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The interpersonal nature of depressive symptoms: The impact of biased perceptions and reassurance-seeking on experiences of support within romantic relationships

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Abstract

This thesis investigated whether biased perceptions and reassurance-seeking undermine the support people with elevated depressive symptoms need from their romantic partners. I predicted that greater depressive symptoms would be associated with more negatively biased perceptions of partners' support, and that these negative perceptions would contribute to (1) lower feelings of support and more negative emotions toward the partner, and (2) increases in depressive symptoms across time, especially for those individuals who were initially higher in depressive symptoms. I also explored whether greater reassurance-seeking previously shown to be associated with depressive symptoms, contributed to these effects by (1) reducing support provision by the partner, thereby (2) increasing depressive symptoms over time.

I examined these processes using self-report questionnaires of couples' (N = 100) support experiences over the past month as well as behavioural observations of support provision as couples engaged in support-relevant discussions. In both methods, participants reported on the support they received from their partner and their feelings of support, negative emotions, and evaluations of the support transaction. Couples were also followed up across the following six months to assess changes in depressive symptoms across time.

Women with elevated depressive symptoms held negatively biased perceptions of the support they received from their partners when compared to their partners' reported support provision and ratings of their partners' support provision by independent coders. Moreover, these negatively biased perceptions were associated with lower felt support and more negative emotions toward partners, and contributed to the exacerbation of depressive symptoms across time for women who were initially high in depressive symptoms. The results also demonstrated that women's depressive symptoms were associated with greater reassurance-seeking. However, rather than undermining support provision as predicted, greater reassurance-seeking was associated with greater observer-rated

support provision from partners, and greater support provision predicted decreases in depressive symptoms for women who initially had elevated depressive symptoms.

These findings advance understandings of the development and maintenance of depression within an interpersonal context, highlight the importance of considering interpersonal dynamics behaviourally and dyadically within actual interactions, and have important implications for the treatment and assessment of people with depressive symptomatology.

To my parents.

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Introduction

Depressive disorders are characterized by a persistent low mood and have substantial societal and personal costs. Depression is associated with diminished occupational and role functioning, increased healthcare costs, impaired relationships, decreased work productivity, reduced quality of life, and mortality (Donohue & Pincus, 2007; Pinkus & Pettit, 2000; Spijker, Graaf, Bijl, Beekman, Ormel, & Nolen, 2004). Given the importance of understanding how to treat and prevent depression, a large body of research has been conducted to identify the factors that contribute to the development and maintenance of depression. The bulk of this research has focused on identifying cognitive and behavioural processes within the individual that predispose people to experience depression, such as a lack of positive reinforcement (Jacobson, Martell & Dimidjian, 2001), dysfunctional attribution styles (Peterson & Seligman, 1984) and negative beliefs (Beck, 1976; 1991). Similar cognitive and behavioural processes have also been shown to maintain depression, such as cognitive distortions (Beck, 1976; 1991), social withdrawal, and inactivity (Jacobson et al., 2001).

Despite the focus on individual-level factors, depression is inherently *inter*personal. Depression can be exacerbated and triggered by interpersonal factors, such as peer rejection (Vernberg, 1990), relationship breakups and conflicts (Beach, Katz, Kim & Brody, 2003; Davila, Bradbury, Cohan & Tochluk, 1997; Fincham, Beach, Harold, & Osborne, 1997; Monroe, Rohde, Seeley, & Lewinsohn, 1999). In addition, depression can have severe interpersonal consequences, such as peer rejection (Faust, Baum & Forehand, 1985; Hodges & Perry, 1999; Vernberg, 1990) and increases in marital stress (Davila et al., 1997). Furthermore, support from others—a specific interpersonal process—has been demonstrated to have an important protective function against depression. For example, research has shown that supportive marital relationships can decrease vulnerability to depression, whereas unsupportive marital relationships can increase vulnerability to depression (e.g., Brown & Harris, 1978; Jacobson, Fruzzetti, Dobson, Whisman, & Hops, 1992).

Unfortunately, although support can be effective at preventing the development of depression, depression is also associated with interpersonal dynamics that are likely to undermine the receipt of support and, therefore, contribute to the exacerbation and maintenance of depressive symptoms. In this study, I investigate two ways in which cognitive and behavioural processes associated with depressive symptoms might undercut the benefits of support and contribute to negative outcomes. First, I examine whether depressive symptoms are associated with biased perceptions of romantic partners' support behaviours, whether perceiving lower support provision from partners (than partners report providing) results in more negative support-related evaluations and emotions, and whether these more negative perceptions contribute to the exacerbation or maintenance of depressive symptoms over time. Second, I investigate whether depressive symptoms are associated with reassurance-seeking in actual support-relevant exchanges with romantic partners, and consider whether the ensuing partner responses associated with reassurance-seeking contribute to the exacerbation or maintenance of depressive symptoms across time.

Understanding Depression

Although depression presents in varying ways, it is primarily characterised by a persistent low or sad mood. Other symptoms of depression include, but are not limited to: a lack of interest in activities which were previously pleasurable, psychomotor agitation or retardation, irritability, feelings of worthlessness, guilt or hopelessness, fatigue or a lack of energy, and a reduced ability to think, concentrate or make decisions (American Psychiatric Association, 2013). Changes in appetite, weight and sleep patterns can also be symptomatic of depression (American Psychiatric Association, 2013). Depressive symptoms cause clinically significant distress or impairment in important areas of functioning, such as social and occupational domains (American Psychiatric Association, 2013), by eroding individuals' abilities to cope with activities of daily living. Depression is also strongly associated with suicide ideation (American Psychiatric Association, 2013), and at its worst can lead people to take their own lives (Marcus, Yasamy, Ommeren, Chisholm & Sazena, 2012).

Depression can be episodic or chronic, lasting anywhere between two weeks and many years (Mental Health Foundation of New Zealand, 2002), and people of any age, gender and culture can be affected by it, although women are more likely to be affected by depression than men (World Health Organisation, 2012). Even more importantly, depression is very common (Kessler & Bromet, 2013) with an estimated 350 million people affected by it worldwide (Marcus et al., 2012). Prevalence and lifetime course estimates vary substantially between countries (Kessler & Bromet, 2013), however, the World Mental Health Survey found that across 17 countries 1 in 20 people had experienced an episode of depression in the previous year (Demyttenaere, Bruffaerts, Posada-Villa, Gasquet, Kovess, et al., 2004). Moreover, the World Health Organisation has ranked depression as the fourth leading cause of disability worldwide (Murray & Lopez, 1997). By 2020, depression is projected to become the second highest contributor to the global burden of disease due to its extremely negative social and economic consequences (Murray & Lopez, 1996). For example, depressive disorders are among the strongest risk factors for suicide and suicide attempts (Nock, Hwang, Sampson, Kessler, Angermeyer, et al., 2009), and the presence of major depression increases the risk of suicide 20 fold (Harris & Barraclough, 1998).

The same picture holds true for New Zealand. In New Zealand mood disorders are the second most prevalent mental health problem (Oakley-Browne, Wells, Scott, & McGee, 2006). Of all the mood disorders, a Major Depressive Episode is the most prevalent, with a lifetime prevalence rate of 16% (Oakley-Browne et al., 2006). Depression affects about 6% of the general population (Ministry of Health, 2006), and it is estimated that 1 in 6 New Zealanders will experience a Major Depressive Episode at some time in their lives (Oakley-Browne et al., 2006). In New Zealand, as in other countries, depression is more prevalent in women than in men and is most common in 25-44 year olds, the median age of onset being 32 years of age (Oakley-Browne et al., 2006). Finally, as in other countries, depression is also on the rise in New Zealand; more people are being affected by depression and at an increasingly younger age (Oakley-Browne et al., 2006).

Depressive symptoms and clinical depression

The literature on depression includes research involving: (1) sub-clinical depression, which reflects self-reported depressive symptoms in nonclinical samples, and (2) clinical depression, which reflects samples that have an existing clinical diagnosis of a depressive disorder or are classified by the research team via structured clinical interviews. Depressive symptoms such as feelings of worthlessness, guilt or hopelessness (discussed in more detail above) are essential to the diagnosis of depressive disorders. However, there is a clear distinction between the presence and experience of symptoms of depression, and clinical depression. Therefore, although these two methods of measuring depression relate, they also differ substantially. For example, Beck, Steer and Carbin (1998) found that diagnosed depressive disorders share an average correlation of .60 with depressive symptoms in nonclinical samples. This suggests that findings from research that consider depressive symptoms in sub-clinical samples do not completely generalise to clinical populations.

In considering interpersonal processes associated with depression, I will draw on research which considers both depressive symptoms in nonclinical populations and clinical depression. This is both appropriate and necessary as depressive symptoms are experienced to varying degrees by people in non-psychiatric populations (Flet, Vrendenburg, & Krames, 1997). A large portion of the research available involves self-reported depressive symptoms, and depressive symptoms are thought to be pre-cursors to the development of clinical depression (Mathews & MacLeod, 2005). Indeed, the focus of this research is to examine processes within interpersonal contexts that are considered risk factors for depression, and thus, considering such factors in nonclinical populations with reports of depressive symptoms is both relevant and important in establishing depressive vulnerability (Mathews & MacLeod, 2005). For these reasons, this research will also focus on depressive symptoms as a predictor of the interpersonal processes that should contribute to the maintenance and exacerbation of depressive symptoms, which also contributes to advancing understanding of the development and perpetuation of depression.

Interpersonal Theories of Depression

There are a range of prominent etiological models describing how depression develops and is maintained or perpetuated, and therefore what aspects should be targeted for prevention and treatment. The most well-known of these theories include: biological (e.g. Davidson, Pizzagalli, Nitschke, & Putnam, 2002; Southwick, Vythilingham & Charney, 2005), cognitive (e.g. Beck 1976; 1991; Peterson & Seligman, 1984), psychosocial (e.g. Brown, Harris & Hempworth, 1994; Nolen-Hoeksema, Girgus, & Seligman, 1992) and psychodynamic (see Busch, Rudden, & Shapiro, 2007 for a review) theories. However, these influential theories of depression predominately ignore important interpersonal processes which can impact on the development and maintenance of depressive symptoms. In contrast, interpersonal theories of depression (which are less widely known and researched) identify specific mechanisms found within the social context of relationships that create and maintain depression, including focusing on negative self-relevant information (Self-verification theory, Swann, 1983), creating greater interpersonal stress (Stress generation theory, Hammen, 1991) and undermining social support (Social support theory, Cohen & Wills 1985). Interpersonal theories of depression recognize that maladaptive interpersonal processes lead to the onset of depressive symptoms, which then deteriorate social functioning and support, exacerbating depressive symptoms in a cyclical manner (Ball, Manicavasagar & Mitchell, 2008).

The importance of considering risk and maintenance of depression in its interpersonal context is implicated in the fundamentally interpersonal nature of depression. Humans have an intrinsic need to belong and develop and maintain strong, stable interpersonal relationships (Baumeister & Leary, 1995). Thus, disruptions to the ability to develop and maintain strong, stable interpersonal relationships are associated with greater depressive symptoms. For example, peer victimization, the presence of negative qualities in close peer relationships (e.g. Field, Diego & Sanders, 2001; Hawker & Boulton, 2000; La Greca & Harrison , 2005), and poorer parental relationships (Field et al., 2001) have all been found to be associated with symptoms of depression in adolescence. Importantly,

Vernberg (1990) found that a lack of social inclusion, a lack of closeness in best friendships and peer rejection in adolescence predicted increases in depressive affect over six months (see also Hodges and Perry, 1999). Aversive experiences in childhood peer relationships have also been shown to predict increased incidence of depressive disorders in adolescence (Boivin, Hymel, & Bukowski , 1995; Coie, Lochman, Terry & Hyman, 1992).

Research has also found that greater marital dissatisfaction and marital or relationship stress, such as relationship breakups, conflict and divorce can predict increases in depressive symptoms over time (Beach et al., 2003; Davila et al., 1997; Fincham et al., 1997; Monroe et al., 1999). Moreover, interpersonal difficulties in romantic relationships have been found to co-vary with depressive symptoms. For example, Karney (2001) found that levels of marital satisfaction varied as depressive symptoms varied over four years (see also Davila, Karney, Hall and Bradbury, 2003). Importantly, these findings have been found to generalise to clinical depression. For example, Cano and O'Leary (2000) examined the impact of experiencing stressful marital events and found that marital events resulted in a six-fold increase in the risk of clinical depression for woman, even after controlling for other important predictors of depression (e.g., family and lifetime histories of depression).

Of importance, not only do interpersonal disruptions trigger or exacerbate depressive symptoms, depression also tends to damage peoples' interpersonal functioning and connections with others. For example, diminished interest or pleasure in activities previously found pleasurable—a symptom of depression—is likely to reduce interpersonal contact and positive behaviour in social situations. There is also mounting evidence that depression adversely affects the quality and nature of interpersonal relationships, in particular, relationships with peers, family members and romantic partners. For example, children and adolescents who have more (versus less) depressive symptoms or affect at one time point are more likely to be victimised or rejected by their peers at a later time point (Faust et al., 1985; Hodges & Perry, 1999; McLaughlin, Hatzenbuehler, & Hilt, 2009;

Vernberg, 1990). There is also clear evidence that parental depression has a substantial negative impact on children (Lovejoy, Graczyk, O'Hare & Neuman, 2000). And, in the context of romantic relationships, research has found that depressive symptoms predict increases in marital stress (Davila et al., 1997) and decreases in marital satisfaction (Davila et al., 2003; Fincham et al., 1997).

A large amount of research has also demonstrated that the way in which people behave in their interpersonal relationships is related to depression. For example, research has found that spouses with more depressive symptoms report engaging in more negative behaviours during conflict resolution than those with fewer depressive symptoms (e.g. Marchand, 2004; Marchand & Hock, 2000; Uebelakcker, Courtnage & Whisman, 2003). Observational research has also found that spouses who report more depressive symptoms are more likely to engage in negative conflict resolution strategies. For example, Du Rocher Scudlich, Papp and Cummings (2004) found that after controlling for marital satisfaction, spouses who reported more depressive symptoms engaged in more verbal hostility, defensiveness and withdrawal during conflict discussions. Furthermore, when compared to couples who do not report depressive symptoms, couples in which one partner reports depressive symptoms engage in more negative marital interactions (Basco, Prager, Pita, Tamir & Stephens, 1992; Johnson & Jacob, 1997; McCabe & Gotlib, 1993). This suggests that depression impacts on the behaviour of both the person suffering from depression and also those with who they interact. Knoblock-Fedders, Knobloch, Rosen, Durbin and Critchfield (2013) found that partners of individuals with clinical depression who were in distressed relationships were more likely to engage in hostile (e.g. blaming, attacking and ignoring) and submissive (e.g. walling off and distancing) behaviours during a discussion designed specifically to elicit intimacy and positive affect (for discussions of stress-relevant topics see Gabriel, Beach and Bodenmann, 2010).

The existing research provides clear support that interpersonal difficulties and processes can promote depression, and importantly that depressive symptoms produce dysfunctional interpersonal dynamics that can maintain and perpetuate depression. Support is a particularly important

interpersonal context given (a) the critical role it has been demonstrated to play in sustaining wellbeing (see Cohen & Wills, 1985 for a review) and (b) that support from close others can help protect against depressive symptoms (e.g., George, Blazer, Hughes and Fowler, 1989; Collins & Feeney, 2000). However, despite the importance of support for people experiencing depression, the specific interpersonal difficulties associated with depression may prevent individuals with elevated depressive symptoms from receiving the benefits of support. In particular, depressive symptoms are associated with (1) negatively biased perceptions, and (2) reassurance-seeking, both of which I predict will reduce the support people with elevated depressive symptoms will experience in their close relationships, which will consequently contribute to the exacerbation or maintenance of depressive symptoms across time. I elaborate on these two processes in turn.

1. Depression and Biased Perceptions

Cognitive models of depression (e.g., Abramson, Metalsky, & Alloy, 1989; Beck, 1976; 1991; Ellis, 1987; Kuiper, Olinger, & MacDonald, 1988) postulate that depression is characterised by negatively biased or distorted thinking patterns and information-processing (i.e., attention, memory and interpretations or perceptions) and that these biases are key to the development, maintenance and exacerbation of depressive symptoms (Young, Rych, Weinberger, & Beck, 2008). The association between depression/depressive symptoms and negative information-processing biases is well established (for reviews see Gotlib & Joormann, 2010 and Matthews & MacLeod, 2005). For example, a recent meta-analysis concluded that, compared to controls, people with clinical depression, high levels of depressive symptoms, or induced depressed mood, are quicker to attend to negative emotional information than neutral information, and attend to this emotional information for longer (Peckham, McHugh & Otto, 2010). In addition, compared with non-depressed individuals, dysphoric and clinically depressed individuals display a tendency to interpret ambiguous stimuli in a negative manner (Wisco & Nolen-Hoeksema, 2010; Mogg, Bradbury & Bradley, 2006;

Mathews & MacLeod, 2005) and a relatively enhanced memory for emotionally negative information (Matt, Vazquez, & Campbell, 1992; Mathews & MacLeod, 2005).

The role of cognitive biases in the development, maintenance and exacerbation of depressive symptoms has also been demonstrated. In particular, prospective studies have shown that depressive cognitive biases predict future occurrences of depressive symptoms (e.g., Alloy, Abramson, & Francis, 1999; Metalsky, Abramson, Seligman, Semmel, & Peterson, 1982) and the duration of depressive symptoms (e.g. Brittlebank, Scott, Williams, & Ferrier, 1993; Dent & Teasdale, 1988). To provide an example, Segal, Gemar and Williams (1999) found greater increases in negative thinking following a dysphoric mood induction were associated with an increased risk of depressive relapse among individuals who had recently remitted from depression. Furthermore, negative information processing biases have been found to predict depressive symptoms 4-6 weeks later (Rude, Wenzlaff, Gibbs, Vane & Whitney, 2002), and major depression diagnoses 18-28 months later (Rude, Valdez, Odom & Ebrahimi, 2003).

