Individual and Relational Indicators of Depression and Marital Distress: A Categorical and Dimensional Perspective.

Els Heene

Promotor Prof. Dr. P. Van Oost

Proefschrift ingediend tot het behalen van de academische graad van Doctor in de Psychologische Wetenschappen

2003
Individual and Relational Indicators of Depression and Marital Distress: A Categorical and Dimensional Perspective.

Individuele en Relationele Indicatoren van Depressie en Relatieproblemen:
Een Categoriaal en Dimensioneel Perspectief.

Els Heene

Promotor Prof. Dr. P. Van Oost

Proefschrift ingediend tot het behalen van de academische graad van Doctor in de Psychologische Wetenschappen

2003
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General Introduction</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>A Categorical and Dimensional Perspective on Depression within a Non-Clinical Sample of Couples.</td>
<td>23</td>
</tr>
<tr>
<td>3</td>
<td>Depression and Marital Distress: the Role of Individual and Relational Psychosocial Variables. I.</td>
<td>49</td>
</tr>
<tr>
<td>4</td>
<td>Depression and Marital Distress: the Role of Individual and Relational Psychosocial Variables. II.</td>
<td>71</td>
</tr>
<tr>
<td>5</td>
<td>Looking for Common Antecedents, Mediators and Moderators for the link between Depressive Symptoms and Marital Adjustment: the Role of Conflict Communication, Attributions, Attachment Style and Personality Traits.</td>
<td>91</td>
</tr>
<tr>
<td>6</td>
<td>Analysis of the Effect of Experimental Induction of Depressed Mood on Self-Reported Indicators of Depression and Marital Distress.</td>
<td>103</td>
</tr>
<tr>
<td>7</td>
<td>General Discussion</td>
<td>129</td>
</tr>
</tbody>
</table>
Preface

Literature about depression often describes that depressed individuals experience problems in marital functioning, suggesting a concomitance of approximately 50%. Marital distress can be a consequence of being depressed, but it can also be considered as antecedent or concomitant of depression. This dissertation brings together several perspectives about the way that depression and marital distress are related to one another, considering several important individual and relational indicators of both. The question of how to best understand the relationship of depression and marital processes provides a foundation for the following chapters, and we tried to clarify the nature of the link between between depression and marital distress in the successive studies.

In chapter 1, we start by giving general information about depression, and describe the difference between depression as a category and as a dimension. We discuss three possible causal hypotheses about depression and marital distress, and describe a fourth model that proposes important third variables in the link between depression and marital distress. Variables included are marital adjustment, conflict communication, attributions, attachment and personality traits. In addition, we detail the main objective of this dissertation, described in our central research question, and this chapter closes with a research question about the validity of self-report measures.

In chapter 2, we focus on a non-clinical sample, studying the selected characteristics along with the varying degree of depressive complaints. In addition, we compare the group of most depressed subjects and their partners with a control sample, and both approaches point to the same conclusions.

Chapter 3 and 4 are both based on the same theoretical and empirical framework, with different analyses and samples. Chapter 3 includes group comparisons, resulting in several individual and relational characteristics for depression and marital distress. Based on these results, chapter 4 analyses the latent structure of depression and marital distress, and the stability of this model is tested with a confirmatory factor analysis, validated on a second sample.

In chapter 5, we hypothesise that the selected indicators may be important mediators or moderators of the concomitance between depression and marital adjustment. A series of regression analyses were conducted to test these hypotheses, and this chapter ends with several conclusions and implications for future research.
The effect of mood on self-reported measures was investigated in chapter 6, evaluating the concordance of depression and marital distress under condition of neutral and negative emotion in a non-clinical population. We apply a combined experimental mood induction procedure, based on music, autobiographical recall and environmental manipulation.

The final chapter contains an overview and general discussion of the main findings. Implications for assessment and clinical practice are worked out, as well as directions for future research.

This dissertation is comprised of several papers, which have been submitted for publication, are under editorial review or are currently published. To make each of the papers self-containing, the text of some of the chapters may overlap.
Acknowledgements

This dissertation would not have been finished without the help and support of many people, and I want to thank them all.

First of all, my special gratitude goes to all the couples who were willing to participate in the several studies. Knowing that depression and marital distress can make even the most basic life functions very difficult, I really appreciate the great efforts of everyone. Also thanks to the participating clinicians and clinical centers.

Secondly, my special gratitude goes to Prof. Dr. P. Van Oost, my supervisor, who gave me the opportunity to make this dissertation. I really appreciate what I have learnt during the last years and I am grateful for our co-operation.

I am indebted gratitude to Prof. Dr. A. Buysse, for assisting and supporting me during the several years of research. Our discussions were enlightening and encouraging, and they very much helped me to improve my theoretical and empirical skills. Thank you Ann, for your confidence, and for adding me to your busy schedule time after time!

I would like to thank Prof. Dr. W. Vandereyken for his advice and comments on my research work. Thanks also to the students involved in the several projects, and the colleagues for the support they have given.

Special thanks to Sarah, who stood by me every step of the way, from Ghent to La Gomera, from orangina to freixenet. We have shared so many moments – professional and personal – and will definitely continue to do so in the future. Thanks Sarah, for the intense friendship, the best has yet to come.

I want to thank Casje, for providing me with an implicit support and care at all the right times, unconditionally. Also thanks to Dirk, for helping me to see things in the right perspective, I will never forget that.

I want to thank my mother, sisters and brother for their daily motivation, humour and encouragement during the past 31 years. This dissertation could never have been completed without their continuous support and love, thank you all. Special thanks to mam and Kaatje, also for engaging in the last straws of this dissertation.

My very special thanks to Hendrik, for his endless patience and calmness, for taking care of himself and me, especially during the last turbulent months. You are very dear to me, motivating me in every way, I am very greatful for that.

