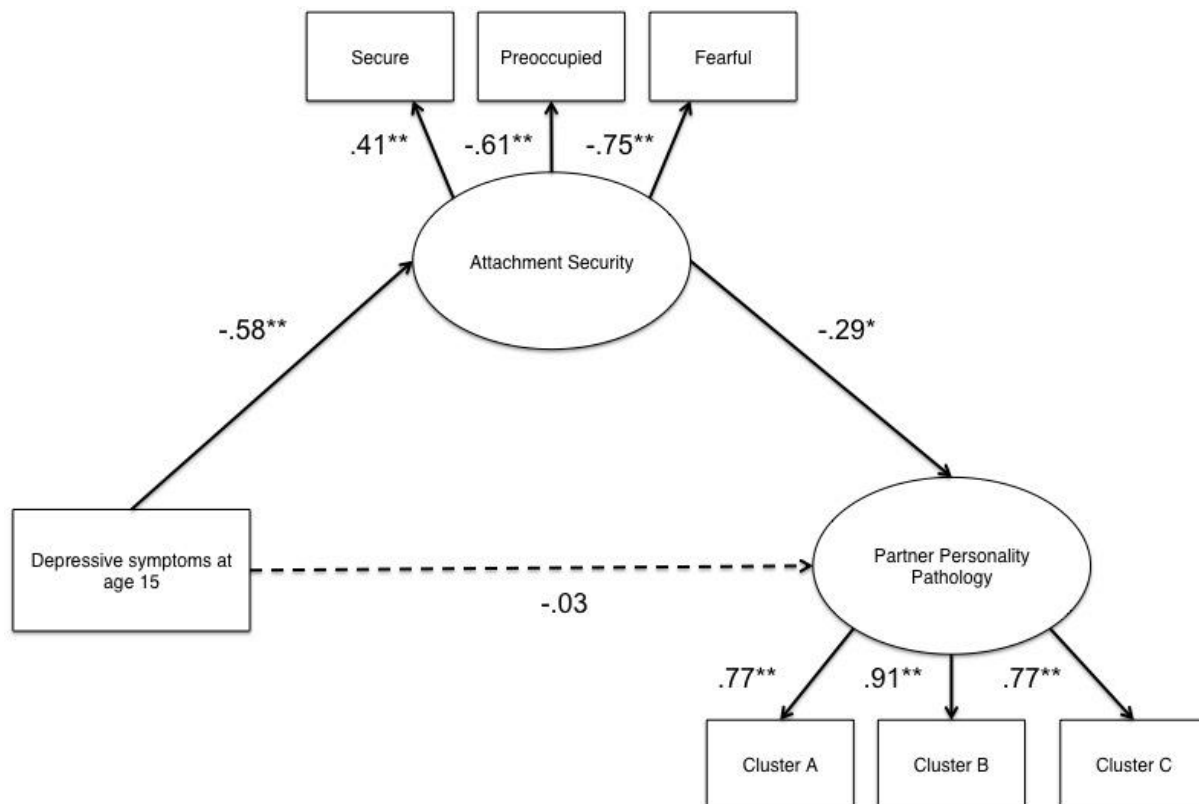
Figure 2. Study 1 graphical representation of relationship between partner internalizing symptoms and experience of significant acute romantic relationship stress, as a function of MDD history. Interaction effect is significant at $p < .05$.
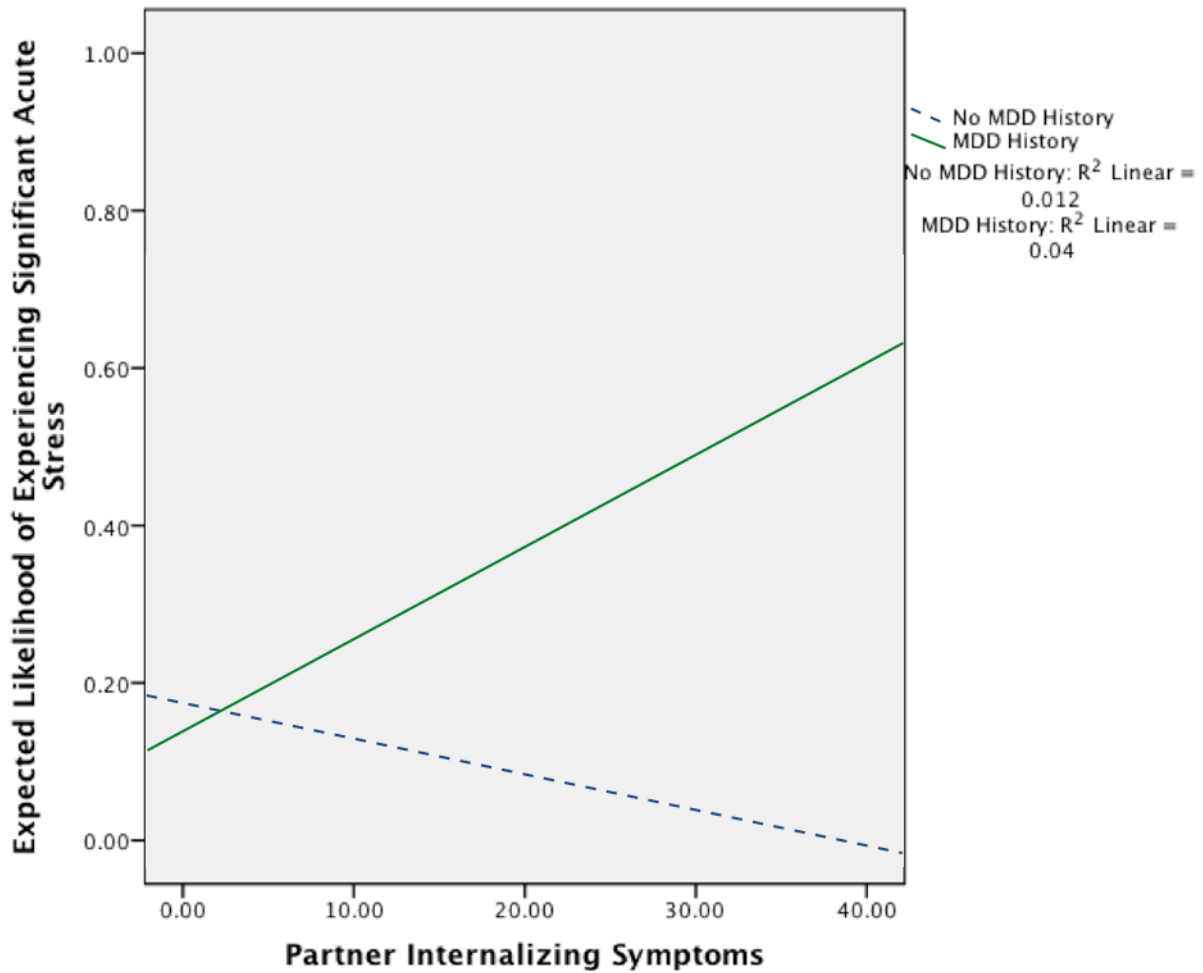
Figure 3. Study 1 structural equation model with standardized coefficients of partner personality pathology and depressive symptoms over time. Nonsignificant paths are represented by dashed lines. This model also controls for gender, but these paths have been eliminated from the figure for ease of readability. **p < .01; *p < .05; †p < .08