Further evidence for the role of cognitive biases in the development and maintenance of depression comes from research on cognitive therapy (CT; often discussed under the generic label of cognitive behaviour therapy [CBT]). CT is considered to ameliorate depressive symptoms by shifting negatively biased thinking to becoming more evidence-based and adaptive (Beck, 2011). The efficacy and effectiveness of CBT for depression has been well supported empirically (e.g., Butler, Chapman, Forman, Beck, 2006; Oei & Dingle, 2008; Dwyer, Olsen & Oei, 2013). Research has demonstrated that reductions in cognitive distortions over the course of therapy predict reductions in depressive symptoms (e.g., DeRubeis, Evans, Hollon, Garvey, Grove & Tuason, 1990; DeRubeis & Feeley, 1990). For example, Furlong and Oei (2002) found that a reduction in the negative cognitions of people who had a diagnosis of Major Depressive Disorder or Dysthymia Disorder and who were treated with group CBT predicted decreases in depressive symptoms. In another study Tang, DeRubeis, Beberman and Pham (2005) found that people being treated for clinical depression with

CBT experienced a large reduction in depressive symptoms following a session in which independent trainers had rated a decrease in dysfunctional thinking (compared to control sessions).

As discussed above, however, the precipitating factors and consequences associated with depression are often interpersonal in nature. Accordingly, depression is particularly associated with cognitive biases within social contexts and interactions with others. A range of studies demonstrate that depressive symptoms are associated with negatively biased processing of interpersonal information. For example, people diagnosed with a depressive disorder attend to sad facial expressions for longer than neutral faces (Gotlib, Krasnoperova, Joormann, & Yue, 2004), and overestimate the negative emotions conveyed from facial expressions (e.g., Gilboa-Schechtman, Foa, Vaknin, Maron, & Hermesh, 2008; Hall, Andrzejewski, & Yopchick, 2009). Dysphoric people perceive that others evaluate them more negatively (Marcus & Askari, 1999) and perceive others' behaviours more negatively. For example, Pietromonaco, Rook and Lewis (1992) found that people who reported higher levels of depressive symptoms underestimated the amount of sympathy provided to them in an interaction with a stranger when directly compared to both strangers' reports of sympathy and trained judges' perceptions. Not surprisingly, then, depressed individuals also view significant others more negatively and less positively compared to control participants (Gara, Woolfolk, Cohen, Goldston, Allen, & Novalany, 1993).

Only a few studies have considered cognitive biases and depression within romantic relationships specifically. Gordon, Tuskeviciute and Chen (2013) found that individuals' depressive symptoms and daily depressed mood was associated with perceiving partners to be less understanding. In addition, directly assessing the accuracy of partner perceptions, Overall and Hammond (2013) found that both women and men with elevated depressive symptoms underestimated their partner's commitment and overestimated their partner's negative behaviour when compared to the partner's actual reports of commitment and behaviour. Moreover, these negatively biased perceptions were associated with increases in daily depressed mood, suggesting

that interpersonal perceptual biases may contribute to the maintenance or exacerbation of depressive symptoms.

Biased Perceptions of Support

The cognitive biases associated with depressive symptoms should also generalise to the important context of support from close others. In particular, people with depression or elevated depressive symptoms are likely to perceive, process and experience support availability and provision in a negatively biased manner. Indeed, a large number of studies indicate that depression, depressive symptoms and related factors are associated with lower perceptions of available support – that is, the degree to which others will provide support if needed (e.g., Barrera, 1986; Cohen & Wills, 1985; Swindle, Cronkite & Moos, 1989; Uchino, Cacioppo, Kiecolt-Glaser, 1996). For example, Cohen, Towbes and Flocco (1988) found that situationally induced negative emotion was negatively related to individuals' perceptions of currently available social support. Studies have also found a prospective relationship between depressive symptoms, negative outlook (Vinokur et al., 1987), depressive cognition (Maher, Mora & Leventhal, 2006), and perceptions of received support from others or general availability of support. For example, Lakey (1989) and Lakey and Dickinson (1994) found that participants' depressive symptoms and negative cognitions (Lakey, 1989) were associated with reports of lower levels of perceived support in their first semester at college.

Despite consistent negative links between depression/depressive symptoms and general perceptions of support, only two studies have considered the link between depression and perceived support within specific relationships or within specific support-relevant exchanges. Gurung, Sarason, and Sarason (1997) found that greater depressive symptoms were associated with more negative perceptions of support availability from romantic partners. Davila et al. (1997) also found that spouses with elevated depressive symptoms expected their partner would be more negative and less supportive in an upcoming support interaction. However, in both of these studies, depression was also associated with more negative behaviours delivered during couples' actual support-relevant

interactions (as rated by independent observers). Thus, the negative perceptions of support associated with depressive symptoms might not represent biased perceptions, but actually an accurate assessment of the negativity that depression causes in interpersonal interactions. This remains unknown as both studies did not assess perceptions of the support actually provided by partners during their interactions, but instead expectations of support (Davila et al. 1997) or general perceptions of support gathered prior to the interaction (Gurung et al., 1997).

In sum, it remains unclear whether depressive symptoms produce negatively biased perceptions of the actual support partners deliver during couples' support interactions. This is a significant gap in the existing literature given that the provision of social support often occurs within romantic relationships, romantic partners play a central and vital role in support provision (Brown & Harris, 1978; Cutrona & Suhr, 1994), and that conceptualisations of depression in marriage highlight the importance of social support processes (e.g., Gotlib & Beach, 1995). It is also important because biased perceptions of actual support behaviours should mean that individuals with elevated depressive symptoms cannot reap the benefits of support exchanges, and instead feel less supported, greater negative emotions and less able to move forward with the personal goals or stressors they have sought support for. For example, a lack of perceived support following couples' support-based interactions has been demonstrated to be associated with more negative relationship evaluations, less successful goal achievement, and less effective coping across time (e.g., Conger, Rueter & Elder, 1999; Feeney, 2004; Overall, Fletcher & Simpson, 2010).

The current research was designed to extend and overcome the limitations of prior research by directly testing whether elevated depressive symptoms lead to negatively biased perceptions of the actual support behaviours partners have delivered in response to important personal goals. I assessed perceptions of support behaviour in two ways. Participants reported on the degree to which their partners had engaged in specific support behaviours over the past month in relation to a specific personal goal (retrospective perceptions of partners' support provision). Participants then had video-

recorded discussions with their partner about a personal goal they were striving towards, and rated the degree to which their partner engaged in specific support behaviours during the actual discussion (post-discussion perceptions of partners' support provision). In order to determine whether individuals with higher depressive symptoms perceive less support than they receive (i.e., have biased perceptions of support) or whether they actually elicit less support from their partners, two comparison or benchmark measures of support provision were employed: (1) partners' reports of their actual support provision over the past month and during couples' support discussion, and (2) ratings by independent coders of partners' support behaviours exhibited during the video-recorded discussions.

In addition, I also examined the consequences of more negative perceptions of support. Figure 1 outlines the predicted associations and measures gathered in the current research. I predicted that greater depressive symptoms would be associated with more negatively biased perceptions of the support provided by partners as indicated by lower perceptions of support provision than the partner or observer reports indicate is the case (Figure 1, Path A). I also expected that seeing the partner as not providing specific support behaviours would contribute to important negative outcomes, including feeling less supported, experiencing greater anger and sadness, and perceiving the discussion as less successful in helping achieve targeted goals (Figure 1, Path B). I expected this pattern to be evident in both retrospective reports of support over the past month and as couples had important support-relevant discussions observed in the laboratory.

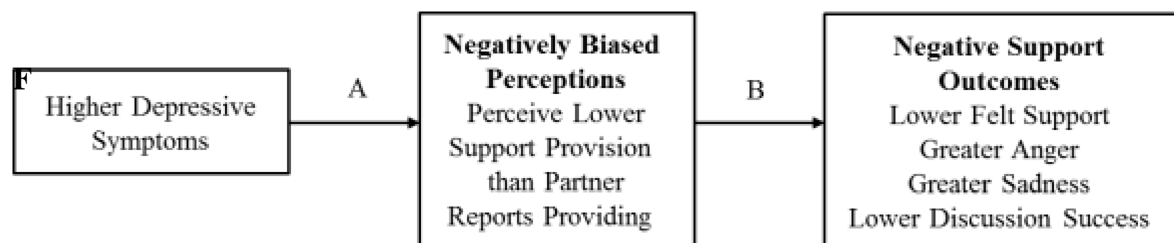

Figure 1. Model depicting the predicted links between depressive symptoms, negatively biased perceptions and negative support outcomes.

Finally, the current research was designed to offer the first test of whether cognitive biases during romantic couples' interactions maintain or exacerbate depression across time. As discussed above, dysfunctional interpersonal dynamics are hypothesized to be critical in the perpetuation of depressive symptoms (Beach et al., 2003; Cano & O' Leary, 2000; Davila et al., 1997; Fincham et al., 1997; Monroe et al., 1999). Negatively biased perceptions of support should play an important role in these processes because a lack of support and feelings of rejection foster depression and depressive symptoms (Hawker & Boulton, 2000; La Greca & Harrison, 2005; Vernberg, 1990). Moreover, a lack of support should be particularly important for people with high levels of depressive symptoms who really need their partners' support. Indeed, for people with low levels of depressive symptoms, who are less in need of support, perceiving or receiving lower levels of support might have little impact on their depressive symptoms across time. In contrast, for people high in depressive symptoms, possessing negative evaluations of support may exacerbate depressive symptoms further.

Demonstrating the interpersonal cycle central to depression, I predicted that perceiving the partner to provide low levels of support would be associated with an increase in depressive symptoms six months after couples' support discussions in the laboratory (i.e., contribute to the maintenance and exacerbation of depression). Furthermore, given the interpersonal sensitivity of individuals with greater depressive symptoms and their likely need for support, I predicted that more negative perceptions of support may predict increases in depressive symptoms specifically for those individuals who were higher in depressive symptoms to begin with. I expected this pattern to emerge with both retrospective reports of support over the past month and reports of support from couples' support-relevant discussions.

2. Depression and Excessive Reassurance-Seeking

The current research was also designed to target another interpersonal process that is central to the development and maintenance of depression, is relevant to support transactions between

partners, and should also undermine support processes in romantic relationships. In particular, excessive reassurance-seeking—the tendency to ask others excessively for reassurance of worth—is posited to play a central role in the interpersonal difficulties associated with depression (Coyne, 1976; Joiner, Alfano, & Metalsky, 1992). Reassurance-seeking is central to the interactional theory of depression proposed by Coyne (1976), which has been elaborated by Joiner and colleagues (1992). This model is depicted in Figure 2. First, individuals who experience depressive symptoms often seek reassurance from close others as to whether they are worthy and loveable (Figure 2, path A). Initially, others may respond by providing desired assurance, but the excessive nature of reassurance-seeking by depressed individuals is fuelled by doubts regarding the sincerity of the reassurance, which results in close others avoiding or rejecting the reassurance-seeker (Figure 2, path B). In turn, this interpersonal rejection maintains or worsens depressive symptoms (Figure 2, Path C)

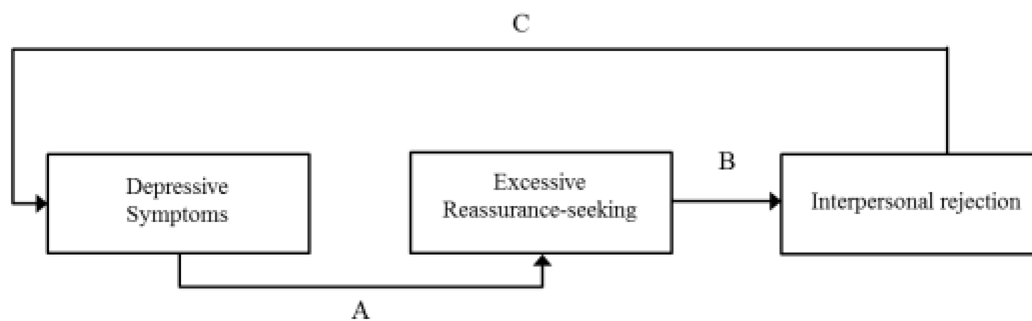

Figure 2. Model depicting Joiner and Colleague's (1992) hypothesised cyclical link between depressive symptoms, excessive reassurance-seeking, and interpersonal rejection.

A large body of research supports Joiner and Colleague's (1992) model and implicates that excessive reassurance-seeking is a contributing factor to the development, maintenance, and exacerbation of depression and an important mechanism underlying the links between depression and interpersonal rejection. First, prior research supports that depressive symptoms are associated with excessive reassurance-seeking (Figure 2, Path A). Numerous studies using a wide range of participants across a number of settings have found that individuals with more depressive symptoms

report higher reassurance-seeking than individuals with fewer depressive symptoms (Davila, 2001; Joiner, 1994; Joiner et al., 1992; Joiner, Alfano & Metalsky, 1993; Joiner & Metalsky, 1995; Joiner, Metalsky, Genzoc & Genzoc, 2001; Lemay & Cannon, 2012; Potthoff, Holahan & Joiner, 1995). The same has been found for people who have received a clinical diagnosis of depression (Joiner, 1999; Joiner & Metalsky, 2001; Joiner et al., 2001). A meta-analysis conducted by Starr and Davila (2008) of 38 cross-sectional studies found a moderate positive correlation between excessive reassurance-seeking and concurrent depressive symptoms, suggesting the relationship between excessive reassurance-seeking and depressive symptoms is relatively robust.

Prior research has also provided support for Joiner and Colleague's (1992) hypothesis that excessive reassurance-seeking in combination with depressive symptoms can elicit interpersonal rejection (Figure 1, Path B). For example, Joiner and colleagues (1992) found that males with a higher number of depressive symptoms who reported excessive reassurance-seeking were more likely to have same-sex roommates who reported desires to avoid targets and to rate targets as less worthy five weeks later (compared to non-depressed students; also see Joiner et al., 1993 and Joiner & Metalsky, 1995). Similarly, Katz and Beach (1997) found that women with depressive symptoms who reported excessive reassurance-seeking were more negatively evaluated by their dating partners. Moreover, partners were less satisfied when women with elevated depressive symptoms reported excessive reassurance-seeking (also see Benazon, 2000 and Lemay & Cannon, 2012). In addition, the meta-analysis by Starr and Davila (2008) revealed a robust association between higher levels of reassurance-seeking and greater levels of interpersonal rejection by others, strongly implicating excessive reassurance-seeking in the link between depressive symptoms and interpersonal rejection.

Finally, supporting the cyclical nature of depression and reassurance-seeking, research has suggested that (1) excessive reassurance-seeking is a contributing vulnerability factor to the development of depression at least in part because (2) the rejection resulting from excessive reassurance-seeking is likely to exacerbate depressive symptoms and maintain depression (Figure 2,

Path C). For example, excessive reassurance-seeking at one time point has been demonstrated to be associated with increases in depressive symptoms at a later time point, suggesting it may play a causal role in the development of depressive symptoms. Joiner and Metalsky (2001) found students who reported high levels of reassurance-seeking at one time point reported more depressive symptoms 10 weeks later compared to those who reported low reassurance-seeking. Similar findings have been found with air force cadets undergoing basic training (Joiner & Schmidt, 1998) and with youth (Abela, Zuroff, Ho, Adams & Hankin, 2006). The role of rejection in exacerbating depressive symptoms and maintaining depression (Figure 2, Path C) has also been supported by longitudinal evidence. For example, Katz, Beach and Joiner (1998) found that women who were high in reassurance-seeking and were devalued by their heterosexual relationship partners at one time point experienced an increase in depressive symptoms at a later time.

Despite the growing evidence for the links between depressive symptoms, reassurance-seeking and interpersonal rejection, there are key limitations of this body of work. First, prior studies have solely measured excessive reassurance-seeking by asking participants to rate their general perceptions of their reassurance-seeking behaviour (e.g., “Do you frequently seek reassurance from the people you feel close to as to whether they really care about you?”). Although the reliability and validity of self-report measures have been demonstrated (Metalsky, Joiner, Potthoff, Pacha, Alfano & Hardin, 1991), and Joiner and Metalsky (2001, study 2) found that participants’ self-reported reassurance-seeking was consistent with observer rated reassurance-seeking behaviour during a five minute discussion, there is no evidence that depressive symptoms are associated with actual reassurance-seeking behaviours in relevant interpersonal interactions. It is possible, for example, that the links in Figure 2 could arise because depressed people hold more negative perceptions of themselves and their relationships and/or possess biased perceptions, as discussed above.

There also exist limitations in the way interpersonal rejection has been measured in this body of work. Prior studies have measured interpersonal rejection indirectly by assessing roommates’ and

male partners' reported esteem held for depressed targets (Joiner & Metalsky, 1995; Joiner & Metalksy, 2001, study 5, Joiner et al., 1992, Joiner et al.,1993; Katz & Beach, 1997; Katz et al., 1998, Lemay & Cannon, 2012), roommates intent to avoid depressed targets (Joiner et al., 1995), roommates desire to avoid depressed targets (Joiner et al., 1992), spouses' relationship satisfaction (Benazon, 2000) and romantic partners' acceptance of and felt closeness to depressed targets (Lemay & Cannon, 2012). Although these studies indicate that people close to depressed individuals begin to evaluate them more negatively, and provide good evidence that the effects are the result of interpersonal behaviour, they do not demonstrate that these negative evaluations translate or lead to actual rejecting behaviours. In addition, a few studies have not supported this pathway by finding null associations between excessive reassurance-seeking and relationship dissatisfaction in dating couples (Shaver, Schackner & Mikulincer, 2005) and peer rejection in adolescence (Prinstein, Borelli, Cheah, Simon & Aikins, 2005). Thus, rejection may not always be a consequence of excessive reassurance-seeking.

Finally, prior research has primarily examined the interpersonal consequences of excessive reassurance-seeking in same-sex roommates in young undergraduates (with the exception of Benazon, 2000; Katz & Beach, 1997, Katz et al., 1998; Lemay & Cannon, 2012 and Shaver et al., 2005). Although potentially important, the most significant source of support for most people from adolescence onwards is their romantic partner (Cutrona & Suhr, 1994). Thus, romantic partners are often the main person on the receiving end of excessive reassurance-seeking. Furthermore, difficulties in romantic relationships specifically have been found to contribute to depressive symptoms (Beach et al., 2003; Beach & O'Leary, 1993; Davila et al., 2003), and depressive symptoms themselves have been demonstrated to predict relationship problems (Davila et al., 2003; Kurdek, 1998) and declines in satisfaction (Whisman, 2001). Thus, examining reassurance-seeking processes within romantic relationships is important.

Reassurance-Seeking during Couples' Support Exchanges

The current research was designed to overcome the limitations of prior research and to provide the first behavioural examination of reassurance-seeking within romantic partners' actual support-relevant interactions. Couples' support-based discussions are an excellent context in which to assess reassurance-seeking behaviour because individuals are in a position to seek support, help and reassurance from their partners about important personal issues. Furthermore, it is important to consider reassurance-seeking within support contexts because, as discussed above, people with greater depressive symptoms are likely to need more support than those with lower depressive symptoms and engagement in reassurance-seeking during support discussions may interfere and inhibit providers' provision of support.