Finally, I want to dedicate this dissertation to my dad. Although he is no longer around, his motivation and confidence still are, and I hope I made him proud of me.
Chapter 1

General Introduction

In this chapter, we will start by giving some general information about depression. We will also describe the difference between depression as a category, and depressive symptoms as a dimension. In addition, the concomitance of depression and marital distress is examined. The existence of this association (50%) raises the question of whether there is a causal relation between both variables. In this context, we discuss possible causal hypotheses that are modelled in three basic ways. Furthermore, we describe a fourth model that proposes third variables that may contribute to the association of depression and marital distress. The following variables are highlighted: marital adjustment, conflict communication, attributions, attachment and personality traits. Finally, this section details the main objective of this dissertation, described in our central research question: what is the role of the selected third variables in the association between depression and marital distress? In order to do so, we considered several caveats in research on depression and marital distress, taking into account a categorical and dimensional perspective of depression and marital distress, as well as the level at which the specific indicators occurred, i.e. at individual or at couple-level. In the methodological section, we will describe the self-report measures that are used to gather information about these indicators, as well as the translation procedure used for the international questionnaires. This chapter closes with the research question about the validity of self-report measures, addressing the issue that mood or marital distress can act as a distinctive “state” or “context” which affects self-reported scores.
Theoretical perspectives

1. Introduction

There is a general recognition that depression is “the common cold of mental illness” (Beach, Sandeen, & O’Leary, 1990), because of its increasing prevalence rate (Belgium: 10 to 25% for women and 5 to 12% for men) and persistent course. In addition to its high prevalence, depression is important because of its high relapse rates (up to 50%, Emmanuels-Zuurveen, 1996), long average length of episodes (8 months, Shapiro & Keller, 1981), its pernicious chronicity and therefore life-threatening risk (15 % suicide risk, Emmanuels-Zuurveen, 1996). There are several classifications of depression, based on criteria of severity, course and aetiology (unipolar versus bipolar; endogenous versus exogenous, neurotic versus psychotic, or vital versus personal). The most widely accepted definition of clinical depression in literature is major depression, as described in recent editions of the DSM. Clinical or diagnosed depression is usually studied as a qualitatively distinct entity of disease, whereby depression is considered a discrete disorder.

However, categorical cut-off scores often seem arbitrary. People may display symptoms of depression and syndrome-specific vulnerabilities that may last for years, even without an apparent diagnosable pathology. Furthermore, not everyone who is depressed experiences every symptom. Some people may encounter just a few symptoms, while others may feel a variety of symptoms. The severity of the symptoms depends on the individual, and the symptoms may vary over time. A certain symptom might occur during the initial stages of the depression, disappear, only to return later. Furthermore, it’s often difficult to differentiate between an individual diagnosed with depression and comorbid relational problems and a couple diagnosed with marital distress and comorbid depressive complaints. As a result, the problem of how to work best with individuals who are both maritally discordant and depressed is of considerable importance. In this context, some studies use an indicator of self-reported distress and depressive complaints as an analogy for diagnosed clinical depression, arguing that characteristics and symptoms of depression differ only in degree, not in kind.
In other words, several investigators evaluated the cross-sectional association between *diagnostic* depression and marital distress (Whisman, 2001), while others have included data on the association between depressive *symptoms* and marital distress, whereby depression is considered a continuous variable. Because it has been argued that symptoms of depression and diagnostic depression have different characteristics, causes and courses (Coyne, 1994; Whisman, 2001), studies of depression as a category or as a dimension are often addressed separately.

2. **Concomitance of Depression and Marital Distress.**

Our understanding of what causes depression has changed and will continue to progress, but recent research also reflects the insight that the aetiology of syndromes can be seen as a complex interaction between internal and external factors at different levels. Recent studies have focussed on indicators that covary with depression. The concomitance between depression and marital distress has been emphasised, and there has been a long-standing recognition that both variables are likely to co-occur (Whisman, 2001). This association has been demonstrated within several community-based and clinical samples (e.g. Beach & O’Leary, 1992; Beach & O’Leary, 1993; Denton, Golden, & Walsh, 2003). The overlap between marital distress and depression in these samples is approximately 50%, regardless of whether depression is construed as a variation in symptoms or as a diagnosable disorder, in samples selected for marital problems or in samples selected for depression (Beach, Jouriles & O’Leary, 1985; Beach, Fincham, & Katz, 1998; O’Leary, Christian, & Mendell, 1994; Weissman, 1987; Whisman, 2001; Whisman & Delinsky, 2002). Furthermore, marital problems and depression are known to be among the most frequent problems for which adults seek treatment in a mental health facility (Beach & O’Leary, 1992). In addition, the prognosis of depression is poorer if the depressed patient experiences marital distress and vice versa. In short, there is compelling evidence of an association between marital distress and depression, based on a large body of empirical evidence encompassing a wide array of research designs and assessment strategies (e.g. Beach et al., 1998; Beach & O’Leary, 1992, 1993; Benazon & Coyne, 2000; Coyne, Thompson, & Palmer, 2002; Jacobson, Dobson, Fruzetti, et al., 1991; Johnson & Jacob, 1997, 2000; O’Leary et al., 1994; Schmaling & Jacobson, 1990; Scott & Cordova, 2002; Whisman & Uebelacker, 1999; Whisman & Delinsky, 2002).
The concomitance of depression and marital distress needs to be situated in a broader conceptual, theoretical and empirical framework. The existence of this association raises the question of whether a causal relation between marital problems and depression exists (Beach et al., 1998). A wide variety of models have been proposed to explain this (Van den Broucke & Vandereycken, 1996). The literature is not conclusive on this subject, and different studies appear to support different theoretical perspectives, which are proposed to account for the association between depression and marital distress. In general, these perspectives can be modelled in three basic ways: 1. marital distress leads to depression; 2. depression leads to marital distress; and 3. there is a bi-directional pattern of influence. Empirical evidence has substantiated these three hypotheses, which are summarised in the next section. More recently, a fourth hypothesis was formulated, suggesting the presence of additional third variables that may contribute to the association between depression and marital distress.

**Marital distress leads to depression.** Evidence for marital distress leading to depression stems from longitudinal research (e.g. Beach & O’Leary, 1993; Fincham, Beach, Harold, et al., 1997; Fincham & Bradbury, 1993; Whisman & Uebelacker, 1999; Whisman, 2001) as well as studies into the temporal association between marital dissatisfaction and the onset and course of depression, and prospective cohort studies (Whisman & Bruce, 1999). Dissatisfied spouses were nearly three times more likely to develop a major depression than satisfied spouses (Jacobson et al., 1991). Of all the stressful life events that precede the onset of depression, increases in marital conflict or disruption were the most commonly cited (Koerner, Prince, & Jacobson, 1994). Marital distress has been shown to predict change in depressive symptoms, and relapse in formerly depressed individuals (e.g. Hickie & Parker, 1992; Hooley & Teasdale, 1989; Whisman & Uebelacker, 1999).