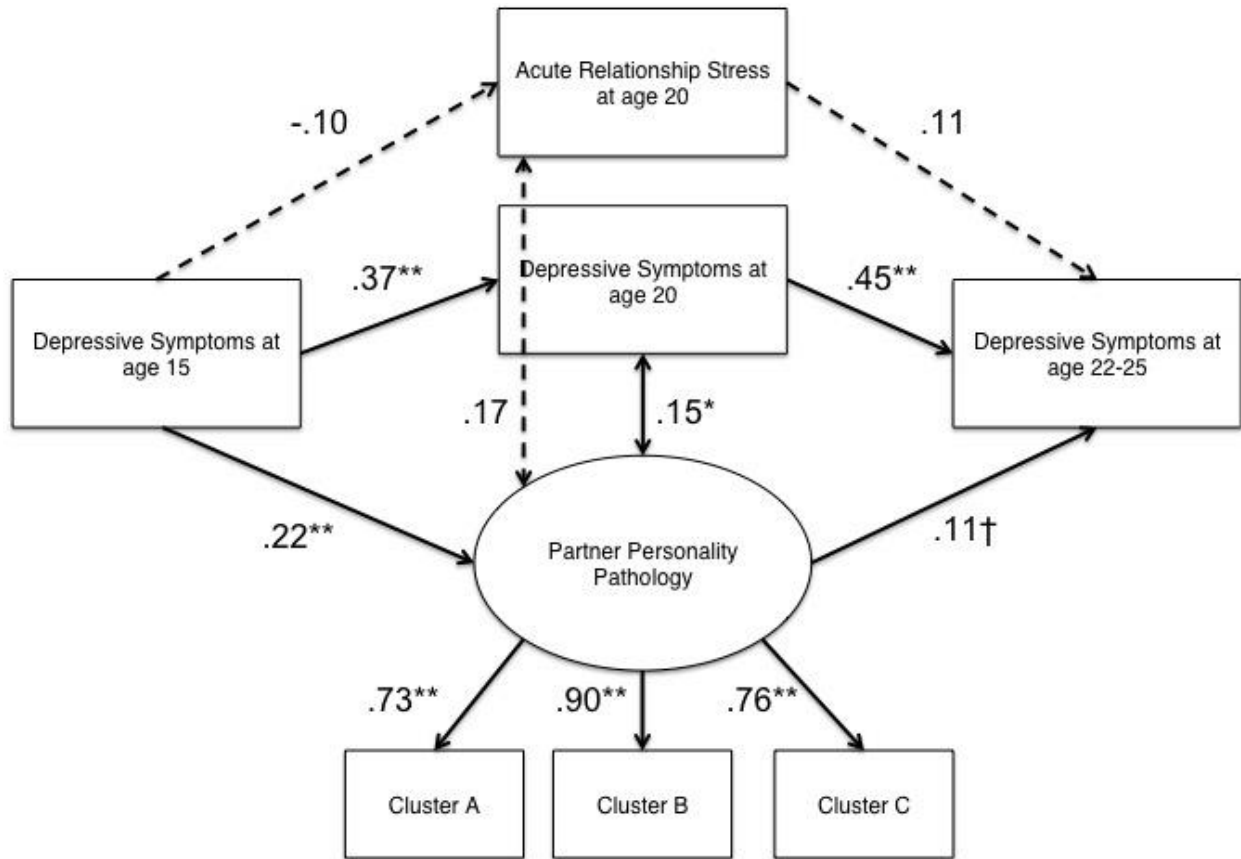Figure 4. Mediation models for Study 2. All mediation models control for either continuous (in case of continuous outcome) or dichotomous (in case of dichotomous outcome) interest in "neutral profiles." This variable has been eliminated from the models for ease of readability. All indirect effects are statistically