The employed methodology also enables a behavioural assessment of both reassurance-seeking and interpersonal rejection. In this study couples were video-recorded engaging in support discussions with their romantic partners. Reassurance-seeking was measured with independent ratings of observed reassurance-seeking behaviours. Objective observers were trained to identify reassurance-seeking behaviours using a newly-generated coding scheme which was developed based on the definition and descriptions of reassurance-seeking in the existing literature (see Table 1; discussed further in the methodology section). The consequences of reassurance-seeking were also measured more objectively than in prior studies. In particular, independent coders rated partners' engagement in specific support behaviours, and interpersonal rejection was conceptualized as partners exhibiting less positive support behaviours (the exact opposite of what reassurance-seeking is trying to attain in this context).

Finally, in order to assess the longitudinal perpetuation of depressive symptoms hypothesized to arise from reassurance-seeking, I investigated the impact of partners' responses to reassurance-seeking on depressive symptoms six months after the initial laboratory session. Most of the prior studies examining the consequences of excessive reassurance-seeking and subsequent interpersonal

rejection have been limited to ten week time frames (with the exception of Prinstein et al., 2005), and there have been a lack of prospective studies that consider all of the elements proposed by Joiner and colleague's (1992) model (see Figure 2). I do this in the current research by investigating (1) whether depressive symptoms and reassurance-seeking contribute to interpersonal rejection in the form of lower support provision, and (2) whether this rejection (lower support from partner) contributes to the exacerbation of participants' depressive symptoms across the following six-month period.

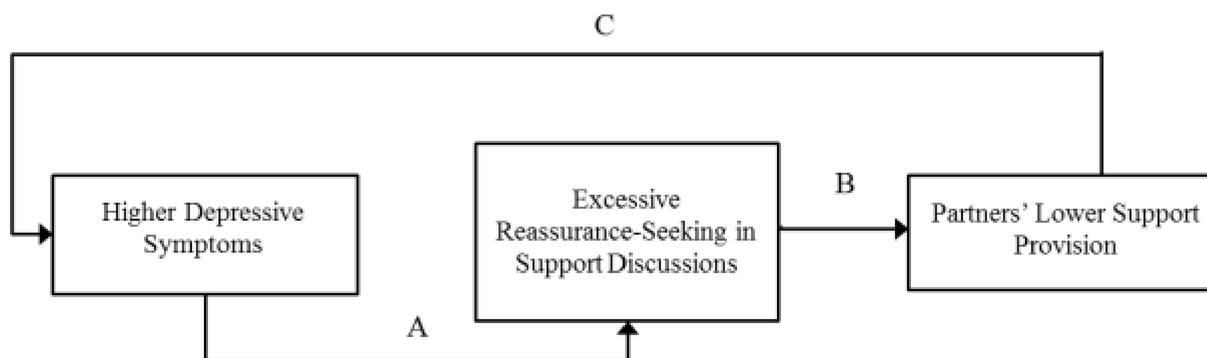

Figure 3. Model translating Joiner and Colleague's (1992) hypothesised cyclical link between depressive symptoms, excessive reassurance-seeking, and interpersonal rejection to the current research.

Figure 3 translates Joiner and colleague's (1992) model to the current research design and measures. I predicted that greater depressive symptoms would be associated with engagement in excessive reassurance-seeking during couples' video-recorded support discussions (Figure 3; Path A). If Joiner and colleague's (1992) model is correct, greater engagement in reassurance-seeking should also be negatively associated with partners' supportive behaviours during couples' support discussions (Figure 3; Path B). Moreover, partners' lower support provision should be associated with an increase in depressive symptoms six months later (Figure 3; Path C). Consistent with prior research showing that the interaction between depressive symptom and reassurance-seeking is important, I also expected this latter pathway to be particular relevant to people with high levels of

initial depressive symptoms, who have a greater need for support and reassurance. In contrast, for people with low initial levels of depressive symptoms, who are likely to be less in need of support, levels of partners' support provision may have little impact on their depressive symptoms over time.

Table 1. Support Recipients' Reassurance-Seeking Strategies Coded during Couples' Video-Recorded Discussions

Type of Reassurance-Seeking	Examples of Verbal Statements	Verbal Tone and Delivery*
Seeking Reassurance of Self-Worth		
Questioning the degree to which the partner perceives the self as loveable, worthy, valuable, able and/or attractive	*"Do you think I can do it?"; "Do you believe that I can find a good job?"; "But do you think I'm sexy?"*	Expressed in a manner that appeals for a confirming response
Asking the partner whether the individual is improving in regards to their goal	*"Do you think it is improving?"; "Do you think I am getting better?; "Do you think I am changing?"*	Expressed in a manner that appeals for a confirming response
Seeking verification that the self is changing/ making progress in desired ways	*"It is changing…"; "I think it's getting better…"; "I think I'm working toward my fitness already…"*	Question-like delivery which pulls for confirmation or agreement
Seeking verification that the self-identified problem or goal is not that bad	*"It doesn't happen often"; "I can still hike 15 miles a day"*	Tone pleads for verification and validation
Debasing the self in order to attain reassurance of self-worth and capability	*"…but I can't change it, so it doesn't matter"; "I don't have what it takes to achieve this"*	Expressed in a way that invites or ensures disconfirmation
Seeking Reassurance of the Partner's Commitment		
Questioning the degree to which the partner loves, cares and supports the self and/or is committed to the relationship	*"Don't you care about me embarrassing myself?"; "Do you even love me?"*	Tone appeals for reassurance that the partner cares and is commitment
Stressing the negative impact the partner or the situation has on the self in order to obtain the partner's love, care and concern	*"I think you feel it is more important than spending time with me"; "I need you and you're not there and that gets really hard."*	Expressed in a manner that invites or ensures comfort and support from the partner
Asking the partner whether the partner wants change or sees the issue as a relationship problem	*"Did you put that as something you want to change in me?"; "I know that you think the sexy attitude I lack in our intimate relationship is a problem, you notice that don't you, in our relationship?"*	Delivered in a question-like manner which pulls for partner to deny or refute they desire change

**These verbal strategies are accompanied by a range of non-verbal behaviours (eye signals, body posture, facial expressions) that signal (a) a desire for verification of positive (and disconfirmation of negative) aspects of the self and the relationship and (b) emphasize a dependence on the partner and need for reassurance*

Current Research

The goal of the current research was to investigate whether two processes shown to be associated with depression/depressive symptoms—negatively biased perceptions and excessive reassurance-seeking—undermine the much needed support people with elevated depressive symptoms require from their romantic partners, and whether these processes contribute to negative support-relevant outcomes and the maintenance or exacerbation of depressive symptoms over time. First, overcoming limitations of prior research examining depression/depressive symptoms and perceptions of support, the current study was designed to test whether (1) elevated depressive symptoms are associated with negatively biased perceptions of the actual support behaviours romantic partners have provided in response to important personal goals, and (2) whether the resulting negative perceptions of support contribute to negative support outcomes as well as the maintenance or exacerbation of depression across time. Second, the current study was also designed to provide the first behavioural examination of reassurance-seeking during actual interpersonal interactions, and examine whether (1) depressive symptoms were associated with actual reassurance-seeking behaviour during couples' support relevant interactions, (2) whether such reassurance-seeking was associated with lower support provision from romantic partners during these support discussions, and, in turn, (3) contributed to increased depressive symptoms over time.

To do this, I employed a multi-method approach using both self-report questionnaires and behavioural observations of couples during a support exchange (see Heyman, 2001). Heterosexual couples attended a 2.5 hour laboratory session in which each participant completed standard measures assessing depressive symptoms, identified an important personal goal he/she was trying to achieve, and reported on the support he/she had received from his/her partner in regard to that goal over the past month. Couples were then video-recorded discussing each other's personal goals, and following each support discussion, participants reported on the support they received from their partner. To assess the outcomes of support experiences, participants also reported on important

support outcomes they experienced over the past month and immediately after the support discussion, such as their feelings of support, negative emotions and evaluations of discussion success.

My first goal was to examine the role of negatively biased perceptions in undermining the support people with elevated depressive symptoms experience. I predicted that participants with elevated depressive symptoms would perceive their partners to engage in less supportive behaviours over the past month and perceive their partners to engage in less supportive behaviours during their video-recorded discussion with their partner. To determine whether these negative perceptions of support were biased, or whether people with greater depressive symptoms actually elicit less support from their partners, two comparison measures of support provision were also gathered: (1) partners' reports of their actual support provision over the past month and during couples' support discussions, and (2) ratings by independent coders of partners' support behaviours exhibited during the video-recorded discussions. As outlined in Figure 1, I predicted that greater depressive symptoms would be associated with more negatively biased perceptions of the support provided by partners as indicated by lower perceptions of support provision than the partner or observer reports indicate is the case (Figure 1, Path A). I also expected that seeing the partner as providing less support would be associated with important negative outcomes, including more negative feelings of support, more negative emotions toward the partner, and lower discussion success (Figure 1, Path B).

The current research also provided the first test of whether perceptual biases during romantic couples' support-relevant interactions contribute to the maintenance or exacerbation of depressive symptoms across time. I did this by following up couples over time. Specifically, six months after this initial laboratory session couples were asked to report again on their depressive symptoms in order to determine whether the support processes assessed in the initial session were associated with changes in depressive symptoms across time. I predicted that perceiving the partner to provide low levels of support would be associated with an increase in depressive symptoms six months after

couples' support discussions in the laboratory. Furthermore, given the interpersonal sensitivity of individuals with greater depressive symptoms and their likely need for support, I predicted that more negative perceptions of support would predict increases in depressive symptoms specifically for those individuals who were higher in depressive symptoms to begin with.

The second goal of the study was to examine the role of reassurance-seeking in circumventing effective support. Because reassurance-seeking has not been examined within actual behavioural interactions before, I developed a new observational coding procedure to assess the degree to which reassurance-seeking behaviours were exhibited during couples' support-relevant discussions. Similarly, in order to determine whether reassurance-seeking during actual support interactions leads to interpersonal rejection, the interpersonal consequences of reassurance-seeking were measured behaviourally, with interpersonal rejection conceptualized as partners exhibiting less positive support behaviours as rated by independent coders. Thus, this study provides the first behavioural examination of reassurance-seeking and its interpersonal consequences during couples' support-relevant interactions. I also evaluated the association between partners' responses to reassurance-seeking and depressive symptoms across six months in order to determine whether partner rejection (or lower support provision) magnifies participants' depressive symptoms and, therefore, contributes to the maintenance or perpetuation of depressive symptoms.

As indicated in Figure 3, I predicted that greater depressive symptoms would be associated with greater reassurance-seeking during couples' video-recorded support discussions (Figure 3; Path A). Following Joiner and colleague's (1992) model, greater engagement in reassurance-seeking should also be negatively associated with partners' supportive behaviours during couples' support discussions (Figure 3; Path B). Moreover, partners' lower support provision should be associated with an increase in depressive symptoms six months later (Figure 3; Path C). As before, I expected this latter pathway to be particularly relevant to people with higher levels of initial depressive symptoms who have a greater need for support and reassurance.

Method

Participants

One hundred heterosexual couples responded to campus advertisements at a New Zealand University and were paid NZ$70 for participating in an initial 2.5 hour lab-based session and $20 each for a final follow-up online questionnaire six months after the initial session (see Appendix 1). Couples were on average 22.64 years of age (*SD* = 6.51), and were involved in long-term (*M* = 39.34 months, *SD* = 49.87) and fairly serious (47% rated as serious, 36% cohabiting, 13% married) relationships. Participants' ethnic backgrounds were consistent with other romantic relationship research using observational methodology in New Zealand (58% New Zealand European, 10% Asian, 10% European, 4.5% Indian, 5.5% Maori, and 2% Pacific).

Procedure

After providing demographic information and completing a measure of depressive symptoms and relationship satisfaction, participants were asked to identify and rank in order of importance three personal goals that they had been thinking about and/or had been actively trying to achieve, and would continue to try to achieve for at least the next six months. They were told they would discuss one of these personal goals with their partner. Participants had been informed prior to attending the lab-based session that they would be required to list three personal goals, 97% of participants were able to provide three goals, with the remaining participants listing two. Participants were then asked to rate (1) how important their goal had been to them over the past month (1 = *not at all,* 7 = *Very; M = 5.69; SD = 1.32),* (2) how much they desired change in themselves regarding their goal (1 = *not at all,* 7 = *Very; M = 5.67; SD =1.22)*, (3) how close they were to achieving their goal (1 = *not at all,* 7 = *Very; M = 3.92; SD = 1.24*), and (4) the extent to which they had already discussed their goal with their partner (1 = *not at all,* 7 = *Very; M = 5.32; SD =1.60*). The experimenter used these ratings to ensure that the personal goal discussed was important, ongoing and achievable. The most important ranked personal goal for each participant was chosen by the experimenter as the focus of the

subsequent measures and discussions unless couple members' highest-ranked goals overlapped, in which case the next important goal unique to the individual was selected.

The procedure used in this study is a standard procedure used frequently in research considering personal goals (e.g., Overall et al., 2010 and Pasch & Bradbruy, 1998). It ensures that participants discuss and report on important individual personal goals that they are actively working on, and not relationship goals or areas of conflict. To clarify whose goal is being assessed and analysed, I refer to the person whose goal was the target of measures and discussions as the "support recipient" and their partner who could be supportive as the "support provider". Both partners completed measures and discussed goals in which they were the support recipient and the support provider.

Retrospective Reports. Once the targeted goals were identified, support recipients completed scales assessing the degree to which their partner had engaged in a variety of support behaviours with regard to the recipients' personal goal over the past month, and then rated the degree to which, in the context of their goal and their partner's response, they felt (a) supported by their partner, (b) angry toward their partner, and (c) sadness regarding their partner's behaviour. In order to assess the veracity of recipients' perceptions of their partners' support behaviours, partners (support providers) were also informed of the individuals' (support recipients') personal goal and asked to report the degree to which they had engaged in the same support behaviours in relation to the recipients' personal goal over the past month.

Video-Recorded Goal Discussions. After a short warm-up discussion about events the couple had experienced in the past week, each couple engaged in two 7-minute video-recorded discussions regarding the selected personal goal of each partner. The order of discussion was counterbalanced across couples. For half the couples, the first discussion involved the female partner as support recipient discussing her goal with her male partner who was in the role of support provider, and in

the second discussion the roles were reversed. In the other half of couples, male partners were the support recipients first, and support providers second.

Across the sample, 39.5% of the personal goals focused on academic achievement and studying, 22% on improving fitness and health, and smaller categories of goals focused on other types of self-improvement (9%), career/vocational advancement (11%), relationships with others (e.g., friends or family; 9%), and finances (9.5%). This goal distribution is consistent with other research examining the progress of self-identified goals across time (e.g., Overall et al., 2010). There were no consistent significant links between depression and type of goal selected, or goal content.

Post-Discussion Reports. Immediately following each discussion, and using the same items when assessing support responses over the past month prior to the discussion, support recipients reported the degree to which they perceived their partner had engaged in a variety of support behaviours during the support discussion, and then reported how much they felt (a) supported by their partner, (b) angry toward their partner, (c) sadness regarding their partner's behaviours, and (d) how much they thought the discussion had been successful. Again, to assess the veracity of recipients' perceptions of their partners' support behaviours, support providers also reported the degree to which they had engaged in the same support behaviours during the discussion.

Follow-up Questionnaire. Six months after couples completed the lab-based session described above, each member from participating couples was contacted via email and asked to complete an on-line questionnaire which included a measure of depressive symptoms. Of the original sample, 7 couples had dissolved their relationship and 22 declined to participate, leaving a sample of 71couples on which the longitudinal analyses for this study are based. Examination of those couples who dissolved or declined to participate and those intact couples who completed the follow-up revealed no significant differences between these two groups in initial level variables presented in Table 2.

Materials

Baseline Measures

Depressive Symptoms. Partners completed the Centre for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) designed for use with nonclinical samples. The 20-item scale assesses the frequency of depressive symptoms experienced during the past week (e.g., "I felt depressed", "I felt that everything I did was an effort"). Responses ranged from 0 = *rarely or none of the time (less than 1 day)* to 3 = *most or all of the time (5-7 days)* and were scored and summed so that higher scores (out of 60) indicate presence of more symptoms. Although the CES-D is not a diagnostic tool, scores ≥ 16 are typically considered evidence for meaningful depressive symptoms. Table 2 displays descriptive statistics for this sample; 27% of men and 39% of women scored ≥ 16. And women reported experiencing significantly more depressive symptoms than men. This is consistent with epidemiological data demonstrating that women are generally more affected by depression than men (World Health Organisation, 2012), and with those reported in other New Zealand studies with similar samples (e.g., Overall & Hammond, 2013.

Relationship Satisfaction. Partners rated five items developed by Rusbult, Martz, and Agnew (1998) assessing their relationship satisfaction (e.g., "I feel satisfied with our relationship"; 1 = *strongly disagree,* 7 = *strongly agree*). Items were averaged to provide an overall index of relationship satisfaction.

Retrospective Reports

Recipients' Perceptions of Partners' Support Provision. To index the degree to which individuals perceived specific support provision behaviours from their partner across the past month, participants were asked to rate the extent to which their partners had engaged in specific support behaviours in the last month with regards to their goal. Across all measures of support, the items targeted support behaviours that have been consistently demonstrated in previous research to be beneficial in terms of reducing recipients' distress, building feelings of support, and fostering

relationship quality (e.g., Burleson, 2003; Cutrona, Shaffer, Wesner & Gardner, 2007; Cutrona & Suhr, 1992), including behaviours that (1) demonstrate care, love and concern for the recipient, and communicate empathy and concern for the recipients' current situation or distress (emotional support), and (2) demonstrate trust and confidence in recipients' abilities to accomplish their goals (esteem support). Example items assessing emotional support include "My partner reassured and comforted me" and "My partner was warm and affectionate toward me"; 1 = *not at all,* 7 = *very*. Example items assessing esteem support include "My partner expressed confidence that I could achieve my goal" and "My partner complimented my goal-related efforts and achievements"; 1 = *not at all,* 7 = *very*. The full list of support items are shown in Appendix 4. Responses to these 15 items were averaged to provide an overall index of recipients' perceived support provision.