**Depression leads to marital distress.** According to this perspective, the depressed individual behaves in an aversive way towards the partner, who is likely to try to inhibit his or her negative response (e.g. Coyne, 1976; Coyne & Benanzon, 2001; Coyne et al., 2002; Koerner et al., 1994). Spouses of the depressed individual may experience greater marital distress because they feel burdened by the depressed partner’s needs and negative statements (Benanzon & Coyne, 2000; Coyne & Benanzon, 2001), and they may convey their irritation to the partner. As a
consequence, depressed partners may become dissatisfied with the relationship and even more depressed (Carnelley, Pietromonaco, & Jaffe, 1994). Other studies have found that depressive symptoms at baseline are associated with longitudinal change in marital dissatisfaction (Fincham et al., 1997; Fincham & Bradbury, 1993; Ulrich-Jakubowksi, Russell, & O’Hara, 1988), or that depression even precedes divorce (Coyne et al., 2002).

A bi-directional, recursive pattern. Given the large overlap in symptomatology between depression and marital distress, one may wonder how one can determine which came first (Berg-Cross, 1997)? It is most likely that the association between marital distress and depression is recursive and bi-directional, in that they both influence and are influenced by each other (Whisman & Uebelacker, 1999). Most marriages with a depressed partner have more than their share of marital problems. On the other hand, unhappy, distressed relationships can provoke a clinical depression in one or both of the partners. As a result, an emotionally unsatisfying marital relationship can incite or exacerbate clinical depression, which, in turn, can put an additional stress on the marriage (Berg-Cross, 1997).

The role of third variables. Fourthly, there are several perspectives that propose that third variables may contribute to increased risks for both depression and marital distress. Common features do not necessarily reflect causal links, but also might reflect a concomitance or even a common vulnerability. For example, some studies have proposed that certain personality traits may predispose an individual to both depression and marital problems (e.g. DeNeve & Cooper, 1998; Karney & Bradbury, 1995). Others have suggested that causal attributions of marital problems may produce marital distress and be predictive of depression (Fincham & Bradbury, 1992, 1993; Joiner, 2001). In short, numerous variables have appeared as correlates of either depressive symptomatology or marital discord in separate studies, but little research has been done regarding the relationship of these variables to both marital distress, depression and other relevant third variables. It is very likely that depression, marital distress and other factors are associated, influencing and being influenced by each other. Although there have been recent efforts to test some of these theoretical perspectives, many aspects await empirical evaluation (Whisman, 2001).
The following variables seem to comprise fundamental domains of both depression and marital distress: *marital satisfaction and adjustment, conflict communication* or the way spouses communicate during marital difficulties, cognitions or *attributions* that can accompany these behaviours, and possible vulnerabilities such as *attachment style* and *personality traits* that individuals may bring to the relationship (Bradbury, 1995). Empirical evidence confirms the importance of these indicators for depression and marital distress, summarised in the next section. ¹

*Marital adjustment* or satisfaction plays a central role in research on marital relationships and literature on depression and marital distress. Marital distress is assumed to be present if satisfaction with the marital relationship is low, as demonstrated by the partners’ subjective evaluations of their relationship (Fruzzetti, 1996; Whisman, 2001). Marital processes are not fully reflected in marital adjustment, and there is now a clear recognition of the central role of communication in marriage (Heavy, Larson, Zumtobel et al., 1996). A large number of studies have specifically focused on the couples’ *communication* in dealing with conflict. Depressed individuals tend to express less functional conflict communication (Christensen & Heavy, 1990; Christensen & Shenk, 1991; Heavy, Christensen, & Malamuth, 1995), showing less problem solving behaviour and less self-disclosure. Their communication was further found to be characterized by negative self-evaluations, negative well-being verbalizations, and negative orientations on the future. They also appear to come across to others as negative or deficient in communication and problem solving (Jacobson et al., 1991; Schmaling, Whisman, Fruzzetti, et al., 1991; Christian, O’Leary, & Vivian, 1994), with a greater number of interruptions and greater frequency of pauses in their conversation (Emmanuels-Zuurveen, 1996). Several studies have indicated that the communication between the patients and their spouses is more negative and more disruptive than that between nondepressed patients (Van den Broucke & Vandereycken, 1996).

Maritally distressed couples can also be differentiated from non-distressed couples by their communication style as a couple’s way of communicating is strongly related to their marital satisfaction. Numerous studies with a large variety of perspectives on

communication have demonstrated that the interactions of maritally distressed couples are characterized by disturbed communication patterns. This is particularly true of communication during conflict (e.g. Heavy et al., 1996). There is also evidence that certain aspects of conflict communication predict longitudinal changes in relationship adjustment (Heavy et al., 1996). Furthermore, there is abundant evidence that demand/withdraw communication, a pattern in which one spouse avoids discussion while the other nags or complains, is associated with concurrent marital dissatisfaction. Demand/withdrawal is an important predictor of marital outcomes such as satisfaction and divorce (e.g. Cauglin & Huston, 2002).

Are the interactions of unhappily married couples with a depressed partner unique? How are they different from the unhappily married who do not suffer from depression? Schmaling & Jacobson (1990) found a number of interactional variables that distinguished between depressed and non-depressed spouses (e.g. higher rates of depressive behaviour, lower rates of problem solving and self-disclosure), compared to spouses in non-depressed relationships. However, they did not succeed in separating dysfunctional marital interaction patterns that were correlated with depression from patterns that were associated with marital distress. As stated before, the marital discord model (Beach et al., 1990) underscores the importance of marital adjustment and distress as a possible mediator in the onset and development of depression, particularly with the focus on aspects such as communication and adjustment (Christian et al., 1994; Van den Broucke & Vandereycken, 1996).

Studies of *attributions* suggested that depressive individuals display negative cognitions in response to both interpersonal and non-interpersonal situations, blaming themselves for every negative event. Horneffer & Fincham (1996, 1997) provided important information for understanding depressive symptoms in the context or marriage. Dysfunctional thinking was found to be more prominent during depression. Subjects who attributed responsibility for negative events to themselves and positive events to the responsibility of others, had a high level of depressive complaints (Berg-Cross, 1997). Several theorists have focused on the role of maladaptive thought processes in promoting depression. In recent studies, it has become increasingly clear that depression involves cognitive dysfunctions, marked by a variety of negative thought patterns, including dysfunctional causal and responsible attributions. Importantly, such negative thinking is associated with
relapse of depression, and its absence predicts recovery from this disorder (Bradbury, 1995; Carnelley et al., 1994; Fincham & Bradbury, 1992, 1993).