significant. Coefficients are unstandardized. †p < .10, *p < .05, **p < .01.
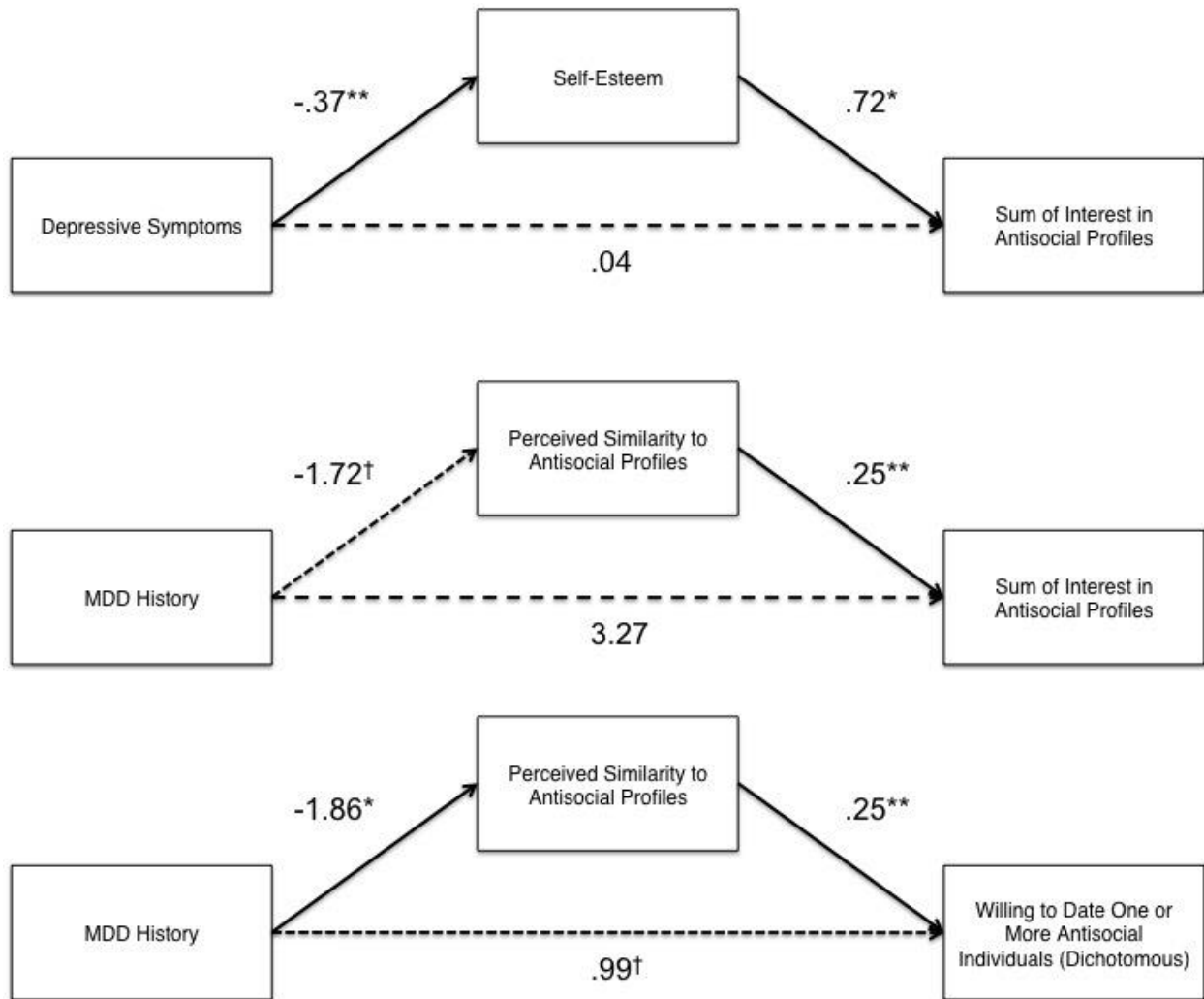
Figure 5. Study 2 graphical representation of relationship between perceived similarity to antisocial profiles and willingness to date at least one antisocial individual, differentiated by history of major depression.
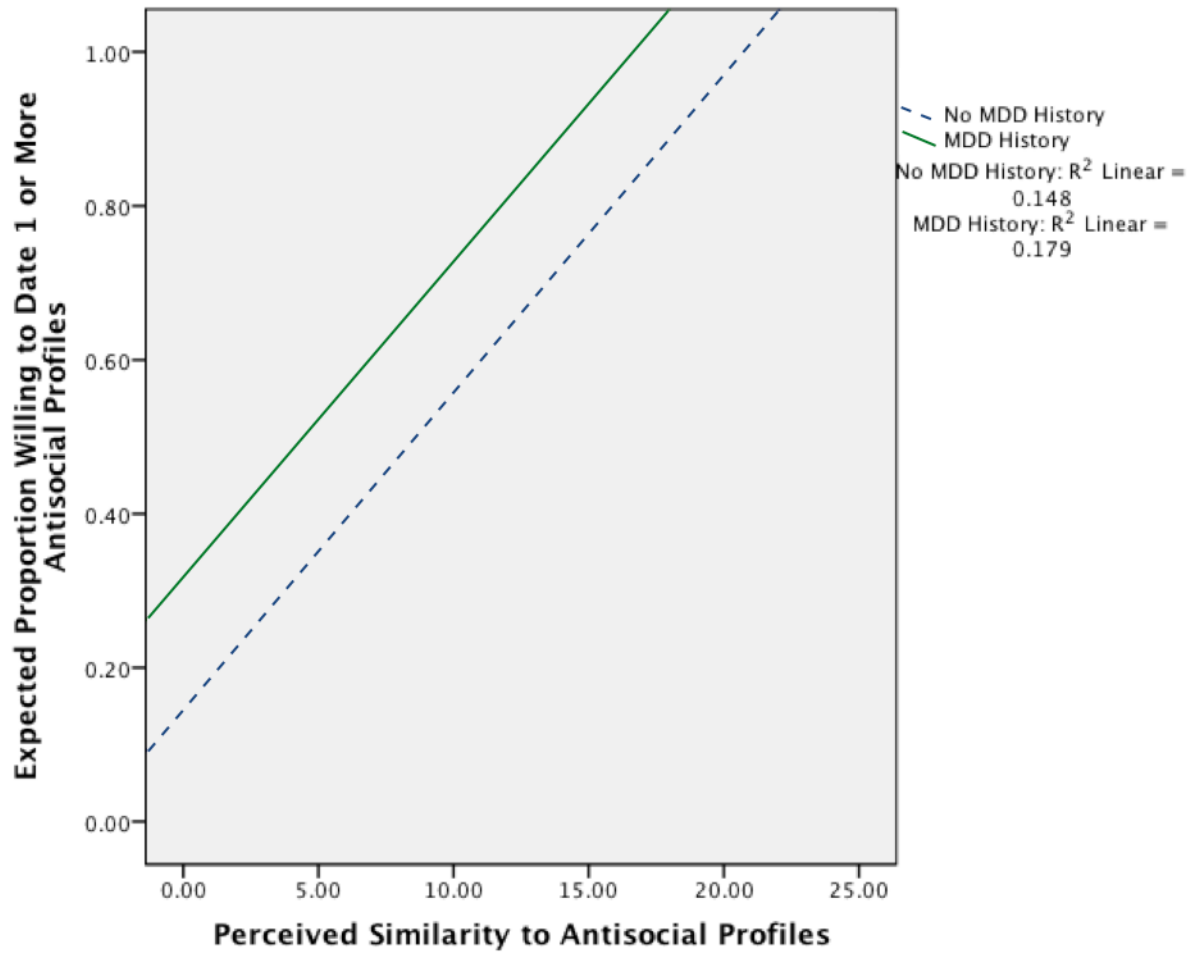