Recipients' Felt Support by Partner. To index how much each individual felt supported by their partner with regard to their goal, participants were asked to consider their partner's response to their goal and report how much they felt supported (1 = *not at all supported*, 7 = *very supported*), helped (1 = *not at all helped*, 7 = *very helped*) and comforted/ reassured (1 = *not at all comforted/ reassured*, 7 = *very comforted/ reassured*) by their partner in the last month. Reponses were averaged to provide an overall index of felt support.

Recipients' Anger toward Partner. Keeping in mind their partner's response to their goal, participants also completed two items which assessed how angry they had felt toward their partner over the last month with regard to their partner's responses to their goal ("To what extent does your partner's thoughts, feelings and behaviour make you feel angry?"; 1 = *not at all angry*, 7 = *very angry*; "To what extent does your partners' thoughts, feelings and behaviour make you feel frustrated?"; 1 = *not at all frustrated*, 7 = *very frustrated*). These items were averaged to index felt anger.

Recipients' Sadness about Partner. Participants also completed two items which assessed how sad they had felt about their partner's response to their personal goal over the past month ("To

what extent does your partner's thoughts, feelings and behaviour make you feel sad?"; 1 = *not at all sad,* 7 = *very sad;* "To what extent does your partner's thoughts, feelings and behaviour make you feel hurt?"; 1 = *not at all hurt,* 7 = *very hurt*). These items were averaged to provide an overall index of felt sadness.

Providers' Reported Support Provision. Support providers also reported on the types of behaviour they enacted in support of their partner's (the support recipient's) goal. These items paralleled those used to assess recipients' perceptions of partners' support provision (see above) in order to directly compare couple members' reports (e.g., "I was warm and affectionate toward my partner"; "I was critical about how my partner pursued their goal" (reverse-coded); "I complimented my partner's goal-related efforts and achievements"; 1 = *not at all*, 7 = *very*). Items were averaged to index providers' reported support provision.

Post-discussion Reports

The same items used to assess retrospective support responses over the prior month were used to assess support provision and associated responses during couples' lab-based discussions of their personal goals. Immediately following each discussion, participants completed the following scales.

Recipients' Perceptions of Partners' Support Provision. To index the degree to which recipients perceived receiving specific support behaviours from their partners during support discussions, recipients rated the same items used in the retrospective reports to assess perceptions of their partner's general support provision but were instructed to report the degree to which those partner behaviours were present in the discussion they just had with their partner (e.g., "My partner expressed confidence that I could achieve my goal"; 1 = *not at all,* 7 = *very*). These 15 items were averaged to provide an overall index of perceived support provision within the goal-related discussions. The full list of support items are shown in Appendix 4.

Recipients' Felt Support, Anger and Sadness during the discussion. Recipients also rated the same items used in the pre-discussion measures to assess recipients' feelings regarding their partner's (the support provider's) behaviour during the discussion, including how much recipients perceived that his or her partner had been supportive during the support discussion, and how angry toward, and sad about, their partner they had felt during the discussion.

Recipients' Perceived Discussion Success. To index the degree to which recipients perceived the support discussion to have been successful, recipients also rated "How successful was the discussion in making progress toward your goal?"; "In your discussion, how successful were you in making progress toward your goal?"; "In your discussion, how successful was your partner in making progress towards your goal?"; 1 = *not at all successful,* 7 = *very successful*. These items were averaged to provide an overall index of perceived discussion success.

Providers' Reported Support Provision. Finally, partners also reported on how much they engaged in specific support provision behaviours during the support discussions by rating the same items used to assess recipients' perceptions (e.g., "I expressed confidence that my partner could achieve his/her goal"; 1 = *not at all*, 7 = *very*). Items were averaged to index providers' reported support provision.

Observational Coding

This study had two main goals: to assess whether recipients' depressive symptoms were associated with (1) negatively biased perceptions of actual support provided by their partners, and (2) greater reassurance-seeking, during couples' support relevant-interactions. To help achieve these goals, a team of independent coders rated the degree to which support providers exhibited emotional and esteem support behaviours (the same as those targeted in the questionnaire) to provide another objective benchmark to assess whether recipients' experienced biased perceptions of support provision. Another team of coders also rated the degree to which support recipients engaged in reassurance-seeking behaviours.

Providers' Support Provision

Coders' ratings of support focused on the same types of support provision behaviours that participants reported in the questionnaire measures to assess the degree to which providers responded with emotional and esteem support. First, two trained coders independently rated the degree to which support providers exhibited (1) emotional support, including expressing care, love and concern for the recipient, and demonstrating empathy and concern for the recipients' current situation or distress, and (2) esteem support, including communicating respect for and confidence in the recipient's qualities and abilities, and directly expressing that the recipient is worthy and valued. The specific behaviours targeted (and associated descriptions given to coders) were generated from prior coding schemes assessing emotional and esteem support (Cutrona & Suhr, 1992; Overall et al., 2010). Coders were instructed to consider the frequency, intensity, and duration of emotional and esteem support behaviours (1-2 = *low*, 3-5 = *moderate*, 6-7 = *high*), and these independent ratings were highly consistent for emotional support (*ICC* = .86 and .93 for women and men) and esteem support (*ICC* = .94 for both women and men).

In a second wave of coding, three additional trained coders independently rated the degree to which the support providers provided direct and overt support in order to make the recipient feel better about their situation, for example, by providing affection, comfort, and positive feedback (1-2 = *low*, 3-5 = *moderate*, 6-7 = *high*). Support ratings across the three coders were highly consistent (*ICC* = .97 and .96 for women and men) and thus averaged across coders to compute overall scores. These three indices of provider's emotional and esteem support were averaged to index the degree to which support providers engaged in support provision toward recipients in the discussions of recipients' personal goals.

As mentioned above, I focused on these specific types of support as they have been consistently demonstrated in previous research to be beneficial in terms of reducing recipients' distress, building feelings of support, and fostering relationship quality (e.g., Burleson, 2003;

Cutrona et al., 2007; Cutrona & Suhr, 1992), Furthermore, these nurturing types of support may be the most helpful for people who report elevated depressive symptoms and, therefore, require greater care and comfort from their partners.

Reassurance-Seeking Behaviour

To assess reassurance-seeking by support recipients, I developed a new coding schedule to assess reassurance-seeking behaviour exhibited within couples' interactions. Based on existing conceptualizations and descriptions of reassurance-seeking found in Joiner and Colleagues' work and the existing literature (e.g., Hames, Hagan, & Joiner, 2013; Joiner et al., 1992; Joiner, Katz, & Lew, 1999; Joiner et al., 2001), relevant behaviours contained within existing coding schemes targeting the different ways people might seek support (e.g., Overall et al., 2010), and detailed observations of couples engaging in these support-relevant discussions, I identified a number of verbal strategies that reflect attempts to seek feedback from partners that confirms and verifies: (1) the individual's self-worth (i.e., that the self is loveable, able, valuable, worthy and attractive) and (2) the partner's commitment (i.e., that the partner loves, cares and supports them, and that they are committed to the relationship). Examples of these verbal strategies are shown in Table 1. As indicated in Table 1, the presence of reassurance-seeking is indicated by a tone and delivery that pulls for reassurance and comfort by the partner. Moreover, to be rated as high in reassurance-seeking the behaviours in Table 1 also needed to be accompanied by nonverbal behaviours (e.g., eye signals, body posture, facial expressions) that conveyed a desire for verification of positive (and disconfirmation of negative) aspects of the self and the relationship and emphasized a dependence on the partner and need for reassurance.

This new coding scheme was first piloted on an existing sample of 61 couples (Overall et al., 2010), which revealed high coder reliability (*ICC* = .97 and .96 for women and men). Three separate coders were then trained to understand the concept of reassurance-seeking and were given detailed information and examples of the strategies listed in Table 1 (see the complete coding schedule

provided in Appendix 5). Once trained, coders independently rated the degree to which *support recipients* displayed reassurance-seeking, taking into account the frequency, intensity, and duration of the range of reassurance-seeking behaviours displayed in Table 1 (1-2 = *low*, 3-5 = *moderate*, 6-7 = *high*). After each discussion, ratings were compared across coders and any discrepancies discussed in order to limit coder drift. The independent ratings of reassurance-seeking across the three coders were highly consistent (*ICC* = .97 and .84 for women and men) and thus averaged to construct an overall score of reassurance-seeking by support recipients.

Six-Month Follow-up Questionnaire

In the follow-up online questionnaire participants completed six months after the initial session, each partner completed the CES-D scales (Radloff, 1977) described above.

Data Analysis

Descriptive statistics and correlations were used to describe and consider initial links between variables. The specific predicted effects (see Figure 2 and 3) were then tested following the guidelines and syntax provided by Kenny, Kashy and Cook (2006) to run multilevel dyadic regression models using the MIXED procedure in SPSS 19. These models estimate the effects of both women and men simultaneously controlling for the statistical dependence inherent in dyadic data (see Kenny et al., 2006). To assess the mediation pathways hypothesized (see Figure 2 and 3), I calculated indirect effects using the procedures recommended by Mackinnon, Fritz, Williams, and Lockwood (2007) to compute asymmetric confidence intervals. The specific models and analyses are described in more detail as each prediction is tested and presented in the results section.

Results

The results section is organized into two sections that focus on the two primary aims of the study. The first section tests whether support recipients' depressive symptoms are associated with negatively biased perceptions of actual support provided by partners and, in turn, more negative support-related evaluations and emotions, as well as maintenance of depressive symptoms across time. The second section investigates whether support recipients' depressive symptoms are associated with reassurance-seeking in actual support discussions with partners, the ensuing partner responses associated with reassurance-seeking, and whether such responses exacerbate depressive symptoms across time.

Table 2 displays descriptive statistics for all measures. As is typical in university samples, the couples in this sample reported relatively high levels of relationship satisfaction, support provision, and perceptions of support provision. As discussed earlier, most participants reported average to below average levels of depressive symptomatology, suggesting most of the sample were not experiencing meaningful levels of depressive symptoms. There was a fair amount of variability in reports. Interestingly, men reported experiencing greater sadness about their partners' reactions to their goal over the past month and women were observed to engage in greater reassurance-seeking during couples' discussions. Prior research measuring excessive reassurance-seeking with self-report measures has not reported on gender differences in reassurance-seeking (Joiner & Metalsky, 1995). However, this gender difference is consistent with research which demonstrates that men generally seek less support than women (e.g., Taylor, Sherman, Kim, Jarcho, Takagi, & Dunagan 2004).

Table 2. Descriptive Statistics of All Measures

	Women		*Men*		*Gender Diff.*	
	Mean (SD)	*α*	*Mean (SD)*	*α*	*t*	*d*
Depressive Symptoms Time 1	16.27 (10.31)	.91	12.87 (7.89)	.86	2.62*	0.35
Depressive Symptoms Time 2	15.45 (9.42)	.94	13.01 (11.31)	.90	1.40	
Relationship Satisfaction	5.94 (0.81)	.85	5.91 (0.71)	.77	0.22	
Retrospective Reports						
Providers' Reported Support Provision	5.89 (0.80)	.88	5.76 (0.75)	.86	1.21	
Recipients' Perceptions of Partner's Support Provision	5.64 (0.78)	.91	5.72 (0.98)	.84	-0.70	
Recipients' Felt Support by Partner	5.55 (1.19)	.84	5.60 (1.31)	.80	-0.28	
Recipients' Anger Toward Partner	2.00 (1.27)	.77	2.27 (1.31)	.78	-1.71	
Recipients' Sadness About Partner	1.50 (0.80)	.85	1.79 (1.17)	.70	-2.12*	- 0.28
Post-discussion Reports						
Providers' Reported Support Provision	5.84 (0.80)	.94	5.80 (0.71)	.87	0.42	
Recipients' Perceptions of Partner's Support Provision	5.86 (0.72)	.89	5.80 (1.08)	.86	0.55	
Recipients' Felt Support by Partner	5.78 (1.02)	.92	5.64 (1.42)	.81	0.86	
Recipients' Anger Toward Partner	1.53 (1.07)	.88	1.60 (1.21)	.78	-0.64	
Recipients' Sadness About Partner	1.28 (0.85)	.91	1.59 (1.25)	.76	-1.73	
Recipients' Perceived Discussion Success	4.91 (1.37)	.89	4.70 (1.32)	.89	1.28	
Observed Behaviours						
Providers' Support Provision	3.05 (1.13)	.79	3.13 (1.26)	.82	-0.48	
Recipients' Reassurance-Seeking	2.84 (1.62)		2.15 (1.06)		3.82**	0.52

Note. Scores for depression can range from 0 to 60. All other scales can range from 1-7. Gender diff. *t*s test whether measures differed across women (coded -1) and men (coded 1) and effect sizes are indexed by Cohen's d and are corrected for the dependence between means. ** $p < .01$. * $p < .05$

1. Biased Perceptions of Support

I predicted that support recipients with elevated depressive symptoms would perceive their partners to behave in less supportive ways, and that these perceptions would be more negative than justified by their partner's reports and/or observer rated support (path A, Figure 1). I also expected that these biased perceptions would be associated with more negative emotions and evaluations of their partner's support and support discussions (path B, Figure 1). I tested these predictions in two ways. First, I examined couples' retrospective reports of the support they experienced from their partners over the past month with regard to their personal goals. I then examined couples' reports of the support they experienced during the laboratory-based discussions couples had regarding each other's personal goals.

Retrospective Reports of Support Experiences over the Past Month

Table 3 displays correlations across individuals' perceptions of the support they received from their partner (recipients' reports) with regards to the personal goal they were about to discuss with their partner, partners' reports of the support provision they gave to the recipients with regard to that personal goal (providers' reports), and recipients' feelings in response to their partners' support. These correlations revealed that women (but not men) who reported more depressive symptoms perceived their partners to provide significantly less support, yet their partners did not report lower levels of support, which suggests that women higher in depressive symptoms perceived less support than their partners reported providing (see top row of Table 3). Female recipients' higher depressive symptoms were also associated with feeling less supported by their partner, and male and female recipients higher in depressive symptoms felt greater anger towards, and sadness about, their partners' goal-related behaviours, thoughts and feelings over the past month. As is typical couples feelings and perceptions were also correlated.

Table 3. Correlations between Depressive Symptoms and Retrospective Measures of Support Experiences over the Past Month for Women (above diagonal) and Men (below diagonal)

	1.	*2.*	*3.*	*4.*	*5.*	*6.*
1. Recipients' Depressive Symptoms	**.01**	-.12	-.30**	-.36**	.47**	.57**
2. Providers' Reported Support Provision	.02	**.01**	.23*	.17*	-.03	-.09
3. Recipients' Perceptions of Support Provision	-.05	.32**	**.22***	.78**	-.52**	-.52**
4. Recipients' Felt Support	-.10	.16	.69**	**.17***	.50**	-.51**
5. Recipients' Anger	.24*	-.05	-.24*	-.18	**.29***	.76**
6. Recipients' Sadness	.20*	-.12	-.34**	-.06	.28**	**.11**

Note. Correlations above the diagonal are for women; correlations below the diagonal are for men. Bold correlations along the diagonal represent correlations across partners (men and women). $^{**}p < .01$. $^{*}p < .05$.

I next tested whether women's negatively biased perceptions of support provision were associated with levels of felt support and more negative emotions in response to partners' support behaviours that female recipients higher in depressive symptoms reported (the pathways depicted in Figure 1). To test this prediction, and to account for the statistical dependence inherent in dyadic data (see table 3), I ran a series of dyadic regression models using the MIXED procedure in SPSS 19 (Kenny et al., 2006). These multilevel regression models tested whether recipients' (1) depressive symptoms and (2) perceptions of support provision over the past month were associated with female recipients (a) feeling supported by their partner, (b) feeling angry toward their partner, and (c) feeling sad about their partner, in response to their partners' goal-related behaviours, thoughts and feelings. All analyses controlled for partners' reported support provision to ensure that I was capturing the effects of recipients' negatively biased perceptions of support provision over and above the degree to which partners actually reported providing support. I then calculated indirect effects

which test the degree to which depressive symptoms were associated with female recipients' feeling (a) less supported by their partner, (b) more angry toward their partner and (c) more sad about their partner, because they held more negative and biased perceptions of the degree to which their partner behaved in supportive ways toward their personal goal. All predictor variables were grand-mean centred prior to the analyses. The dyadic models estimate the effects for both women and men simultaneously controlling for the dependencies that exist across couple members (see Kenny et al., 2006).

The resulting coefficients from these analyses are presented in Table 4. The first column suggests that women with elevated depressive symptoms felt less supported by their partners, and both women and men felt greater anger toward, and sadness about, their partners' responses to their personal goals. The following columns provide tests of whether these associations are due to (i.e., mediated by) biased perceptions of partners' support provision. The results for Path A of the mediation model in Figure 1 (column 2, Table 4) illustrate that women (but not men) with elevated depressive symptoms held more negative and biased perceptions of their partners' support provision over and above the support reported by the partner (i.e., controlling for the partners' reported support provision). The results for Path B of the mediation model in Figure 1 (column 3, Table 4), illustrate that these negatively biased perceptions of their partners' support provision led women to feel less supported and greater anger toward, and sadness about, their partner (controlling for levels of depressive symptoms and the support provision reported by their partners). As shown in the fourth and fifth columns, controlling for perceived partners' support provision reduced the associations between depressive symptoms and all three support outcomes for women, and the indirect effects and associated confidence intervals that did not overlap zero support the mediation model in Figure 1– that is, female recipients higher in depressive symptoms felt less supported, and greater anger and sadness, because they perceived less support provision from their partners than they actually received.