In addition, recent theories about marital distress suggest that cognitions about the relationship play an important role. Spouses in distressed marriages are supposed to have negative attributions about the behaviour of their partner (O’Leary & Smith, 1991). The interactions of maritally distressed couples are characterized by the presence of attributions of the spouse’s negative behaviour to internal factors and positive behaviour to external factors (Schaap, 1984; Van den Broucke & Vandereycken, 1996). Furthermore, a couple’s way of communicating is strongly related to the presence of cognitive distortions, with attribution of the spouses’ negative behaviour to internal factors and positive behaviour to external factors (Berg-Cross, 1997; O’Leary & Smith, 1991). Compared with happily married spouses, distressed spouses tend to make attributions that neglect the impact of positive marital experiences and accentuate the impact of negative marital events.

Studies that focused on cognitive and attributional aspects showed similarities and differences between cognitive processes in depression and marital distress. Cognitive distortions have been found to be characteristic both for depressed individuals and for distressed couples. It is therefore tempting to assume that similar distorted cognitive processes may underlie both depression and marital distress. However, other findings suggested cognitive specificity for depression and marital distress whereby responsibility attributions (e.g. blaming the spouse, Pretzer, Epstein, & Fleming, 1991; Emmanuels-Zuurveen, 1996) were related to marital distress, whereas depressogenic attributions (e.g. self-blame) seemed related to depression (e.g. Townsley, Beach, Fincham, et al., 1991). These results indicate that those variables that are most relevant for depression do not necessarily overlap with the cognitive variables relevant to marital distress (Fincham, Beach, & Bradbury, 1989). Instead, a broader type of integration was suggested in which the inclusion of each type or dimension of attribution is necessary to fully understand the implications for depression and marital distress (Horneffer & Fincham, 1996, 1997).

In terms of attachment, the adult romantic relationship serves the same base functions as the childhood relationship (Davila, Bradbury, & Fincham, 1998; Davila & Bradbury, 2001). Secure individuals are said to regard themselves as interpersonally competent in contrast to insecurely attached individuals (Bartholomew & Horrowitz, 1991; Hazan & Shaver, 1987; Senchak & Leonard,
Anxious-ambivalent individuals desire extreme closeness but alternate between hostility and dependency when the partners act in an unpredictable or unsupportive manner (Berg-Cross, 1997). Avoidant individuals are uncomfortable with closeness and tend to shut down and retreat when the partners act in a rejecting manner. They deny their need for others’ love and have a fear of intimacy (Senchak & Leonard, 1992). The hypothesis has been formulated that individuals with insecure attachment styles are at high risk for frustrating and tumultuous relationships, as well as depressive symptoms (Berg-Cross, 1997).

Several studies support this association, suggesting a relationship between insecurity and a predisposition to depressive symptoms in marital relationships (Carnelley et al., 1994; Scott & Cordova, 2002). Anxious-ambivalent women and avoidant men scored higher in depressive symptoms than other attachment prototypes (Roberts, Gotlib & Kassel, 1996). However, it is unlikely that these insecure traits, per se, cause depression in the at-risk partner or the provoking partner. These traits probably cause people to interpret their experiences in a negative manner, possibly leading to depression (Berg-Cross, 1997; Whiffen & Johnson, 1998; Whiffen, Kallos-Lily, & MacDonald, 2001).

Furthermore, several studies have found a robust association between adult attachment styles and relationship satisfaction (Collins & Read, 1990; Feeney, 1999a, 1999b; Kirkpatrick & Davis, 1994). Attachment style was associated with relationship functioning (Carnelley et al., 1994), while avoidant and ambivalent attachment were associated with less marital satisfaction (Davila et al., 1998; Davila & Bradbury, 2001; Feeney, 1999a, 1999b). Couples in which both partners were securely attached evidenced better overall marital adjustment than couples that were insecurely attached (Senchak & Leonard, 1992).

Both theory and research support the notion that attachment insecurity is related to both depression and marital distress (e.g. Davila et al., 1998; Davila, Karney, & Bradbury, 1999; Feeney, 1999a, 1999b; Kobak & Hazan, 1991; McCarthy, 1999). Secure adults maintain their generally positive interpersonal evaluation of themselves and others during periods of relationship distress, thereby protecting themselves from depressive symptoms and relationship problems. Anxious-ambivalent adults are deeply critical of themselves when confronted with relationship distress, similar to the symptoms of depression. In contrast, given the tendency for avoidant adults to defensively suppress negative emotional experiences, they are likely to remain relatively detached from their relationships whether or not they are experiencing
increases in marital dysfunction. As a result, avoidant adults should remain relatively unaffected, in terms of depressive symptoms, by relationship distress (Scott & Cordova, 2002).

In recent years, there has been a resurgence of interest in personality variables that might contribute to vulnerability and shape the symptomatic expression of depression and marital distress. In this context, the Big Five Taxonomy, because of its breadth and prevalence in personality research, is useful for exploring how individual differences are related to depressive symptomatology and marital functioning, in order to provide a broad exploration of the association between personality and the marital functioning of couples with a depressive spouse. Numerous studies have supported the association between specific personality traits and depressive complaints. Neuroticism is a well known trait that has been suggested to predispose individuals to depression. According to DeNeve & Cooper (1998), neuroticism was the strongest predictor for life dissatisfaction, happiness (inversely) and negative affect. Furthermore, extraversion has inversely been linked to depression (Heerlein, Richter, Gonzalez, et al., 1998). Gershuny & Sher (1998) hypothesised that a personality characterized by high neuroticism and low extraversion predisposed individuals to depression and anxiety. However, Jorm, Christensen, Henderson et al. (2000) did not confirm this finding.

One essential issue in the literature on close relationships is the identification of the personality traits linked to negative relationship outcomes for adults. This issue is important because if personality traits are stable in adulthood (McCrae & Costa, 1994), then some individuals may be predisposed to experience relationship problems independent of the stressors emanating from their particular relationship. According to Kurdek (1997), neuroticism was the factor most consistently linked to negative relationship outcomes (Karney & Bradbury, 1995), even with controls for the other Big Five Factors. Previous findings indicated that neuroticism could possibly be regarded as an enduring vulnerability for relationship distress (Karney & Bradbury, 1995), negatively affecting one’s attraction and commitment to the relationship (Kurdek, 1997). Agreeable individuals became increasingly distressed as the number of interpersonal conflicts increased during the day. Neurotic individuals also tended to be more distressed by daily problems (Suls, Martin, & David, 1998).
3. This Dissertation.