Figure 6. Study 2 graphical representation of relationship between perceived similarity to antisocial profiles and continuous measure of interest in antisocial profiles, moderated by depression history. Both regression lines are statistically significant, but slope of the regression line for those with a depression history is significantly less than that for individuals without a depression history.
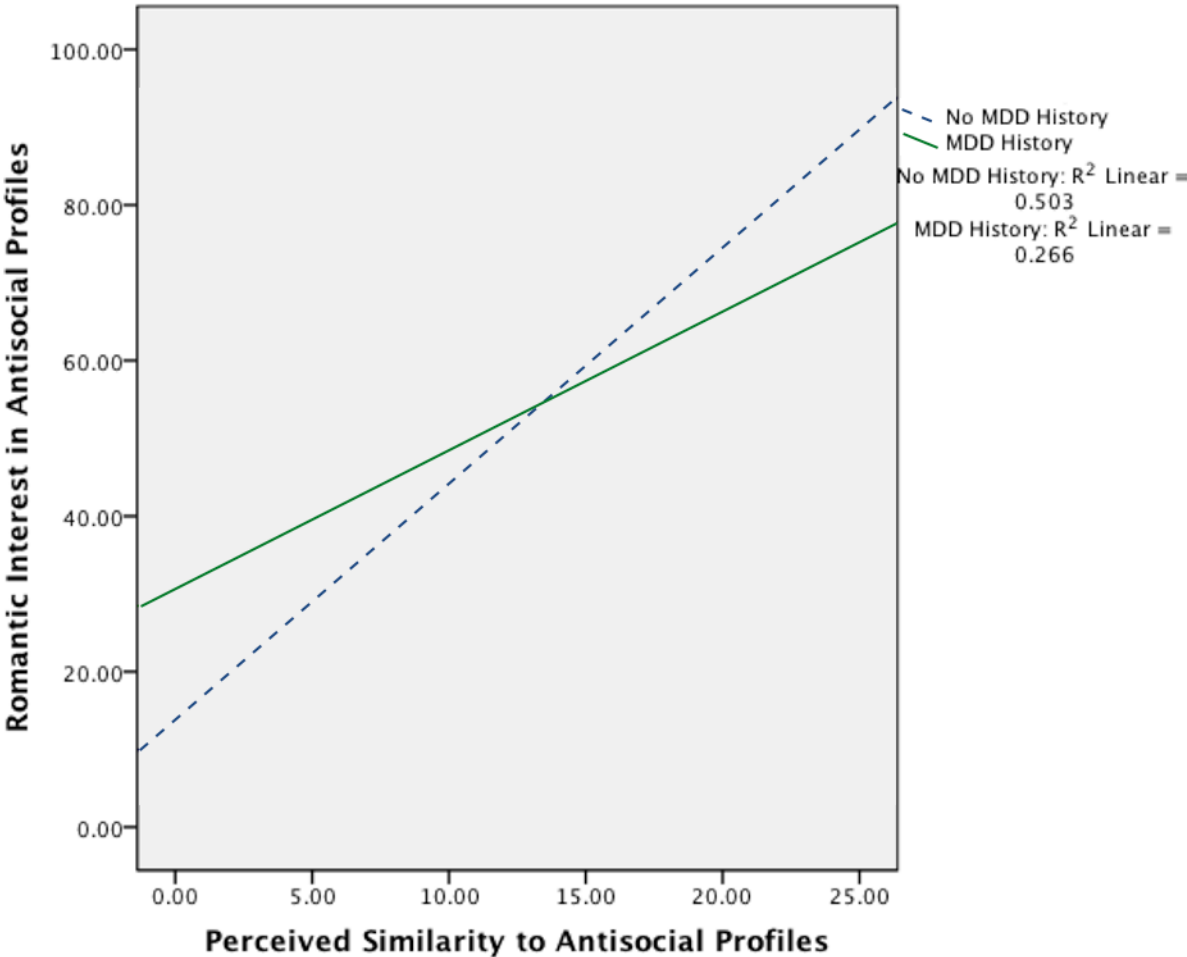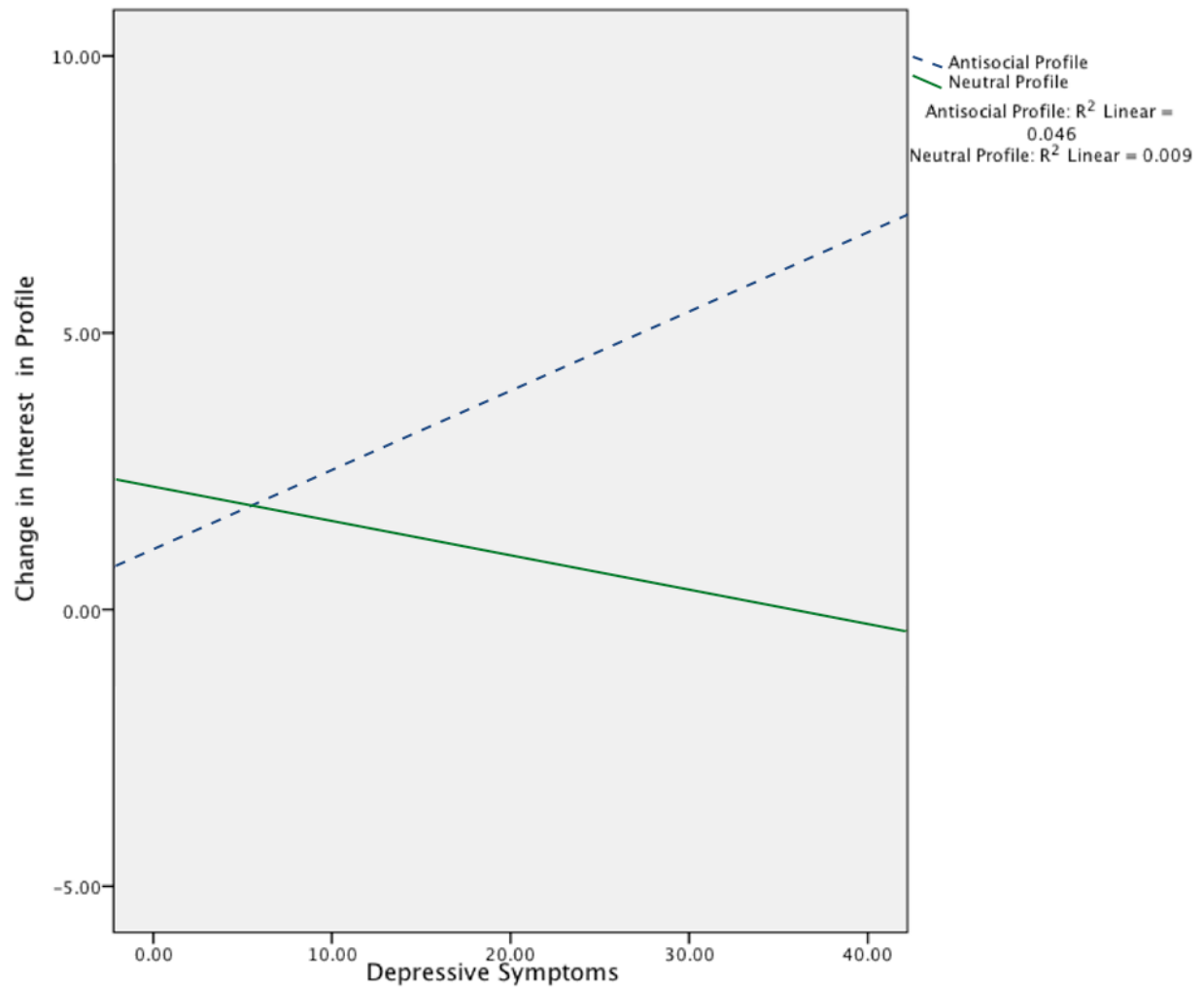
Figure 7. Study 2 graphical representation of change in profile interest scores as a function of depressive symptoms and profile type. Regression line for antisocial profile is statistically significant; regression line for neutral profile is nonsignificant.