Table 4. Direct and Indirect Effects between Recipients' Depressive Symptoms and Retrospective Reports of Perceived Partners' Support Provision, and Recipients' Support Outcomes (controlling for Providers' Reported Support Provision)

Recipients' Outcomes	Depressive Symptoms → Outcome		Path A. Depressive Symptoms → Perceived Partners' Support Provision		Path B. Perceived Partners' Support Provision → Outcome (controlling Depressive Symptoms)		Depressive Symptoms → Outcome (controlling Perceived Partners' Support Provision)		Indirect Effect	
	B	*r*	*B*	*r*	*B*	*r*	*B*	*r*	*B*	*95% CI*
Women Recipients										
Felt Support	-.04	.35**	-.03	.32*	.95	.79**	-.01	.21*	-.03	-.05, -.01
Anger	.06	.45**	-.03	.32*	-.59	.45**	.04	.38**	.02	.01, .03
Sadness	.06	.57**	-.03	.32*	-.48	.45**	.05	.51**	.01	.01, .03
Men Recipients										
Felt Support	-.01	.10	-.01	.06	1.08	.75**	-.01	.09	-.01	-.03, .01
Anger	.04	.27*	-.01	.06	-.33	.20*	.04	.25*	.00	-.01, .01
Sadness	.02	.20*	-.01	.06	-.33	.31*	.02	.20	.00	-.10, .01

Note. The link between depressive symptoms and perceived partners' support behaviours occurred only for women. Paths refer to Figure 1. Effect sizes were computed using Rosenthal and Rosnow's (2007) formula: $r = \sqrt{(t^2 / t^2 + df)}$. CI = confidence interval. ***p* < .01. **p* < .05

Reports of Support Experiences during Couples' Observed Support Discussions

Table 5 displays correlations between the level of support recipients *perceived* they received from their partner during their support discussion, partners' reports of the support provision they provided during the discussion, recipients' feelings in response to their partners' support behaviours, and observer-ratings of support behaviours actually exhibited during couples' support discussions. Consistent with the retrospective reports discussed above, women, but not men, who reported greater depressive symptoms perceived their partners to have provided significantly less support during the support discussions. Unlike the retrospective reports, their partners also reported providing lower levels of support. However, controlling for the support partners reported providing revealed that female recipients with greater depressive symptoms continued to perceive less support than their partners were actually providing (see Table 6, Path A). Moreover, providing further evidence that their perceptions of support were negatively biased, recipients' greater depressive symptoms were not associated with their partner providing lower support as observed by independent raters (see null association between women recipients' depressive symptoms and providers' observed support provision). As with the previous set of analyses, couples feelings and perceptions were also correlated.

Table 5. Correlations between Depressive symptoms and Support Experiences during Lab-based Discussion of Personal Goals for Women (above diagonal) and Men (below diagonal)

	1.	*2.*	*3.*	*4.*	*5.*	*6.*	*7.*	*8.*	*9.*
1. Recipients' Depressive Symptoms	**.01**	-.26**	-.41**	-.43**	.45**	.43**	-.32**	.04	.25*
2. Providers' Reported Support Provision	.14	**.25****	.51**	.47**	-.36**	-.29**	.40**	.32**	.06
3. Recipients' Perceptions of Support Provision	-.02	.09	**.12***	.87**	-.73**	-.76**	.64**	.31**	-.08
4. Recipients' Felt Support	-.03	.10	.70**	**.13**	-.70**	-.71**	.72**	.26**	-.12
5. Recipients' Anger	.14	-.13	-.44**	-.28**	**.54****	.82**	-.56**	-.23*	.19
6. Recipients' Sadness	.13	-.14	-.47**	.24**	.78**	**.34****	-.58**	.28**	-.12
7. Recipients' Perceived Discussion Success	-.03	-.08	.33**	.47**	-.02	-.01	**.10**	.27*	-.05
8. Providers' Observed Support Provision	.05	.32**	.21**	.03	-.16	.08	-.06	**.20****	.27**
9. Recipients' Observed Reassurance-Seeking	.08	.05	.08	-.06	.08	-.04	.22*	.30**	**.07**

Note. Bold correlations along the diagonal represent correlations across partners. Correlations above the diagonal are for women; correlations below the diagonal are for men. $^{**}p < .01$. $^{*}p < .05$.

I next tested whether female recipients' negatively biased perceptions of partners' support provision during support discussions was associated with recipients feeling less supported, perceiving the discussion as less successful and greater negative feelings toward their partner (see Figure 1). I followed the same analysis strategy described above using dyad multilevel regression models to test whether female recipients' (1) depressive symptoms and (2) perceptions of support provision during support discussions predicted whether female recipients' (a) felt supported by their partner, (b) felt angry toward their partner, (c) felt sad about their partner, and (d) perceived the discussion as less successful. Again, all analyses controlled for the partners' reported support provision to ensure that I was capturing the effects of negatively biased perceptions of support provision over and above the degree to which partners actually reported support. As before, I also calculated indirect effects to index the degree to which depressive symptoms were associated with female recipients' feeling (a) less supported by their partner, (b) more angry, (c) more sad toward their partner and (d) perceiving the discussion to have been less successful, because they held more negative and biased perceptions of the degree to which their partner behaved supportively during the support discussion. All predictor variables were grand-mean centred prior to the analyses.

The resulting coefficients from these analyses are presented in Table 6. The first column illustrates that women (but not men) with elevated depressive symptoms felt less supported by their partner and greater anger toward, and sadness about, their partner during couples' discussion of their personal goal, and they also perceived the discussion to be less successful in helping them achieve their goals. The other columns provide tests of whether these associations are due to biased perceptions of partners' support provision. The results for Path A of the mediation model in Figure 1 (column 2, Table 6) illustrate that women (but not men) with elevated depressive symptoms held more negative perceptions of their partners' support provision over and above the support reported by the partner. The results for Path B of the mediation model in Figure 1 (column 3, Table 6) suggest that such negatively biased perceptions of their partners' support behaviours (controlling for their

depressive symptoms and their partners' reported support provision) led women to feel less supported by their partner, greater anger toward, and sadness about, their partner, and to perceive the discussion as less successful. The fourth and fifth columns demonstrate that controlling for perceived partners' support provision reduced the associations between depressive symptoms and all four support outcomes, and the indirect effects and associated confidence intervals that did not overlap zero supported the mediation model in Figure 1: Female recipients higher in depressive symptoms experienced more negative support outcomes at least partly because they perceived less support provision from their partners than they actually received during support discussions.

Table 6. Direct and Indirect Effects between Recipients' Depressive Symptoms and Perceived Partners' Support Provision and Recipients' Support Outcomes during Couples' Observed Discussions of Personal Goals (controlling for Providers' Reported Support Provision)

Recipients' Outcomes	**Depressive Symptoms → Outcome**		**Path A. Depressive Symptoms → Perceived Partners' Support Provision**		**Path B. Perceived Partners' Support Provision → Outcome** (controlling Depressive Symptoms)		**Depressive Symptoms → Outcome** (controlling Perceived Partners' Support Provision)		**Indirect Effect**	
	B	*r*	*B*	*r*	*B*	*r*	*B*	*r*	*B*	*95% CI*
Women Recipients										
Felt Support	-.06	.42**	-.04	.41**	1.10	.81**	-.01	.15	-.04	-.06, -.02
Anger	.04	.37**	-.04	.41**	-.65	.60**	.02	.23*	.03	.01, .04
Sadness	.04	.39**	-.04	.41**	-.83	.69**	.02	.21*	.03	.02, .05
Discussion Success	-.03	.31*	-.04	.41**	.69	.52**	-.01	.08	-.03	-.04, -.01
Men Recipients										
Felt Support	-.00	.03	-.00	.04	.98	.69**	-.00	.03	-.00	-.01, .02
Anger	.02	.18	-.00	.04	-.62	.45**	.02	.19	.00	-.01, .01
Sadness	.01	.12	-.00	.04	-.52	.46**	.01	.13	.00	-.01, .01
Discussion Success	-.00	.02	-.00	.04	.63	.34*	.00	.01	-.00	-.10, .01

Note. The link between depressive symptoms and perceived partners' support provision occurred only for women. Paths refer to Figure 1. Effect sizes were computed using Rosenthal and Rosnow's (2007) formula: $r = \sqrt{(t^2 / t^2 + df)}$. CI = confidence interval. $^{**}p < .01$. $^{*}p < .05$.

Additional Analyses and Alternative Explanations

To demonstrate the negative support outcomes associated with depressive symptoms in women were due to negatively biased perceptions of their partners' support provision I controlled for partners' reported support provision during support interactions in the primary analyses. Thus, all effects of perceived partner support occurred above and beyond the support recipients actually received from the partner. Recall that recipients' depressive symptoms were also not associated with partners' observed support provision providing additional evidence that the low perceived partner support undermining the support outcomes for women high in depressive symptoms were more negative than justified. Corroborating this conclusion, rerunning the analyses statistically controlling for partners' observed support provision also did not reduce the effects or significance of the effects presented in Table 6.

Furthermore, women's depressive symptoms were associated with lower relationship satisfaction ($r = -.31$, $p < .001$), so I reran the analyses reported in Table 4 and 6, statistically controlling for recipients' relationship satisfaction to ensure that the biased perceptions and associated consequences shown in Table 4 and Table 6 were not simply the result of more negative relationship evaluations. As expected, recipients who reported lower satisfaction reported more negative perceptions of support across the prior month ($r = .40$, $p <.001$) and within the support discussions ($r = .38$, $p < .001$). In addition, the links between depressive symptoms and retrospective reports of support provision were reduced when controlling for relationship satisfaction ($b = .01$, t = -1.43, $p = .16$), but the links between depressive symptoms and perceived support, and the consequences of negatively biased perceptions, as shown in Tables 4 and 6, were not altered. Taken together, these results indicate that the negative effects of depressive symptoms captured within couples' actual support discussions recorded in the lab were not due to global relationship evaluations.

Longitudinal Analyses: Perceived Support Provision and Depressive Symptoms Across Time

I hypothesized that the negatively biased perceptions demonstrated by women with elevated depressive symptoms would contribute to the maintenance of depressive symptoms. Thus, my next set of analyses examined whether recipients' perceptions of support provision were associated with changes in depressive symptoms across the six months following couples' support discussions in the lab. Any negative links between recipients' levels of perceived support provision and depressive symptoms (controlling for partners' reported support provision) would indicate that recipients' negatively biased perceptions of support can contribute to long-term as well as short-term negative consequences. Moreover, given the interpersonal sensitivity of intimates with elevated depressive symptoms that produce negative biased perceptions in the first place, I also thought that more negative perceptions of support might predict increases in depressive symptoms specifically for recipients who were higher in depressive symptoms to begin with. Thus, I tested whether the links between perceptions of support and changes in depressive symptoms were moderated by initial levels of depressive symptoms.

Retrospective Reports of Support Experiences. I first tested these associations using recipients' retrospective reports of perceived support provision. Following guidelines by Kenny et al. (2006), I regressed recipients' depressive symptoms collected 6 months after couples' initial lab sessions (Time 2) on (1) recipients' depressive symptoms assessed during the lab session (Time 1) so that any effects represent prediction of residual changes in depressive symptoms, (2) recipients' retrospective perceptions of support provision over the past month, (3) providers' retrospective reported support provision over the past month (to ensure that any effects of perceptions of support represent biased perceptions), and (4) the interaction between recipients' perceptions of support provision and depressive symptoms at Time 1.The results are shown in the left hand side of Table 7.

Table 7. The effects of Recipients' Perceptions of Support Provision on Changes in Depression across Time

	Retrospective Support Experiences			***Discussion Support Experiences***		
	B	***SE***	***t***	***B***	***SE***	***t***
Women Recipients						
Recipients' T1 Depression	.51	0.10	5.33**	.49	0.10	4.93**
Recipients' Perceptions of Support Provision	-.06	0.92	-0.06	.29	1.08	0.27
Providers' Reported Support Provision	.66	1.08	0.61	.55	1.35	0.41
Recipients' Perceptions of Support Provision x Recipients' T1 Depression	-.11	0.06	-1.88†	-.10	0.05	-2.22*
Men Recipients						
Recipients' T1 Depression	.80	0.12	6.41**	.78	0.13	6.13**
Recipients' Perceptions of Support Provision	.05	1.60	0.03	-.15	1.84	-0.08
Providers' Reported Support Provision	.87	1.38	0.63	1.21	1.41	0.86
Recipients' Perceptions of Support Provision x Recipients' T1 Depression	-.00	0.18	-0.01	-.02	0.24	-0.10

†$p < .07$. *$p < .05$. **$p < .01$.

As predicted, for women (but not men) there was a marginally significant interaction between recipients' retrospective perceptions of support provision and depressive symptoms at Time 1, which is displayed in Figure 4. Comparing the slopes of the lines in Figure 4, women who were initially low in depressive symptoms did not report any differences in changes in depressive symptoms regardless of whether they perceived their partner to provide low versus high levels of support ($b = 0.93$, $t = 0.81$, $p = .42$), whereas there was a non-significant trend for women who were initially high in depressive symptoms to report higher levels of depressive symptoms six months later when they perceived low versus high levels of support ($b = -1.04$, $t = -1.09$, $p = .28$). Although the negative effect of perceiving low support was not significant, the higher levels of depressive symptoms reported by participants at Time 2 for those who began the study with higher (versus lower)

depressive symptoms was greater when perceptions of partner support were low (see the left side of Figure 4; $b = 0.60$, $t = 6.59$, $p < .01$), compared to when perceptions of partner support were high ($b = 0.42$, $t = 3.42$, $p = .001$).

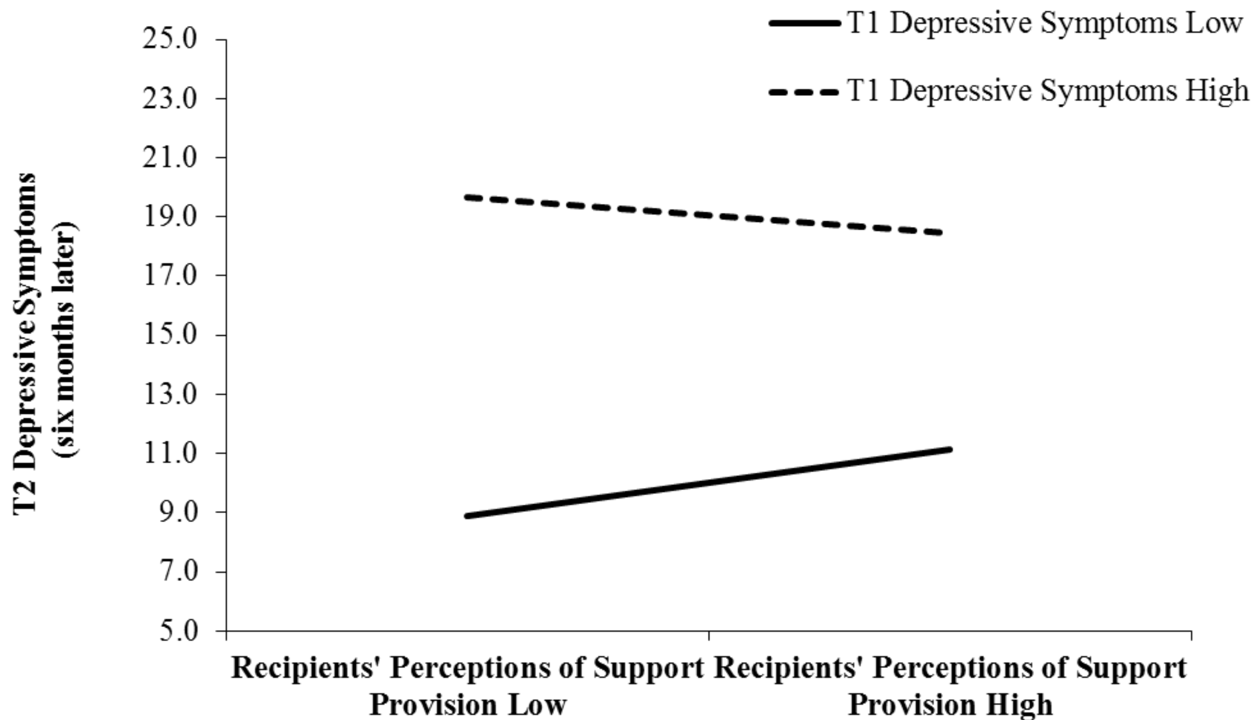

Figure 4. The effect of recipients' retrospective perceptions of partners' support provision at Time 1 on recipients' depressive symptoms at Time 2 (6 months later).

Reports of Support Experiences during Couples' Observed Support Discussions. I ran analogous models predicting changes in depressive symptoms across the 6 months following couples' initial support discussions in the lab from participants' perceptions of support provided by the partner during couples' observed support discussions. The results are shown in the right hand side of Table 7. The interaction between recipients' perceptions of support provided by the partner during couples' support discussions and initial levels of depressive symptoms at Time 1 was significant for women but not men. This interaction is shown in Figure 5 and is similar to the effect

found with retrospective perceptions of partners' support. Women who were initially high in depressive symptoms tended toward higher levels of depressive symptoms six months later when they perceived low versus high levels of support (b = -0.65, t = -0.68, p = .50), and women who were initially low in depressive symptoms tended to show the reverse pattern (b = 1.24, t = 1.33, p = .35), although neither of these effects were significant. Nonetheless, the higher levels of depressive symptoms reported by participants at Time 2 for those who began the study with higher (versus lower) depressive symptoms was greater when perceptions of partner support were low (see the left side of Figure 5; b = 0.58, t = 6.11, p < .01) compared to when perceptions of partner support were high (see the right side of Figure 5; b = 0.39, t = 3.32, p = .001).

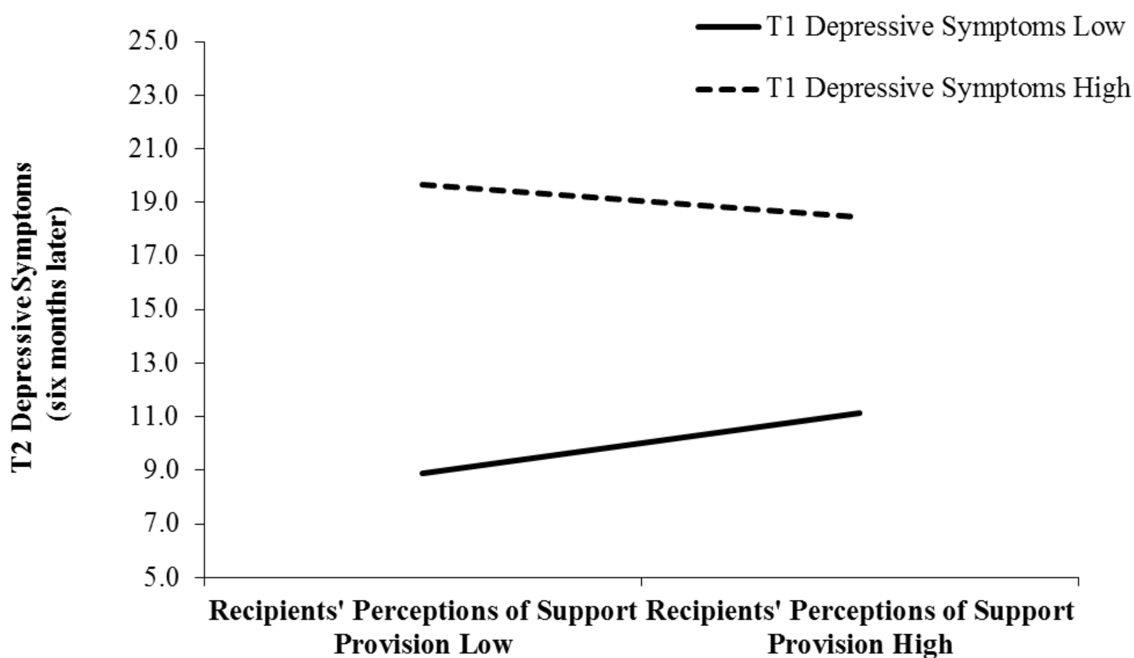

Figure 5. The effect of recipients' perceptions of partners' support provision during support discussions at Time 1 on recipients' depressive symptoms at Time 2 (6 months later).