This dissertation is derived from research on the strong concomitance of depression and marital distress, and we moved beyond the simplistic suggestion that marital distress alone is a sufficient explanation for depression, or vice versa. Instead, we believe that research needs to emphasise a particular class of third variables that are characteristics of depression, marital distress, and the relationship between them. Therefore, the present dissertation expects to overcome some of the shortcomings of previous studies, avoiding the causality impasse between depression and marital distress which is a deadlock in theoretical and empirical studies. The question of which comes first is a “punctuation” issue, and the present dissertation was based on a reciprocal model of depression and marital distress. In this context, our main research question concerns the valuation of these “third variables”, and we believe that it is very likely that depression, marital distress and the selected variables are associated, influencing and being influenced by each other. The variables chosen for this dissertation were marital adjustment, conflict communication, attribution style, attachment, and personality traits – all potentially specific correlates or indicators. In this context, several approaches place an emphasis on attachment and personality traits in understanding the developmental trajectory of vulnerability for depression and marital distress, as well as in understanding the way in which interpersonal patterns become internalized as cognitive vulnerabilities. It appears necessary to gather more information about each of these third variables and their mutual relationships, and many aspects await empirical evaluation (Whisman, 2001). Both depression and marital distress are high in comorbidity, and the present dissertation wanted to provide a broader framework for clarifying and understanding this concomitance.

The innovative aspect of this dissertation lies in the combination of all these measures at once, as well as in taking into account several recent caveats derived from previous studies. First, there is the issue of depression as either categorical or dimensional, i.e. in terms of depressive symptoms or a discrete diagnosticical disorder. As stated before, major depression is often diagnosed and studied as a qualitatively distinct disease entity, but several researches have argued that depression is best viewed as a continuum, meaning that the characteristics and symptoms of depression differ only in degree, not in kind. This also implies different research designs, with
group differences for a categorical, and correlation and factor analyses for a dimensional perspective. Given the extensive overlap in diagnostic criteria among mood disorders, it is reasonable to question whether analogue and clinical forms of depression are part of the same continuum (i.e. differences are viewed as quantitative rather than qualitative). However, the present dissertation was not designed to resolve this complex issue, but intended to shed light on this continuity controversy. Therefore, we focussed on clinical and non-clinical samples, measuring depression and marital distress on a dimension as well as in category. In this context, we studied both variables as a variation in symptoms or as a diagnosable disorder, taking into account the variety in the degree of symptomatology. In addition, each individual and relational concomitant was considered as a continuous measure or a dimension, not assumed to be mutually exclusive in categories. Moreover, clinical depression and depressive symptoms were used as dependent (e.g. regression analyses) as well as independent variables (e.g. Manova’s), but we did not intend to indicate any causal direction or explanation. Instead, the statistical analyses were used to clarify the patterns of associations between depression, marital distress and the selected variables, analysing mutual relationships in a continuous chain of dependent characteristics. Second, we believe that any comprehensive model of depression or marital distress must incorporate both individual and relational variables, whereby the role of relevant individual characteristics as well as factors related to the spouse and relationship are investigated. Because these variables are associated with depression and marital distress through individual and relational processes, it is important to examine couples’ data based on both spouses’ perceptions, with dyadic analyses. Therefore, this dissertation also investigated the level at which the variables occurred: the individual or the couple level, pointing to more individual or marital functioning. In this context, a controversial question remains whether variables such as attachment, communication and attributions are properties of individuals or of relationships, as well as the stability of possible individual vulnerabilities for depression.
Methodology

1. Introduction.

The previous section has focussed on several measures related to depression and the relationship. These variables comprise important domains of marital distress and depression. For each of these domains, several potentially useful self-report instruments, interviews or observational coding systems exist (Bradbury, 1995), emphasizing the importance of an overall assessment. Standardised assessment is an essential undertaking in empirical and clinical activities involving couples and it plays a central role in determining interventions and their effectiveness. More specifically, a broader assessment of both depressed patients and their spouses is available for a better understanding of the marital context of depression (for an overview, see Bradbury, 1995). The fact that spouses do not mirror each other’s scores emphasises the value of analysing scores for both spouses separately.

Although there are reliable and validated Dutch versions of the Maudsley Marital Questionnaire (the MMQ; Arrindell, Boelens, & Lambert, 1983), the Neo Five Factor Inventory (the Neo-FFI; Hoekstra, Ormel, & de Fruyt, 1996) and the Symptom Checklist (the SCL-90; Derogatis, 1977; Arrindell & Ettema, 1986), we are in need of adapted and validated instruments for the global assessment of marital adjustment, conflict communication, attachment style and attributions for marital conflicts in Dutch. In the next section, specific instruments that could be used to gather information about these indicators are considered, which can help organizing the assessment activities concerning depression and marital distress.

The use of self-report measures has however been criticized, and some researchers have hypothesised that mood or marital distress can act as a distinctive “state” or “context” which affect self-reported scores (see also Enns, Cox & Larsen, 2000). A depressed, dysphoric mood state may be associated with a biased recall, which may lead people to perceive themselves and their relationship more critically and negatively (Williams, Watts, MacLeod, et al., 1997). In this context, results measured by self-report may be consequences of depressive episodes, being affective-state dependent (see also Enns et al., 2000; Van der Does, 2002).

---

Table 1

<table>
<thead>
<tr>
<th>Name</th>
<th>Measures</th>
<th>Reliability</th>
<th>Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAS</td>
<td>Marital adjustment (dyadic consensus, satisfaction, affectional expression, dyadic cohesion and total dyadic adjustment)</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>MMQ</td>
<td>Marital satisfaction (marital, sexual, and general life satisfaction and total marital satisfaction)</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>CPQ</td>
<td>Conflict communication: constructive communication, demand-withdrawal communication, mutual avoidance</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>RAM</td>
<td>Attributions for partners’ behaviour; causality (locus of control, stability, globality) and responsibility (intention, blame and motivation)</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>AAS</td>
<td>Adult attachment style: secure, avoidant, and anxious-ambivalent or close, dependable and anxious</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>NEO-FFI</td>
<td>Neo Five Factor Inventory: agreeableness, conscientiousness, extraversion, neuroticism and openness</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>SCL-90</td>
<td>Symptom check list, multidimensional measure of psychopathology (including depressive symptoms)</td>
<td>++</td>
<td>++</td>
</tr>
</tbody>
</table>

The Dyadic Adjustment Scale (DAS; Spanier, 1976) is a 32-item rating instrument completed by both partners in a relationship. This widely used self-report measure of relationship adjustment discriminates reliably between distressed and non-distressed couples. Possible scores range from 0 to 151. Higher scores indicate greater marital adjustment, and individuals earning scores < 99 are commonly categorized as maritally distressed (Spanier, 1989). It yields a total score and 4 subscores reflecting satisfaction, cohesion, consensus and affectional expression. Psychometrical analyses support the reliability and validity (Bradbury, 1995).