Appendix

Sample Online Dating Profile for Study 2

Below are the "antisocial" and "neutral" version of the same profile. The two profiles are identical with the exception of the elements that are outlined in red for demonstration purposes.

Antisocial Version

Name: N.H.

Major: Chemistry

Profile 002

5 Things About Me:

Instructions: In 100 words or less, please tell us five things about yourself. Three of the statements should be about your hobbies and interests. Two statements should be about your personality style.

I'm a huge movie buff. I probably see at least two new movies a week.

I'm pretty confident and have no problem expressing my opinions.
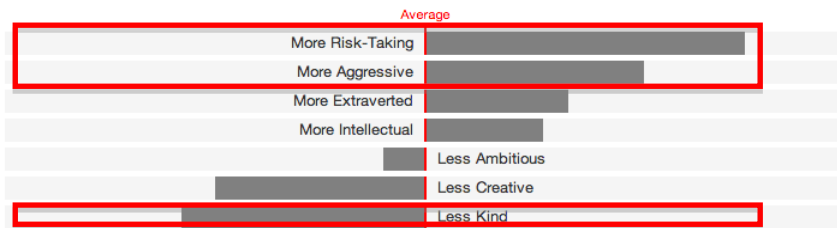
I don't have patience for ignorance. If you don't know what you're talking about, don't say anything.

I'm really into rock climbing.

I love snowboarding. I was co-president of my snowboarding club in high school.

Personality Profile

How this person compared to other male UCLA students on 7 key personality traits.

Average

More Risk-Taking
More Aggressive
More Extraverted
More Intellectual
Less Ambitious
Less Creative
Less Kind

Neutral Version

Name: N.H.

Major: Chemistry

Profile 008

5 Things About Me:

Instructions: In 100 words or less, please tell us five things about yourself. Three of the statements should be about your hobbies and interests. Two statements should be about your personality style.

I'm a huge movie buff. I probably see at least two new movies a week.

I'm pretty confident and have no problem expressing my opinions.

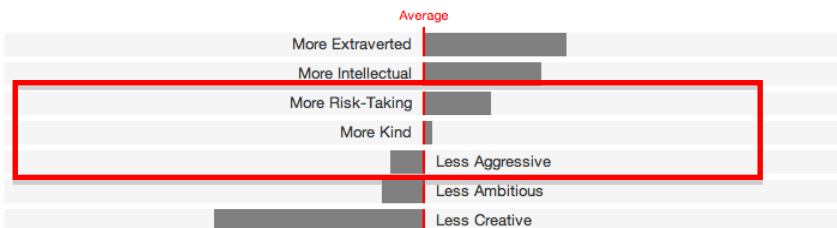I'm a messy person. I spend too much time doing other things to really clean my apartment.

I'm really into rock climbing.

I love snowboarding. I was co-president of my snowboarding club in high school.

Personality Profile

How this person compared to other male UCLA students on 7 key personality traits.

Average

More Extraverted
More Intellectual
More Risk-Taking
More Kind
Less Aggressive
Less Ambitious
Less Creative

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