Overall, these results provide some (albeit relatively weak) evidence that perceiving low levels of support provision (or possessing more negatively biased perceptions of partners' support) is

associated with the maintenance of higher depressive symptoms for those women who began with elevated depressive symptoms. Interestingly, the pattern of results also hints at costs of perceiving support for women low in depressive symptoms because of non-significant trends that these women reported increased depressive symptoms when they perceived high levels of support from the partner. This is consistent with relatively recent research showing that support can undermine coping and efficacy in support recipients who do not need high levels of support from their partner (Bolger & Amarel, 2007; Bolger, Zuckerman, & Kessler, 2000; Cutrona et al., 2007; Girme, Overall, & Simpson, 2013), as would likely be the case for those lower in depressive symptoms.

2. Depressive Symptoms and Reassurance-seeking During Couples' Discussions

The second aim of this study was to provide the first behavioural examination of depressive symptoms and reassurance-seeking during actual interpersonal interactions with romantic partners, and examine whether such reassurance-seeking undermined the much needed support people with elevated depressive symptoms require from close others. Specifically, I examined (1) the links between depressive symptoms and reassurance-seeking during couples' support-relevant discussions, (2) the ensuing partner responses associated with reassurance-seeking, and (3) whether these partner responses contributed to the maintenance or exacerbation of depressive symptoms over time.

Providing the first behavioural evidence of the links between depressive symptoms and reassurance-seeking, women who reported elevated depressive symptoms exhibited greater reassurance-seeking during couples' discussions as rated by observed coders (see Table 5). However, in contrast to existing models that highlight the potentially damaging and rejection-eliciting nature of excessive reassurance-seeking, greater reassurance-seeking by both female and male recipients was associated with greater observed support provision from partners as rated by independent coders (see Table 5). Additional analyses revealed that this association was not moderated by depression (b = -0.00, t = -0.72, p = 0.48). These results indicate that engagement in reassurance-seeking during

actual discussions may result in desired outcomes for recipients by eliciting desired support and reassurance from their partners.

Given the positive links between reassurance-seeking and observed support provision by partners, it is unlikely that the negative outcomes produced by negatively biased perceptions of support were due to reassurance-seeking. Indeed, reassurance-seeking was not associated with recipients' perceptions of support or providers' reports of support. Nonetheless to ensure that reassurance-seeking did not better account for the results supporting the model in Figure 1, I reran all analyses statistically controlling for reassurance-seeking. The size or the significance of the effects in Table 6 did not change.

Next, I wanted to test the potential long-term outcomes of reassurance-seeking. Prior research and theory has suggested that excessive reassurance-seeking can result in the maintenance of depressive symptoms because excessive reassurance-seeking might trigger interpersonal rejection, including negative responses and dissatisfaction from partners. However, the positive association between reassurance-seeking and partners' observed support provision indicate that reassurance-seeking can elicit support and therefore might have beneficial effects for people who need that support (i.e., people high in depressive symptoms). To examine whether partners' observed support provision (as rated by independent coders) was associated with changes in depressive symptoms across the six months following couples' support discussions in the lab, I followed the same approach as the longitudinal analyses described above. I regressed recipients' depressive symptoms collected 6 months after couples' initial lab sessions (Time 2) on (1) recipients' depressive symptoms assessed during couples' initial lab sessions (Time 1), so that any effects represent prediction of residual changes in depressive symptoms, (2) providers' observed support provision (rated by independent coders) and, (3) the interaction between providers' observed support provision and recipients' depressive symptoms at Time 1.The results are shown in Table 8. For women (but not

men) there was a significant interaction between providers' observed support provision and recipients' depressive symptoms at Time 1, which is displayed in Figure 6.

Table 8. The effects of Observed Support Provision by the Partner on Changes in Depression across Time

	B	*SE*	*t*
Women Recipients			
Recipients' T1 Depression	.55	0.08	6.82**
Providers' Observed Support Provision	-.40	0.64	-0.62
Providers' Observed Support Provision x Recipients' T1 Depression	-.15	0.07	-2.29*
Men Recipients			
Recipients' T1 Depression	.75	0.13	5.85**
Providers' Observed Support Provision	2.02	0.86	2.35*
Providers' Observed Support Provision x Recipients' T1 Depression	.10	0.10	0.95

$^*p < .05$. $^{**}p < .01$.

The more partners were observed to engage in support provision during support discussions, the less female recipients high in depressive symptoms reported depressive symptoms six months later (b = -1.81, t = -2.03, $p < .05$). In contrast, consistent with the trends found for perceptions of support, partners' observed support provision had a negative, but non-significant, impact on the depressive symptomatology of female recipients who began the study low in depressive symptoms (b = 1.02, t = 1.16, p = .25). In addition, for men, greater observed support provision was associated with increases in depressive symptoms (see Table 8). These costs of support, which were evident for perceived support, are consistent with a growing body of research showing that visible, direct forms of support can have costs when that support threatens self-efficacy and coping (Bolger & Amarel, 2007; Cutrona et al., 2007; Girme et al., 2013). Nonetheless, for women high in depressive symptoms who are likely to need high levels of support, and more importantly sought that support from their partner via reassurance-seeking, successfully eliciting support from the partner contributed

to the reduction of their levels of depressive symptoms six months later. These effects suggest that the support provision female recipients with elevated depressive symptoms are more likely to get from their partners when they engage in reassurance-seeking could contribute to a reduction in their depressive symptoms over time.

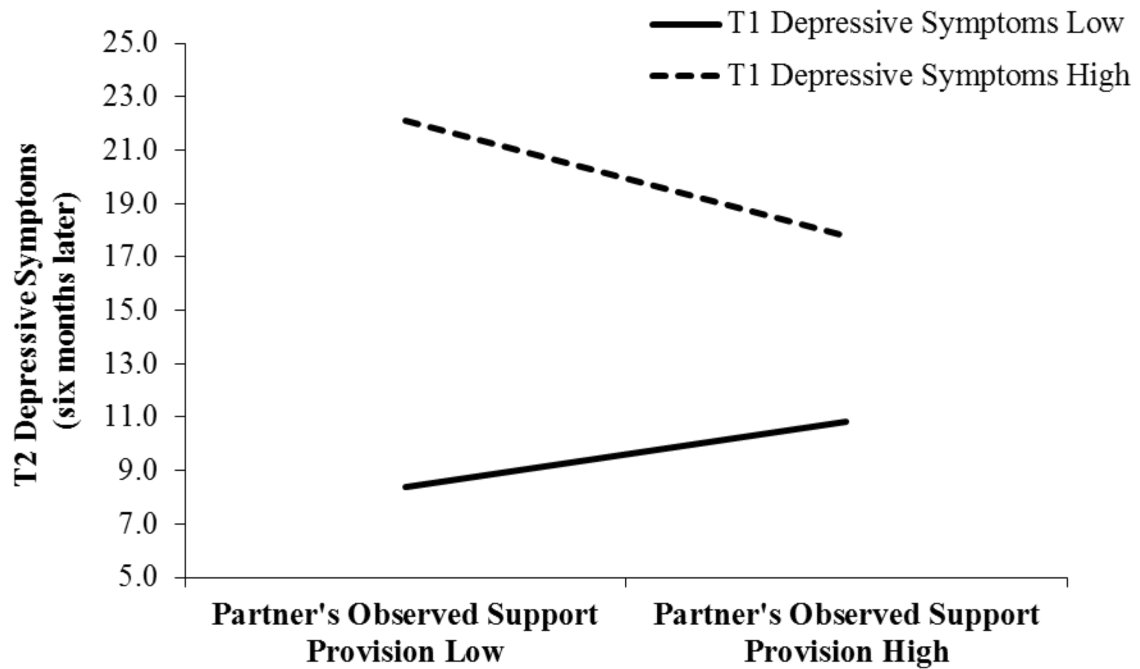

Figure 6. The effect of male providers’ observed support provision during support discussions at Time 1 on female partners’ depressive symptoms at Time 2 (6 months later).

Discussion

The current study investigated whether two interpersonal processes shown to be associated with depression/depressive symptoms—negatively biased perceptions and excessive reassurance-seeking—undermine the support people with elevated depressive symptoms need from their romantic partners, and in turn contribute to (1) poorer support-relevant outcomes and (2) maintenance of depressive symptoms over time. To do this I employed a multi-method approach using both self-report questionnaires regarding support experiences over the past month and behavioural observations of romantic couples as they engaged in support-relevant discussions about personal goals. Couples were also followed up across the following six months to examine longitudinal changes in depressive symptoms.

The results demonstrated the important role of biased perceptions in undermining the support people with elevated depressive symptoms need. In particular, women with elevated depressive symptoms held negatively biased perceptions of the support they received from their partners more generally and within actual support interactions. Moreover, these negatively biased perceptions were found to contribute to immediate negative consequences and to the exacerbation of depressive symptoms across time, for women but not men. This study also demonstrated the first link between depressive symptoms and engagement in reassurance-seeking behaviours during romantic couples' actual interactions. However, rather than undermining support provided by partners as predicted, greater reassurance-seeking was associated with greater observer-rated support provision from partners. Furthermore, the support provision that ensued from engagement in reassurance-seeking was associated with a decrease in depressive symptoms reported by women who initially had elevated depressive symptoms, six months later. These results advance understanding of the ways in which depressive symptoms influence support interactions and interpersonal behaviour that may reinforce depressive symptoms. I discuss the results in more depth and consider the importance and novelty of the findings next.

Depression and Biased Perceptions of Support

The first central aim of the current study was to extend and overcome the limitations of prior research examining depression/depressive symptoms and perceptions of support. In particular, the study was designed to directly test (1) whether elevated depressive symptoms are associated with negatively biased perceptions of the actual support behaviours partners deliver in response to important personal goals, (2) whether the resulting negative perceptions of support contribute to important negative outcomes, and (3) whether perceptual biases during romantic couples' support exchanges contribute to the maintenance or exacerbation of depression across time.

As predicted, women who reported more depressive symptoms perceived their partners to have provided significantly less support over the past month in relation to important, ongoing personal goals. They also perceived their partners to provide less support during couples' actual video-recorded discussions of those personal goals. Showing that these perceptions were negatively biased, the partners of women higher in depressive symptoms did not report providing lower levels of support over the past month. Thus, women higher in depressive symptoms perceived less support than their partners reported they were actually providing. In addition, although male partners of women higher in depressive symptoms did report providing lower levels of support during couples' support-relevant discussions, controlling for partners' reported support provision revealed that female recipients with elevated depressive symptoms continued to perceive less support than their partners were actually providing. Finally, observational coding of couples' support discussions revealed that recipients' greater depressive symptoms were not associated with their partner providing lower observed support provision. Thus, across three different tests of biased perceptions, the results demonstrated that women (but not men) with elevated depressive symptoms underestimate the support they actually receive from their partners.

These results are consistent with prior research showing depressive symptoms or depressive diagnoses are associated with negative cognitive biases (see Gotlib & Joormann, 2010 and Matthews

& MacLeod, 2005 for reviews), particularly within interpersonal contexts and interactions (Gilboa-Schechtman et al., 2008; Gotlib et al., 2004; Hall et al., 2009; Marcus & Askari, 1999; Pietromonaco et al., 1992). Existing research has also demonstrated a clear association between depression/depressive symptoms and negative perceptions of general support availability in particular (Barrera, 1986; Cohen & Wills, 1985; Swindle et al., 1989; Uchino et al., 1996). However, prior research considering actual support interactions has not demonstrated whether negative perceptions of support are biased or reflect greater negative interpersonal interactions that have been shown to be associated with depression. Importantly, this study overcame limitations of prior research by determining that the negative perceptions of support associated with greater depressive symptoms were more negative than was justified according to the support provision reported by partners and observed by objective coders. Thus, the current study represents the most definitive demonstration to date that higher depressive symptoms are associated with negatively biased perceptions of support provision that do not simply arise because people who are high in depressive symptoms create negative interpersonal interactions, and therefore elicit less partner support.

Moreover, by considering the impact or consequences of negative support perceptions, the current study demonstrated that biased perceptions of support reduce the degree to which people with elevated depressive symptoms can receive the benefits of support provided by their partner. Women with higher depressive symptoms reported feeling less supported, greater anger and greater sadness toward their partner, and that interactions with their partner were less successful in helping them achieve their goals. Moreover, the results suggest that these negative outcomes were precisely because they perceived less support from their partners than their partner actually provided (i.e., had biased perceptions of partners' support provision). These findings suggest that biased perceptions of support provision can have important negative consequences for people with elevated levels of depressive symptoms. The very people that need support the most are not able to benefit from the support provided to them partly because they under perceive this support provision and experience

more negative emotions toward the partner and the support experience. As I discuss next, these negative processes are likely to contribute to detrimental long-term outcomes, such as maintenance of depressive symptoms.

The current research was designed to provide the first test of whether perceptual biases during romantic couples' support-relevant interactions contributed to the maintenance or exacerbation of depressive symptoms over time. I predicted that perceiving the partner to provide low levels of support during couples' support discussions would be associated with an increase in depressive symptoms six months after the initial laboratory session—that is, biased perceptions would contribute to the maintenance and exacerbation of depression across time. Furthermore, given the interpersonal sensitivity of individuals with greater depressive symptoms and their greater need for support, I predicted that more negative perceptions of support would be associated with increases in depressive symptoms especially for those individuals who were initially higher in depressive symptoms at the beginning of the study.

The results provided weak but consistent support for my predictions. Specifically, levels of depressive symptoms reported six months after the initial laboratory session for those who reported initially high levels of depressive symptoms were greater when perceptions of partner support during couples' discussion was low compared to when perceptions of partner support were high. Furthermore, there was a non-significant trend for women (but not men) who were initially high in depressive symptoms toward higher levels of depressive symptoms six months later when they perceived low versus high levels of support in retrospective and post-discussion reports. Overall, these results provide some, albeit relatively weak, evidence that possessing more negative perceptions of partners' support is associated with the maintenance of depressive symptoms for women who already have elevated depressive symptoms. These findings are consistent with prior theory and research indicating that negative cognitive biases contribute to the maintenance and exacerbation of depression (e.g., Alloy et al., 1999; Brittlebank et al., 1993; Dent & Teasdale, 1988;

Metalsky et al., 1982). And suggest that biased perceptions of support not only contribute to immediate negative consequences but also contribute to the exacerbation of depressive symptoms longitudinally.

In addition to exacerbating depression, the existing literature examining support processes in couples indicates that the negative consequences of low perceptions of support provision found in this study are likely to have detrimental long-term consequences on the degree to which people with elevated depressive symptoms can achieve their goals and sustain relationship wellbeing over time. For example, people who report low levels of support from their partner have been found to be less satisfied in their relationships (e.g., Acitelli & Antonucci, 1994; Brunstein, Dangelmayer & Schultheiss, 1996; Julien & Markman, 1991), and to experience growing dissatisfaction across time (e.g., Overall et al., 2010). Moreover, perceived partner support also impacts on goal striving and achievement. For example, more positive perceptions of support from romantic partners is associated with goals being more likely to be translated into actions (Brunstein et al., 1996), greater perceptions of attaining personal goals (Molden, Lucas, Rusbult, Finkel & Kumashiro, 2009), and greater success in actually achieving goals over a 12-month period (Overall et al., 2010). These negative relationship and goal-related consequences are likely to further contribute to the maintenance of depressive symptoms.

Importantly, the association between depressive symptoms and negatively biased perceptions of support provision was found for women but not men. Although this gender difference was unexpected, the association between depression and interpersonal perceptions has been found to be different for women and men in prior research. For example, Gadassi, Mor and Rafaeli (2011) found that women's (but not men's) depressive symptoms were associated with inaccurate perceptions of their partners' verbal and non-verbal behaviour both during a lab-based interaction and during daily life. Other studies have also found that negatively biased perceptions of nonverbal emotional information are more evident in young women versus men with depressive diagnoses (Wright et al.,

2009) and girls versus boys (aged 9-15 years) with higher depressive symptoms (van Beek & Dubas, 2008).

In interpreting their findings, the authors of these prior studies suggest that the greater links between depressive symptoms and biased perceptions in women are not due to gender differences in depressive symptoms or accuracy in interpersonal perceptions (Gadassi et al., 2011). Indeed, non-depressed women have been found to be more accurate at interpreting social information than men (Barrett, Lane, Sechrest, & Schwartz, 2000; Kring & Gordon, 1998; Thayer & Johnsen, 2000). Instead these researchers hypothesise that this gender difference could be related to the impact of differing cognitive strategies utilized by men and women (e.g., rumination versus distraction) on their ability to process interpersonal information (Wright et al., 2009) or due to the fact that women are more likely to process interpersonal information in line with their emotional state (Wright et al., 2009). Within interpersonal contexts, these differences are likely to be due to the greater investment and importance women place on romantic relationship relative to men (Cross & Madson, 1997). These results could indicate that perceptual biases of interpersonal information are a specific vulnerability or risk factor for women, and that interpersonal relationships play a greater role in the aetiology of depression for women than men. Future explorations of the reliability of these potential gender differences would be valuable in order to determine the factors contributing to the greater impact of depressive symptoms on women's perceptions of their partners' behaviour.