The Maudsley Marital Questionnaire (the MMQ, Arrindell et al., 1983) is a 20-item Dutch version of the MMQ, which is administered to measure marital satisfaction. Previous psychometric analyses supported the factorial and divergent reliability as well as the convergent construct validity of the Marital (10 items), Sexual (5 items), and General Life Adjustment scale (5 items). Correlational analyses revealed the MMQ scales to be correlated with the subscales of the DAS. The total score can be interpreted as an indication for dissatisfaction. According to the Dutch norms, a cut-off point of 40 for the summed mean score of a couple was used to establish relationship satisfaction (Emmanuels-Zuurveen, 1996; Emmanuels-Zuurveen & Emmelkamp, 1996).

The Communication Patterns Questionnaire (CPQ; Christensen & Sullaway, 1984) is a self-report inventory that addresses a spouse's behaviour during conflict. The patterns are mutual constructive communication, mutual avoidance, and demand-
withdraw (one partner attempts to engage in discussion and the other attempts to avoid). Spouses indicate the likelihood of these behaviours being exhibited on a 9-point scale. Three stages of conflict are assessed: 1. when some problem in the relationship arises; 2. during a discussion of a relationship problem and 3. after a discussion of a relationship problem (Bradbury, 1995). Internal reliabilities for this measure are acceptable, and the various subscales are significantly related to marital adjustment in the expected direction (Christensen, 1988; Heavy & Christensen, 1996).

The Relationship Attribution Measure (RAM; Fincham & Bradbury, 1992) was developed to assess the attributions for partners’ behaviour, especially for negative relationship events. After imagining the occurrence of each of the event, spouses make judgements reflecting three dimensions of causal attribution (i.e. locus, the cause of the behaviour within the spouse; stability, the cause persists over time; and globality, or the cause effects many areas in the relationship) and three dimensions of responsibility attribution (i.e., the partner acted intentionally, with selfish intent and he or she should be blamed for his or her actions). Higher scores in the RAM reflect a tendency to judge the partners’ actions critically and to hold the partner responsible for those actions. The higher spouses score on this instrument, the more likely they are to engage in behaviours that hinder the resolution of marital difficulties (Bradbury & Fincham, 1992).

The Adult Attachment Scale (AAS; Collins & Read, 1990) measures the adult attachment style. It consists of 18 items, and participants rate items on a 5 point-scale. Collins & Read (1990) developed this measuring instrument by deconstructing Hazan and Shaver’s (1987) original descriptions of attachment. The original attachment style descriptions were based on three dimensions: secure, anxious-ambivalent and avoidant attachment, calculated by summing up 6 items for each style. Internal consistencies for these scales are acceptable.

The NEO Five-Factor Inventory (the NEO-FFI, Costa & McCrae, 1992; Hoekstra, Ormel, & de Fruyt, 1996) is a short form of the Neo-Personality Inventory. Each of the five factors is measured using 12 items for a total of 60 items. A five-point Likert-scale was used ranging from 1 strongly disagree to 5 strongly agree. Each of the factors is bipolar and the binaries align as follows: agreeableness versus antagonism; conscientiousness versus undisciplined; extraversion versus introversion; neuroticism versus emotional stability; and openness versus closeness (Antonioni, 1999).
The Symptom Checklist (the SCL-90, Derogatis, 1977; Arrindell & Ettema, 1986) is a 90-item self-report inventory that asks participants to assess psychological symptoms of distress on a 5-point scale based on their experience of each symptom during the previous week. It is a multidimensional standard of psychopathology, measuring symptoms of anxiety, agoraphobia, somatisation, hostility, insufficiency, sleeplessness, and sensitivity. It also provides a unitary measure of current depressive symptomatology, with an emphasis on the affective component, depressed mood.

2. This Dissertation.

Due to the lack of Dutch questionnaires for marital adjustment, conflict communication, attachment style and attributions for marital conflicts, we singled out reliable and valid English questionnaires, including the Dyadic Adjustment Scale (DAS; Spanier, 1976), the Communication Pattern Questionnaire (CPQ; Christensen & Sullaway, 1984), the Adult Attachment Scale (AAS; Collins & Read, 1990), and the Relationship Attribution Measure (RAM; Fincham & Bradbury, 1992). These questionnaires were translated and adapted, following a standardised procedure, and psychometric qualities were assessed. Findings based on 83 non-clinical couples roughly supported the internal consistency of the questionnaires, as well as the convergent construct validity of the Dyadic Adjustment Scale (Spanier, 1976).

Translation procedure. This procedure was based on a standardised translation protocol from the Psychology Department of the Multi-Health Systems Corporation (publishing company). Six translators (bilingual and native target language speakers) independently translated the items from the original (English) to the target language (Dutch). Once the initial translations were completed, discussions with regard to inconsistencies took place and a composite translation was produced. Once a final translation into the target language was agreed upon, at least one other party (also fluently bilingual and a native original language speaker) independently translated this version into the original language. The original and back translations were compared and inconsistencies were corrected. The entire process was repeated until all translators judged the items to be identical in content and meaning. The translation and back translation were sent for review to the original author(s). The Dutch versions are now administered by permission of the original authors, awaiting
any last comments. Further psychometric analyses are needed, especially with a view to Belgian norms.

**Research Question 2: stability and validity issue.** This dissertation addressed the validity issue of self-report measures. As stated before, most existing studies evaluated the concordance between depression and marital distress based on self-report measures of both variables. However, it could be argued that the observed association between those two characteristics could, at least in part, be an artefact of the use of self-report measures, for example as a result of a depressed mood (Whisman, 2001). Since we are sensitive to this psychometric issue, we therefore used an experimental mood induction in a non-clinical population, applied in a laboratory, aimed at changing moods. If the association between depression and marital distress reflects a stable concordance, then there should be no difference between depressed-mood and neutral-mood participants in the self-rated measures. If these associations are in part mood-state artefacts, then a depressed-mood condition group should score significantly differently on the selected measures in comparison with the neutral-mood participants.
References


Chapter 2

A Categorical and Dimensional Perspective on Depression within a Non-Clinical Sample of Couples.3

The present study investigated the role of psychosocial variables that are characteristics for depressive symptomatology within a couple. The variables chosen for this study were conflict communication, marital adjustment, attachment, attribution style, and personality traits — all specific concomitants. A global factor analysis on all our measures revealed that our individual and relational measures were stable findings. We wanted to compare a dimensional and categorical view of depression. First, we focussed on the total non-clinical sample, considering depression on a continuum, studying the selected characteristics along with the varying degree of depressive complaints. The results highlighted the importance of individual characteristics (neuroticism and life satisfaction) covarying with the level of depressive symptomatology in the non-clinical sample (n=186 couples). Second, in addition to this correlational design, we compared the group of most depressed subjects and their partners with a control sample (n=34). Both approaches pointed to the same conclusion: individual characteristics co-varied with mild depression, whereas couple characteristics only came into the picture with a higher level of depressive complaints. The lowest levels of depressive complaints were associated with individual co-morbidity only, whereas increasing complaints went along with additional relational complaints. Implications for assessment and future research are discussed.