Another factor to consider when interpreting this gender difference is the types of support measured (i.e., direct and visible emotional and esteem support). I focused specifically on these types of support because of the strong and consistent positive effects documented in the literature (Burleson, 2003; Cutrona et al., 2007; Cutrona & Suhr, 1992), and because people with higher depressive symptoms may be more likely to perceive the nurturing behaviours entailed within these types of support as supportive. However, other important types of support, such as tangible and information support, have been considered in other studies and some researchers suggest that men

and women should differ in the types of support they provide or the ways in which they communicate support to close others (i.e., men should be more focused on action-facilitating types of support and women on more nurturing types of support; Maltz & Borker, 1982; Tannen, 1990). Research provides varying levels of support for this hypothesis. There is some evidence that women are more likely than men to provide emotional support (Hays & Oxley, 1986), and that men provide action-facilitating types of support more frequently than other types of support (Nolen-Hoeksema, 1987). However, other studies suggest men and women provide similar amounts of nurturing and action-facilitating support (e.g., Goldsmith & Dun, 1997). In light of these inconsistent findings, it is possible that men and women differ in the types of support they prefer to provide and receive which may consequently interfere with perceptions of support provision. Future research could explore whether men and women differ in their preferences of specific types of support, and whether perceptions of support provision are related to the type of support desired, and that which is provided.

Strengths, Limitations and Future Directions

As discussed, the current research addressed several limitations and gaps in the existing literature considering depression and biased perceptions. Most importantly, the multi-method approach, which included both retrospective reports and behavioural observations, allowed me to test and replicate the presence and effects of biased perceptions across evaluations of past transactions and couples' actual support exchanges. Moreover, I used appropriate benchmarks to determine whether perceptions were biased. I first compared support recipients' perceptions of support provision to the partners' reports of their engagement in support behaviours. This procedure is consistent with existing research which considers bias in relationships (see Fletcher & Kerr, 2010). However, relationship-protection or self-serving mechanisms could lead partners to overstate their support provision. Thus, I also utilized independent coders ratings of the extent to which partners had engaged in support behaviours during discussions, which supported that the negative perceptions of

support associated with women's depressive symptoms were biased. Furthermore, expanding prior research, the consequences of perceptions of support provision immediately and across time demonstrated that these negatively biased perceptions can contribute to important outcomes including reducing felt support, creating more negative emotions toward partners, and contribute to the exacerbation of depressive symptoms across time.

In the context of the above strengths, this study also has several limitations that should be acknowledged. Firstly, the generalizability of these findings may be limited by characteristics of the sample. Participants were predominately well-educated and were recruited from non-clinical settings. Moreover, the measure employed to assess depression in this study at Time 1 and Time 2 was designed for research purposes and is not a clinical diagnostic tool. As already mentioned, there is a clear distinction between the presence and experience of symptoms of depression versus clinical depression. Indeed, findings from research that consider depressive symptoms in sub-clinical samples do not completely generalise to clinical populations (Beck et al., 1998). However, the rationale for using non-clinical samples in research is based on the idea that mental health resides on a continuum and that depressive symptoms are often thought to be pre-cursors to clinical depression (Mathews & MacLeod, 2005). Thus, the results of this study may still be applicable to clinical populations. On the other hand, it might be the case that the effects are stronger and consequences more substantial with a clinical population, who may need greater levels of support. For example, the exacerbating effect of low support on depressive symptoms may be more easily detected with a clinical rather than sub-clinical sample. Considering how these processes play out with individuals who meet criteria for clinical depression is an important task for future research.

The age and culture demographics of the sample used in this study are indicative of a university population, which might raise concerns about generalizability to older people in more established relationships. However, the NZ Health Survey (Oakley-Browne et al., 2006) reported that prevalence rates of depression were highest among young New Zealanders (aged 16-24). Thus, the

majority of participants in this study were within groups identified as most at risk for developing depression. Nonetheless, seeking a greater number of Maori and Pacific Island participants would support generalizability of findings across ethnic groups while being representative of the diverse population of New Zealand. Furthermore, given that this research was conducted within New Zealand, the findings may be more relevant to Western cultures. Other cultures may have different experiences and expectations of support and romantic relationships. For example, individuals of Asian descent are less likely to seek support from close others when experiencing stress or difficulties (Taylor et al., 2004), and have been shown to benefit more from indirect forms of support that do not make references to personal stressors (Kim, Sherman, & Taylor, 2008). A valuable direction for future research is to examine whether the biased perceptions and consequences I identified here are moderated by relationship and cultural contexts.

The current research considered depressive symptoms across time. This was especially important to determining whether lower perceptions of support provision contribute to the maintenance or exacerbation of depressive symptoms. However, other outcomes such as goal attainment and relationship satisfaction are also likely to be affected by perceptions of support provision and to contribute to the maintenance or exacerbation of depression. Future research should also consider the impact of biased perceptions on these important outcomes over time, and how they might contribute to the maintenance of depression. For example, despite indicating that low perceived support might contribute to the exacerbation of depression for women initially high in depressive symptoms, the longitudinal effects reported in the current study were relatively weak. In longitudinal analyses, direct effects can become diluted over time as they can be affected by random and competing factors. However, prior research has established longitudinal relationship and personal costs, such as reduced relationship satisfaction and goal achievement, which may be responsible for any links between low perceived support and subsequent depressive symptoms. Examining these intermediary processes is a valuable direction for future research.

Clinical Implications

The results of the current research add to aetiological understandings of depression within an interpersonal context. This has important implications for both the assessment and the treatment of individuals presenting with depressive symptomatology. In particular, the results of the current study highlight the importance of assessing the degree to which clients with depressive symptoms hold accurate perceptions about the resources they have available to them, and the ways in which perceptions of close other's support can be biased. They also highlight that clients' biased perceptions may be an important focus of treatment, particularly for those who report feeling unsupported by significant others. When working therapeutically with clients with depressive symptoms psychoeducation could be provided to highlight that the cognitive biases people with depression hold about themselves, others and the future will inevitably extend to the behaviour of others. Given the particularly important benefits that support can offer to people with depression, and that they are likely to need more support than others, targeting perceptions of support provision in treatment using cognitive therapy and techniques such as cognitive restructuring, may help clients to perceive the behaviours of others in a way that represents more realistic appraisals and ultimately enables people suffering from depression to experience the support they are provided.

Furthermore, given the dyadic nature of support processes, clinical treatment could also involve depressed clients' partners. Again, psychoeducation around depression and cognitive biases could be provided to increase partners' understanding and awareness of these processes. Treatment could involve working with both partners to ensure that support is provided in ways that is more accessible or easy for the depressed partner to perceive, as well as facilitating conversation about what the depressed person would like from their partner when they need to be supported and how the partner will be best able to provide this support. This would fit well within an Interpersonal Therapy framework (IPT; Klerman & Weissman, 1994).

The findings of this research also highlight the possibility that when working therapeutically with a client with depression, negatively biased perceptions may extend to the behaviours the therapist engages in, leading them to be negatively interpreted and perceived. Therapists should remain aware of this possibility and discuss this with clients if there is evidence of this occurring. This may provide a good forum for challenging cognitive biases and demonstrating the detrimental impact of these biases.

Depression and Reassurance-seeking

The second part of the current study aimed to extend and overcome limitations of the existing literature considering depression/depressive symptoms and excessive reassurance-seeking. Specifically, I aimed to provide the first behavioural examination of reassurance-seeking within romantic relationships, and to directly test (1) whether depressive symptoms were associated with engagement in reassurance-seeking behaviours during couples' actual support interactions, (2) whether engagement in reassurance-seeking behaviours circumvented effective support for individuals with elevated depressive symptoms, and (3) whether partners' ensuing responses to reassurance-seeking during support discussions contributed to the maintenance and exacerbation of depressive symptoms across time.

Based on prior research I expected that (1) higher depressive symptoms would be associated with engagement in greater reassurance-seeking behaviours during couples' support discussions, (2) greater engagement in reassurance-seeking would be negatively associated with partners' supportive behaviour during couples' support interactions, and (3) partners' lower support provision would be associated with an increase in depressive symptoms 6 months later (i.e., would contribute to the maintenance or perpetuation of depressive symptoms). I predicted that this would be particularly true for individuals who reported greater levels of initial depressive symptoms and, therefore, have a greater need for support and reassurance.

Consistent with prior research and predictions, the results of this study provide the first demonstration of a link between depressive symptoms and engagement in reassurance-seeking behaviours during romantic couples' actual interactions. Female, but not male, support recipients who reported elevated depressive symptoms exhibited greater reassurance-seeking during couples' discussions as rated by trained independent coders. However, in contrast with my predictions and the existing literature based on self-reports of excessive reassurance-seeking, greater reassurance-seeking exhibited by support recipients during couples' support discussions was associated with greater observer-rated support provision from partners. This contrasts with existing models and research which demonstrate the rejection-eliciting nature of reassurance-seeking. Indeed, the current findings suggest that engagement in reassurance-seeking during actual support-relevant interactions with romantic partners results in more support and reassurance from partners—the very responses desired from engagement in reassurance-seeking.

Furthermore, longitudinal analyses demonstrated that the more male partners provided support for female recipients during support discussions, the less female recipients who were initially high in depressive symptoms reported depressive symptoms six months later. This is consistent with a large body of research demonstrating the beneficial impact of support on mental well-being (e.g., George, et al., 1989; Collins & Feeney, 2000). Unlike prior research which has suggested that greater reassurance-seeking can result in the maintenance of depressive symptoms because excessive reassurance-seeking might trigger interpersonal rejection, this study suggests that the support provision female recipients with elevated depressive symptoms get from their partners during interactions in which they engage in reassurance-seeking has a positive impact on depressive symptoms over time.

Interestingly, partners' observed support provision had a negative, non-significant impact on the depressive symptoms of female recipients who were initially low in depressive symptoms. In addition for men, greater observed support provision was associated with increases in depressive

symptoms. These trends are consistent with those found for perceptions of support provision, and with a growing body of research showing that visible, direct forms of support can have costs when that support threatens self-efficacy and coping or is not tied to recipient needs (Bolger & Amarel, 2007; Bolger et al., 2000; Cutrona et al., 2007; Girme et al., 2013). In contrast, for women who are high in depressive symptoms and seek reassurance and support (as shown by their greater reassurance-seeking behaviour), the results indicate that any resulting support can contribute to a reduction in depressive symptoms across time.

In sum, these findings suggest that in actual support-relevant interactions within close, enduring relationships, engagement in reassurance-seeking signals to romantic partners that reassurance and support is needed and, thus, partners respond by providing the support and reassurance being sought. Furthermore, over time, this provision of support can contribute to reducing depressive symptomatology, at least for women. These unexpected results make sense when the differences between the current research and the existing literature are considered. Prior studies have relied solely on self-report measures of general excessive reassurance-seeking in relationships and non-behavioural measurements of interpersonal rejection. In contrast, the current research is the first (to my knowledge) to examine engagement in reassurance-seeking behaviours during a specific interaction as well as ensuing responses to this reassurance-seeking within that same interaction. The results illustrate that within actual interactions with romantic partners, interpersonal rejection does not occur immediately after reassurance has been sought but instead elicits exactly what the individual is seeking—support and reassurance.

These results indicate that the cycle proposed by Joiner et al. (1992), which is supported by a large body of research based on self-report reassurance-seeking tendencies and close other evaluations, does not appear to apply to the dynamics that occur within specific support-relevant interaction between romantic partners. It is likely that the detrimental effects evident in prior studies are due to the repetitive and excessive nature of excessive reassurance-seeking, which may only be

captured across time or between interactions, rather than within them. Furthermore, the majority of the existing research has primarily focused on same-sex college roommates (with the exception of Benazon, 2000; Katz & Beach, 1997, Katz et al., 1998; Lemay & Cannon, 2012 and Shaver et al., 2005). It is possible that these processes play out differently in relationships where there are relatively low levels of investment and dependence (e.g., same-sex college roommates), compared to relationships where there are high levels of investment and co-dependence (e.g., romantic partners), as in this study.

Moreover, the results from this part of the current study may contribute to understandings of the existing patterns shown by excessive reassurance-seeking by indicating how these potentially dysfunctional interpersonal behavioural patterns are maintained and become excessive. The provision of support and reassurance in response to reassurance-seeking should be positively reinforcing for the reassurance-seeker, and thus lead to further and increasingly repetitive engagement. Thus, although the consequences of engaging in reassurance-seeking (support provision) seems to contribute to a reduction in depressive symptoms across time (in line with the well documented positive outcomes of support), it may well be that over time the excessive and repetitive nature of reassurance-seeking could have detrimental effects on the relationship well-being of the partner. This long-term process cannot be captured within couples' interactions, but requires assessing the repeated use of reassurance-seeking and associated burden on the partner, across time. Examining how the short-term benefits I have discovered translate into the long-term costs found in research considering self-reported excessive reassurance-seeking is an important direction for future research.

Finally, similar to biased perceptions, the links between depressive symptoms and reassurance-seeking, and subsequent partner support and depressive symptoms, were only shown for women and not men. Although not predicted, these findings are consistent with a body of literature which suggests that the inherent dependence associated with needing, seeking and receiving support

threatens masculine ideals of reliance, strength and independence, which are promoted in Western societies (Cross & Madson, 1997; Maccoby, 1990; Markus & Oyserman, 1989). Research has demonstrated that men generally seek less support than women (e.g., Taylor et al., 2004), feel normative pressures against seeking support within close relationships (e.g., Burleson, Holmstrom, & Gilstrap, 2005), and are perceived as more poorly adjusted when they receive support from close others (Derlega, Wilson, & Chaikin, 1976). That men may perceive needing or seeking support as a weakness or not masculine in contrast to women who are generally socialised to value interdependence and relatedness, may account for the fact that in this study men higher in depressive symptoms did not engage in greater reassurance-seeking during support discussions, as women did.

Given that support-seeking threatens normative masculine ideals, it follows that being provided with support would do the same. Indeed, studies have found that men find support provision threatening, when compared to women. For example, a number of experimental studies investigating the impact of support on cortisol responses during a stressful task found that receiving support from strangers was more harmful for men than women (e.g., Smith, Loving, Crockett & Campbell, 2009; Taylor, Seeman, Eisenberger, Kozanian, Moore, & Moons 2010). This same pattern has been replicated within romantic relationships, not surprising given the greater levels of dependence inherent in these relationships. Crockett and Neff (2013) found that on days where wives reported receiving more support from their partners, they exhibited steeper cortisol slopes in comparison to average support days. In contrast, on days where husbands reported receiving more support from their wives than usual, they exhibited flatter cortisol slopes when compared to average support days. It appears that men may derive fewer benefits from support and are more vulnerable to the costs associated with it, in comparison to women. This is consistent with the current results in which greater observed support provision was associated with increases in depressive symptoms for men (and not women). Further exploration of the reliability of these gender differences would add to understandings of how men and women seek help when they most need it (e.g., when they are

experiencing high levels of depressive symptoms), and how support provision, an apparently protective and positive behaviour, may have unexpected and unintended costs for men.

Strengths, Limitations and Future Directions

The current study addressed several important limitations and gaps in the existing research considering depression and reassurance-seeking. Most significantly, the novel methodological approach adopted in this study, which included behavioural observations, allowed the first examination of both reassurance-seeking and interpersonal rejection behaviourally within actual interactions. In order to measure partners' responses to reassurance-seeking behaviours I was able to use existing reliable and valid support coding schemes (Cutrona & Suhr, 1992; Overall et al., 2010). Given that this was the first behavioural examination of reassurance-seeking I developed a new coding procedure (the Reassurance-Seeking Coding Scheme; see Appendix 5) to capture reassurance-seeking behaviourally within couples interactions. The results validate that this new measure is an important tool in capturing support processes and will be valuable for application in future research.

The focus of the current study on romantic relationships is also important given the relatively small number of studies considering these processes outside of college samples, and the important role that romantic partners are known to have in providing support from adolescence onwards (Cutrona & Suhr, 1994). Finally, the longitudinal design of this study meant that depressive symptoms could be examined 6 months after the initial laboratory session. The longest follow-up periods in the existing literature have been limited to ten week time frames (with the exception of Prinstein et al., 2005). Thus, the research supporting the proposed negative long-term effects of reassurance-seeking and interpersonal rejection on depressive symptoms has been limited. Overall, the findings of the current research highlight the importance of examining interpersonal processes behaviourally and within actual dyadic interactions with significant others.

In the context of the above strengths, this part of the current study has several limitations that should be acknowledged. Firstly, the generalisability of these results may be limited by sample characteristics already discussed above, including the non-clinical population, and the age and cultural demographics of the sample. As with the first part of this study, future research is needed to determine whether these processes play out the same way within clinical samples, and whether they are moderated by relationship and/or cultural factors. Although the follow-up period of this study is significantly longer than that of the majority of previous research, an even greater period may be needed in order to capture the cumulative long-term effects of reassurance-seeking. A valuable direction for future research would be to consider the interpersonal effects of reassurance-seeking on partner support and rejection/dissatisfaction over longer time periods.

Given that (1) this is the first study to consider reassurance-seeking and interpersonal rejection behaviourally within actual interactions and (2) the novel results of this study, further research is needed in order to gain a more comprehensive understanding of the impact of seeking reassurance within actual interactions. The sole longitudinal focus of the current research on depressive symptoms means that a number of important consequences of reassurance-seeking may not be captured in these results. Future research should consider the impact of reassurance-seeking on other factors in order to obtain a more comprehensive picture of the impact of reassurance-seeking over time, including the relationship wellbeing and quality of both partners. Daily diary methodology would also be invaluable to increase understanding of the day-to-day outcomes of engaging in reassurance-seeking both on depressive symptoms and relationship wellbeing, as well as the consistent nature of reassurance-seeking to identify at what point reassurance-seeking becomes burdensome to partners and switches off the positive responses elicited in the current research.

Clinical implications

Although the results of this study demonstrate that engaging in reassurance-seeking during discussions results in desired support and reassurance from partners, and that these desired outcomes

contribute to reducing depressive symptoms over time (for women), as I have discussed above, it might well be the case that this process would have detrimental effects on relationships over time. This is particularly so given that reassurance-seeking is positively reinforced by support provision from partners and, therefore, may easily become repetitive and excessive in nature if depressive symptoms and need for reassurance is maintained by other stressors within and outside the relationships. Thus, the findings of this part of the study have clinical implications for both the assessment and treatment of clients who present with depressive symptoms. Specifically, it may be important to assess the way in which clients seek support from their partners and close others. If clients appear to engage often in reassurance-seeking, psychoeducation about reassurance-seeking and how it can have desired outcomes in the short-term but may negatively impact on partners and relationships in the long-term could be provided.

Following this, treatment may focus on helping clients to gain support from their partners and significant others in other, more functional ways. Indeed, the current research indicates that reassurance-seeking is a specific behavioural pattern and is a valid and feasible intervention target that could be modified. The targeting of reassurance-seeking behaviours and the attitudes that underlie this could be integrated into empirically validated depression treatments (e.g., IPT; Klerman & Weissman, 1994; cognitive-behavioural therapy, Beck, 1979). For example, behavioural training could be aimed at teaching clients how to gain social support without burdening or overwhelming others. It may also be relevant to consider whether clients engage in reassurance-seeking behaviours during therapy sessions, and to explore the function and the impact of this on both the therapeutic relationship and therapy outcomes.

Conclusion

The current study advances current understanding of the development and maintenance of depression within an interpersonal context. First, the current study provided the most definitive evidence to date that elevated depressive symptoms are associated with negatively biased perceptions of the support received from intimate partners, at least for women, and that these biased perceptions can contribute to important outcomes, including undermining feelings of support and creating negative relationship-related emotions and evaluations. Second, the current study provided the first behavioural evidence that depressive symptoms are associated with the engagement in reassurance-seeking behaviours during romantic couples' actual interactions. Reassurance-seeking was associated with greater observer-rated support provision from partners, and greater support provision was associated with a decrease in depressive symptoms reported by those who initially had elevated depressive symptoms, six months later. Thus, the cognitive biases and behavioural reassurance-seeking associated with depression appear to have both costs and benefits for individuals with elevated depressive symptoms. These joint effects highlight the importance of considering interpersonal dynamics behaviourally and dyadically within actual interactions with close others to identify the types of cognitive and behavioural processes that should be targeted and considered during assessment and therapy with clients who present with depressive symptoms.

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Appendix 1

Close Relationship Research

COUPLES EARN $210

We are looking for heterosexual couples who have been together for at least one year to participate in research investigating personal goals within intimate relationships.

Initial Session: Participation involves (1) completing questionnaires about your thoughts, feelings and behaviour in relation to your goals, yourself, and your relationship, (2) discussing your goals with your partner while being recorded, and (3) about 2 hours of your time.

For the initial session, couples will receive $70 ($35 each in gift vouchers) as reimbursement for their time and effort.
Follow-up Questionnaires: Every month after completing the initial session, you will be asked to complete a short online questionnaire (for a total of 6 months). **For completing these questionnaires, couples will receive an additional $140 ($70 each in vouchers).**

All responses and recordings are strictly confidential. All data is identified only by anonymous numbers.

To obtain more information or to make an appointment, please contact Matthew or Yuthika at rel.research@gmail.com, or 3737599 x 82908

Close Relationship Research

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Appendix 2
Participant Information Sheet

Title of Project: Personal Goals within Intimate Relationships
Principal Investigators: Nickola Overall, Yuthika Girme and Matthew Hammond, School of Psychology, University of Auckland. Phone 09 373 7599, extn: 89120. E-mail. rel.research@gmail.com.

To the Participant,

The aim of this research is to examine how people pursue personal goals within intimate relationships. If you have any questions please direct them towards Matthew Hammond, Yuthika Girme or Dr. Overall in the School of Psychology (contact details provided above).

Couples who are involved in committed romantic relationships are invited to participate in this research. This session today will take up to 2.5 hours of your time and you will receive $70 ($35 each; petrol or grocery vouchers) as reimbursement for your time and effort. You may withdraw from this project at any time, including withdrawal of any information provided to the researchers up to three weeks from the date of the initial session. Your participation in this study is completely voluntary and involves two parts.

Initial Session

You will first write about three personal goals you are currently working toward. One of these goals will be selected by the researchers to be discussed with your partner. You will then complete a number of pen-and-paper questionnaires which are related to how you think and feel about your yourself and your relationship, attitudes about heterosexual relationships, and how you think *your partner* feels about him/herself and your relationship. Your partner will not see your responses, and your questionnaires will remain confidential at all times, identified only by a confidential personal alphanumeric code that you will select.

You will then have three discussions with your partner which will be video-recorded. The first will be a 'warm-up' discussion about what has happened this week. A second discussion will involve you talking with your partner about *your* personal goal, and another discussion will be about *your partner's* personal goal. Before and after each discussion you will complete a short questionnaire about your current thoughts and feelings. You may withdraw from participating at any time during this initial session if you feel uncomfortable at any stage.

Follow-Up Questionnaires

After today's initial session, you will be asked to complete a follow-up questionnaire every month for six months. Every month we will send both you and your partner a link to complete this questionnaire online. This questionnaire will take approximately 30 minutes to complete. The follow-up questionnaire will involve answering questions about your behaviours, thoughts and feelings about yourself, your relationship and your personal goal discussed with your partner today, as well as questions about your partner and your partner's personal goal. As before, your partner will not ever see your responses, and your answers will only be identifiable by a confidential personal code. For each online questionnaire completed you will each be reimbursed $10 (petrol/grocery vouchers). You may withdraw from this project at any time during this follow-up period.

Please note that your questionnaire responses in this research will be made confidential and all personal information and videotaped interactions kept strictly confidential. It is necessary to record your name and contact details to enable participation in the follow-up questionnaires. However, these details will be stored separately from all research data - your identity will remain separated from your questionnaire and recorded interactions at all times. All responses will identified only by confidential numbers in a secure data file. Your questionnaires and the recording of your discussions will be stored separately from your personal information in a locked filing cabinet in a secure room in the School of Psychology, and only Dr Overall and her research associates will have access to your data and will examine your discussions to code behaviours. All research associates will sign confidentiality agreements, and your data will be treated with respect and kept confidential at all times. You have the right to withdraw your personal information, questionnaire data and recorded interaction data until three weeks after the date of your participation today. All data will be stored indefinitely for research purposes but will at no time be identifiable as yours and your personal information and consent form will be destroyed (shredded) after six years. Finally, results from this research will be published, but your identity will never be revealed or associated with the data. This study is part of Dr Nickola Overall's ongoing research program on support processes within intimate relationships, and the data will be used as part of Matthew Hammond's and Yuthika Girme's PhD in Psychology.

At the completion of this research project a report will be made available summarising the findings of this study. This will be sent to the email you have provided for this study, but this email address will not be associated with your questionnaire or recorded data at any time.
This study involves thinking and reporting about your personal goals and your relationship. It is therefore possible that the discussion or questionnaires could be stressful if you are experiencing difficulties with your personal goal or relationship. Please note that you can withdraw from the study at any time with no questions asked, including withdrawal of any information provided to the researchers up to three weeks from the date of the initial session. If at any stage you experience distress, either during or following participation, there are counselling services available through the Student Health Centre (University of Auckland, Level 3, Student Commons Building, 2 Alfred Street, Auckland, Phone 373 7599, extn: 87681), Relationship Services: Whakawhanaungatanga (1st Floor, 1 Robert Street, Ellerslie, Auckand, Phone 525 1051, website: www.relate.org.nz) or Auckland Family Counselling and Psychotherapy Centre Inc. (33 Owens Road, Epsom, Auckland, Phone: 6387632).

This study is partially funded by a University of Auckland, Science Faculty Research Development Grant awarded to Nickola Overall.

For any questions regarding this project, please contact Dr Overall (details above) or the Head of the School of Psychology, Dr Douglas Elliffe, The University of Auckland, Private Bag 92019, Auckland. Phone 09 373 7599, extn 88414.

For ethical concerns contact: The Chair, The University of Auckland Human Participants Ethics Committee, The University of Auckland, Private Bag 92019, Auckland. Phone 09 373 7599, extn 87830.

Approved By The University Of Auckland Human Participants Ethics Committee On 12/11/2012 For (3) Years Until 12/11/2015 Reference Number 2012/8711

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Appendix 3
Consent Form

This form will kept for a period of 6 years.

Title of Project: Personal Goals within Intimate Relationships

Principal Investigators: Nickola Overall, Yuthika Girme and Matthew Hammond, School of Psychology, University of Auckland. Phone: 09 373 7599, extn 89120. E-mail: rel.research@gmail.com

I have read the Participant Information Sheet and have understood the nature of the research. I have had the opportunity to ask questions and have had any questions answered to my satisfaction. I understand that participation in this research is voluntary and I agree to take part in this research.

- I understand that this research session will take up to two hours of my time, and will involve (1) identifying a personal goal which I am working on, (2) completing questionnaires about my thoughts, feelings and behaviour within my relationship, and (3) participating in three video-recorded discussions with my partner.
- I understand that my questionnaire responses will only be identified by an anonymous code number and my personal information and recorded interactions will be kept confidential.
- I understand that the interactions with my partner will be recorded for coding purposes. I understand that these recordings will be the property of Dr Nickola Overall. They will be stored in a research archive only available to Dr Nickola Overall and her research team.
- I understand that the recording will be stopped at any time on my request.
- I understand that trained research coders may code and analyse my questionnaire and recorded interactions, but at no time will my identity be known. All coders will sign confidentiality agreements concerning all data collected in this study.
- I consent to publication of the results of the project with the understanding that anonymity and confidentiality will be preserved.
- I understand that I can stop participating in this research at any time without giving a reason, including anytime during this initial session.
- I understand that after completing this research session I have the right to withdraw any information/data provided to the researchers up to three weeks from today's date.
- I agree to be available to complete online follow-up questionnaires each month for the next 6 months. Completion of the follow-up questionnaires will be considered consent to participate. You may withdraw your participation and choose not to complete the follow-up questionnaire at that time.

Name: ____________________ Signed: ___________________ Date: ________________

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Appendix 4

Questionnaires used at Time 1 to measure recipients' perceptions of partners' support provision and providers' reported support provision:

Think about how YOUR PARTNER has behaved in the LAST MONTH in regard to your goal.

My Partner…	*Not at all* ▼						*Very* ▼
communicated trust in my ability to manage my goal	1	2	3	4	5	6	7
was cynical or sarcastic about me being able to accomplish my goal	1	2	3	4	5	6	7
expressed confidence that I could achieve my goal	1	2	3	4	5	6	7
made me feel that I had the ability to achieve my goal	1	2	3	4	5	6	7
encouraged me to keep trying to achieve my goal	1	2	3	4	5	6	7
was critical about how I pursued my goal	1	2	3	4	5	6	7
DIDN'T care about my goal	1	2	3	4	5	6	7
reassured and comforted me	1	2	3	4	5	6	7
was warm and affectionate toward me	1	2	3	4	5	6	7
was understanding about my goal-related efforts or difficulties	1	2	3	4	5	6	7
complimented my goal-related efforts and achievements	1	2	3	4	5	6	7
was interested about my goal	1	2	3	4	5	6	7
was there for me if I needed him/her	1	2	3	4	5	6	7
was open to me approaching him/her if I needed help	1	2	3	4	5	6	7
said or did things to keep me from feeling bad about my goal	1	2	3	4	5	6	7

Think about how YOU have behaved in the LAST MONTH in regard to YOUR PARTNER'S goal.

	Not At All ▼						*Very* ▼
I communicated trust in my partner's ability to manage their goal	1	2	3	4	5	6	7
I was cynical or sarcastic about my partner being able to accomplish their goal	1	2	3	4	5	6	7
I expressed confidence that my partner could achieve their goal	1	2	3	4	5	6	7
I made my partner feel like they had the ability to achieve their goal	1	2	3	4	5	6	7
I encouraged my partner to keep trying to achieve their goal	1	2	3	4	5	6	7
I was critical about how my partner pursued their goal	1	2	3	4	5	6	7
I listened to my partner	1	2	3	4	5	6	7
I reassured and comforted my partner	1	2	3	4	5	6	7
I was warm and affectionate toward my partner	1	2	3	4	5	6	7
I was understanding about my partner's efforts or difficulties in achieving their goal	1	2	3	4	5	6	7
I complimented my partner's goal-related efforts and achievements	1	2	3	4	5	6	7
I was interested about my partner's goal	1	2	3	4	5	6	7
I was there for my partner if they needed me	1	2	3	4	5	6	7
I was open to my partner approaching me if he/she needed help	1	2	3	4	5	6	7
I said or did things to keep my partner from feeling bad about their goal	1	2	3	4	5	6	7

The following statements relate to how your partner behaved during the discussion.

My Partner…	*Not at all* ▼ 1	2	3	4	5	6	*Very* ▼ 7
communicated trust in my ability to manage my goal	1	2	3	4	5	6	7
was cynical or sarcastic about me being able to accomplish my goal	1	2	3	4	5	6	7
expressed confidence that I could achieve my goal	1	2	3	4	5	6	7
made me feel that I had the ability to achieve my goal	1	2	3	4	5	6	7
encouraged me to keep trying to achieve my goal	1	2	3	4	5	6	7
was critical about how I pursued my goal	1	2	3	4	5	6	7
DIDN'T care about my goal	1	2	3	4	5	6	7
reassured and comforted me	1	2	3	4	5	6	7
was warm and affectionate toward me	1	2	3	4	5	6	7
was understanding about my goal-related efforts or difficulties	1	2	3	4	5	6	7
complimented my goal-related efforts and achievements	1	2	3	4	5	6	7
was interested about my goal	1	2	3	4	5	6	7
was there for me if I needed him/her	1	2	3	4	5	6	7
was open to me approaching him/her if I needed help	1	2	3	4	5	6	7
said or did things to keep me from feeling bad about my goal	1	2	3	4	5	6	7

The following statements relate to how you behaved during the discussion.

	Not At All ▼ 1	2	3	4	5	6	*Very* ▼ 7
I communicated trust in my partner's ability to manage their goal	1	2	3	4	5	6	7
I was cynical or sarcastic about my partner being able to accomplish their goal	1	2	3	4	5	6	7
I expressed confidence that my partner could achieve their goal	1	2	3	4	5	6	7
I made my partner feel like they had the ability to achieve their goal	1	2	3	4	5	6	7
I encouraged my partner to keep trying to achieve their goal	1	2	3	4	5	6	7
I was critical about how my partner pursued their goal	1	2	3	4	5	6	7
I listened to my partner	1	2	3	4	5	6	7
I reassured and comforted my partner	1	2	3	4	5	6	7

I was warm and affectionate toward my partner	1	2	3	4	5	6	7
I was understanding about my partner's efforts or difficulties in achieving their goal	1	2	3	4	5	6	7
I complimented my partner's goal-related efforts and achievements	1	2	3	4	5	6	7
I was interested about my partner's goal	1	2	3	4	5	6	7
I was there for my partner if they needed me	1	2	3	4	5	6	7
I was open to my partner approaching me if he/she needed help	1	2	3	4	5	6	7
I said or did things to keep my partner from feeling bad about their goal	1	2	3	4	5	6	7

Appendix 5
Reassurance-seeking Coding Scheme

Reassurance-seeking involves seeking feedback from partners that confirms and verifies:
(1) The individual's self-worth (i.e., that the self is loveable, able, valuable, worthy and attractive).
(2) The partner's commitment (i.e., that the partner loves, cares and supports them, and that they are committed to the relationship).

Reassurance-seeking can manifest both verbally and non-verbally (e.g. voice tone, body posture and facial expressions) during discussions, and captures a range of possible tactics that are outlined below. These tactics apply across different relationship contexts but are described here to refer to the context of individuals discussing their personal goals with their partner.

Importantly, reassurance-seeking involves clusters of interrelated verbal and nonverbal behaviours; individuals may not exhibit all of the tactics or employ associated behaviours to the same degree. Thus, ratings of reassurance-seeking will capture a general communicative approach or style that could involve a range of verbal and nonverbal behaviours that reflect the essence of reassurance-seeking. When coding reassurance-seeking, coders should take into account the frequency, intensity, and duration of the range of possible behaviours associated with reassurance-seeking (1-2 = *low*, 3-5 = *moderate*, 6-7 = *high*).

VERBAL BEHAVIORS

Strategies for seeking reassurance of self-worth
Questioning the degree to which the partner perceives the self as loveable, worthy, valuable, able and/or attractive. For example: *"Do you think I can do it?", "Do you believe that I can find a good job?", "But do you think I'm sexy?"*
Asking the partner whether the individual is improving in regards to their goal. For example: *"Do you think it is improving?", "Do you think I am getting better?", "Do you think I am changing?"*
Seeking verification that the individual is changing in regards to their goal. For example: *"It is changing…", "I think it's getting better…", "I think I'm working toward my fitness already…"*
Seeking verification that the self-identified problem or goal is not so bad. For example: *"It doesn't happen often", "I can still hike15 miles a day"*
Debasing the self in order to attain reassurance of self-worth, particularly capability For example: *"…but I can't change it, so it doesn't matter", "I don't have what it takes to achieve this", "Other pianists are better than me"* (said in a way which ensures or seeks disconfirmation from the partner)
Strategies for seeking reassurance of the partner's commitment
Questioning the degree to which their partner loves, cares for and supports them and/or the degree to which the partner is committed to their relationship. For example *"Don't you care about my embarrassing myself?", "Do you want me to find a good job?"*

Stressing the negative impact the partner or the situation has on them in order to appeal to the partner's love, care and concern. For example: *"If I'm pissed off you're just a smart arse, and you don't care!", "I think you feel it is more important than say, spending time with me", "I need you and your not there and that gets really hard."* (said in a way in which the partner is either likely to disconfirm or to provide comfort and reassurance in return).
Asking the partner how much the thing they want to change is a problem in their relationship. For example: *"Did you put that as something you want to change in me?", "I'm not convinced that this is what you think, would you like to have sex with me more often?", "I know that you think the sexy attitude I lack in our intimate relationship is a problem, you notice that don't you, in our relationship?", "It's not a problem in this relationship…"* (said in a way in which the partner is likely to say it is not a problem)

NON-VERBAL BEHAVIORS

<u>IMPORTANT:</u> In order to be coded as reassurance-seeking, many of the tactics outlined in the table above will need to be accompanied by nonverbal behaviours (e.g., facial expressions, posture, voice tone etc.) that (a) signals the individual wants verification of positive aspects of the self and the relationship, (b) conveys a desire for disconfirmation of negative aspects of the self and the relationship and (c) emphasizes or conveys their dependence on the partner and their need for reassurance.

This can involve a range of nonverbal behaviours including:

Voice tone: *soft, shaky, hurt, sad and/or babyish (often quiet)*
Eye signals: *Lowering eyes, looking at the ground, hands, feet, floor (avoiding eye contact), looking at the partner intently as a cue to speak or respond (use of silence to gain reassurance), looking up at partner with "puppy dog" eyes*
Body posture: *sitting hunched over and/ or with head down, tilted head, facing/ looking at partner side on*
General facial *expressions: coy, serious, uncertain and concerned facial expressions (e.g., raising eyebrows, frowning), nervous smiles and laughter*
Emotional expressions of hurt: *Crying, sulking, making sad faces, pouting*

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