3 This chapter is based on Heene, E., Buysse, A., & Van Oost, P. (2003). A categorical and dimensional perspective on depression within a non-clinical sample of couples. *Family Process, 42, 1, 133 – 149.*
Introduction

Many have speculated about the role of marital and family interaction in depression, and these speculations have taken many forms. Some investigators have suggested that dysfunctional marriages may play a causal role in at least some depressions, others have similarly hypothesised that depressives participate in dysfunctional marital interaction. Still others have disputed or remained silent about the causal sequence, but have argued that a functional marriage can decrease the likelihood of depression in an otherwise vulnerable individual (Hammen, 1991). Although there has been some research designed to examine the role of marital relationships in depression, few definite conclusions can be drawn from studies completed thus far. It is clear that marital distress and depressive symptomatology have repeatedly been found to be associated, but little is known about variables that influence this relationship.

Therefore, the present study focused on the association between marital distress and depression. There is a need for research evaluating this association, based on representative community and clinical samples (Whisman, Sheldon, & Goering, 2000). As a step towards understanding the role that marital relationships play in depression or vice versa, it is essential to establish at a descriptive level what, if anything, is unique about the functioning of couples with a depressed spouse (Schmaling & Jacobson, 1990).

In this study, we focused on a non-clinical community sample, comparing a dimensional and categorical view of depression. Consequently, we considered depression both on a continuum - studying the selected characteristics along with the varying degree of depressive complaints – and as a category. In this context, the continuity controversy is one of the most fundamental issues in the nosological literature (Ruscio & Ruscio, 2000), and it raises a critical question about the very nature of depression: Is the underlying structure categorical or dimensional? Although psychological disorders have usually been conceptualized as latent diseases that are qualitatively distinct from normal functioning, a number of researchers have argued that some, if not all, mental disorders exist along a continuum with normality (Ruscio & Ruscio, 2000). Finally, we were also interested in the level at which the specific indicators occur: the individual or the relational/couple level.
To identify psychosocial variables that are correlates of depressive symptomatology within a couple, we investigated the role of relevant individual variables as well as factors related to the spouse and the relationship. We selected several relational or marital variables reflecting areas of functioning that have been found to be associated with marital discord and depression. In this context, a “marital discord model” has been proposed with regard to depression (Beach, Sandeen, & O’Leary, 1990; Van den Broucke & Vandereycken, 1996). According to this model, marital distress aggravates major stressors in the relationship and diminishes the support available from one’s partner (Heim & Snyder, 1991; Van den Broucke & Vandereycken, 1996). Depressed patients appear to others as negative or deficient in communication and problem solving (Jacobson, Holtzworth-Munroe, & Schmaling, 1989; Schmaling, Whisman, Fruzzetti, et al., 1991; Christian, O’Leary, & Vivian, 1994), and they tend to express less functional conflict communication (Christensen & Heavy, 1990; Christensen & Shenk, 1991; Heavy, Christensen, & Malamuth, 1995). In this context, it should be noted that a large number of studies involving distressed couples have specifically focused on the couples’ communication in dealing with conflict, and this too was the focus of the present study.

In addition to marital communication and adjustment, seen as clearly relational features, we also included several variables that potentially could occur on both the individual and/or relational level. For example, the interactions of distressed couples are characterized by cognitive distortions and a negative attribution style (i.e., the attribution of the spouse’s negative behaviour to internal factors and positive behaviour to external factors; Schaap, 1984; Van den Broucke & Vandereycken, 1996). Studies of attribution style also suggest that depressed persons display negative cognitions in interpersonal and non-interpersonal situations, blaming themselves for every negative event. Horneffer & Fincham (1996, 1997) provide important information for understanding depressive symptoms in the context of marriage. Fincham, Beach, & Bradbury (1989) obtained no evidence to support the suggestion that maritally distressed spouses simply manifest the depressogenic attributions associated with depression (Fincham et al., 1989). Instead, a broader type of integration was suggested, in which the inclusion of each type or dimension of attribution is necessary to fully understand the association with depression and marital distress (Horneffer & Fincham, 1996, 1997). In the present study, we selected the most important causal attribution dimensions and focused on negative events.
during marital functioning. Because the main focus of the present study is on specific characteristics of depressive symptomatology within the couple, we focused on attributions in a relational context.

Alongside attribution style, attachment style is also a variable that potentially could occur on the individual and/or the relational level. According to some research, attachment style has been considered to be an important mediator for relational functioning (Carnelley, Pietromonaco, & Jaffe, 1994). From an attachment perspective, depressives’ problematic adult relationships are associated with early negative experiences with a primary caregiver, in which they learn to expect future attachment figures to respond in a similarly rejecting or inconsistent way. Carnelley et al., (1994) also conclude that attachment style is a strong predictor of relationship functioning. The depressive status is linked specifically to fearful avoidance (negative view of self and others) and not to preoccupation (negative view of self and positive view of others). Zuroff & Fitzpatrick (1995) have found significant correlations between depressive personality style (or traits such as dependency or neuroticism) and attachment measures (such as anxious and insecure attachment style). Previous research has also found insecure attachment style to be associated with depressive symptoms (Carnelley et al., 1994; McCarthy, 1999; Roberts, Gotlib, & Kassel, 1996). The present study aimed at investigating the pattern of associations between attachment style and depressive symptomatology, as well as the level at which it occurs (individual or relational). The reported attachment style can be an individual trait as well as a judgement about the nature and quality of the current relationship, for it is unclear whether attachment style remains stable or whether it varies across stages of a relationship.

Recent studies focusing on the role of personality traits, with the focus on the link between psychopathology and neurotic personality traits, also include findings for depression. Other studies have examined the differences between personality characteristics of bipolar disorder patients and recovered unipolar depressed patients, using the taxonomy of the Five-Factor model of personality. For example, bipolar patients scored significantly higher on the openness dimension and positive emotions than did recovered unipolar patients (Bagby, Young, Schuller, et al., 1996; Bagby, Bindseil, & Schuller, et al., 1997). In this context, the Big Five Taxonomy, because of its breadth and prevalence in personality research, is useful for exploring how
individual differences are related to depressive symptomatology and marital functioning. It is useful in the investigation of the association between personality and the marital functioning of couples with a depressive spouse.

**Method**

**Subjects**

Couples for this study were recruited through advertising in local media and public service announcements (newspaper advertisements, radio, and television appeals) publicizing a study about relational functioning. This study was part of a larger project. In total, 186 couples responded. We wanted the couples to have been married or cohabiting for at least one year. Couples came from all socio-economic backgrounds. In the total sample, male participants ranged in age from 19 to 68 years (mean = 37 yrs, \(SD = 11.6\) yrs). Female participants ranged in age from 19 to 71 years (mean = 36 yrs, \(SD = 11.6\) yrs). 70% of the couples had been married for at least one year, and 30% were cohabiting for more than one year. Participants on average had been with their current partner for 11 years. Of all the couples, 75% had one or two children at home, 16% had 3 children, and 5% had 4 children at home. The large number of couples provided us with the opportunity to explore the relationship between the degree of depression and our predicting variables.

The present study wanted to compare a dimensional and categorical view of depression. First, we focussed on the total non-clinical sample, considering depression on a continuum, studying the selected characteristics along with the varying degree of depressive complaints. Second, in addition to this correlational design, we compared the group of most depressed subjects and their partners with a control sample. Importantly, our total sample spanned the full range of depressive severity, making these data suitable for detecting a latent discontinuity at any point along this range (Ruscio & Ruscio, 2000). In an effort to test the structure of depression, we used this sample with a wide range of depressive symptom severity, selecting a depressive subsample as indication for a categorical view. This selection of couples was based on the scores on the Symptom Checklist (SCL-90; Arrindell & Ettema, 1986) for depressive symptomatology (using a male or female cutoff or norm score conforming to the average level of depressive symptoms of both the
normal and policlinal norm groups). Based on this criterion, the women were in the range of low to moderate depressive symptomatology, and the mean score for the men was slightly above the general cutoff for mild depressive symptomatology. Out of the initial 186 couples, we found that 17 subjects scored significantly high\(^4\) on depressive symptoms. These subjects and their partners were selected as our subsample with significant depressive complaints. We matched 17 control couples by age of both partners and duration of the relationship. However, the assumption that self-report measures of depression or individual pathology can actually measure clinical depression has been questioned. Thus, these cutoff scores and groups should be viewed as representing the level of subjective complaints and not the severity of a major depressive episode. A dimensional view allows for depression to be degraded in terms of the severity of depressive complaints, and not in terms of diagnosis or clinical categories.

Table 1

| Sample Means, Standard Deviations and Paired t-tests for Demographic Variables |
|-----------------------------|-----------------------------|-------------|
|                             | Control (n=17)              | Depression (n= 17) | t(32) |
| Age                        | 36.62 (11.07)               | 38.30 (10.86)    | -.09  |
| Number of Children         | 1.95 (1.06)                 | 1.56 (1.12)      | 1.02  |
| Years together             | 13.49 (9.4)                 | 13.17 (10.54)    | .09   |

Procedure

4 The cutoff scores for depressive symptomatology were set corresponding with the highest level of depressive symptoms of both the normal and policlinal norm groups: for the females raw scores above 56; for the males raw scores above 50.
Both partners of each couple were asked to independently complete a battery of questionnaires relating to marital topics (see Measures). Although a separate standardised assessment session was scheduled for each couple, it was necessary for both husband and wife to be present at the same time. They were asked to fill out their set of questionnaires separately, to prevent them from completing it together and discussing the items. By ensuring independent responses, we could be confident that any results would not be distorted by shared or collaborated response. However, each session started and ended with a joint briefing about the general procedure and goals of the investigation.

**Measures**

In order to assess the variables, we needed to identify specific characteristics of marital adjustment based on theoretical and empirical findings. Standardised assessment of these measures is essential in assessment involving couples, and plays a central role in determining interventions and their effectiveness. Because of the lack of Dutch instruments for the overall assessment of marital satisfaction and stability, this study used translated, adapted, reliable, and valid international questionnaires (Heene, Buysse, & Van Oost, 2000).

Specifically, we used the translated and reviewed versions of the Dyadic Adjustment Scale (DAS, Spanier, 1976; Buysse & Heene, 1997), the Communication Patterns Questionnaire (CPQ; Christensen & Sullaway, 1984; Buysse & Heene, 1997), the Relationship Attribution Measure (RAM; Fincham & Bradbury, 1992; Buysse & Heene, 1997), and the Adult Attachment Scale (AAS; Collins & Read, 1990; Buysse & Heene, 1997). The translated versions were internally consistent. Each couple also filled out the Symptom Checklist (SCL-90; Arrindell & Ettema, 1986), the Maudsley Marital Questionnaire (the MMQ; Arrindell, Boelens, & Lambert, 1983) and the NEO Big Five Personality Questionnaire (NEO-FFI; Hoekstra, Ormel, & de Fruyt, 1996).

The Dyadic Adjustment Scale (DAS; Spanier, 1976) is a 32-item rating instrument completed by both partners in a relationship. Each DAS item is rated with one of

---

5 The translation procedure is described in the introduction, section methodology (see also Heene, Buysse, & Van Oost, 2000).
several responses. The response anchors vary somewhat, depending on the question (Spanier, 1976, 1989). This instrument is commonly used in both research and clinical settings (Bradbury, 1995). It contains a total score (Dyadic Adjustment) and 4 subscores: Satisfaction (10 items), Cohesion (5 items), Consensus (13 items), and Affectional Expression (4 items). This scale has been proven to differentiate between distressed and non-distressed couples (Spanier, 1976). In the present sample \((n=186)\), \(\alpha\) for the different subscales ranged from .55 to .87.

The Communication Patterns Questionnaire (CPQ; Christensen & Sullaway, 1984) is a 35-item self-report measure that addresses a spouse's behaviour during 3 stages of conflict: (a) when some problem in the relationship arises (4 items), (b) during a discussion of a relationship problem (18 items), and (c) after a discussion of a relationship problem (13 items). The scores are computed in 3 subscales: mutually constructive communication, demand-withdrawal communication (and roles), and mutual avoidance/withholding. Mutually constructive communication and demand/withdrawal communication subscales are significantly related to marital adjustment in the expected direction (Christensen, 1988; Heavy & Christensen, 1996). In the present sample \((n=186)\), \(\alpha\) for the different subscales ranged from .55 to .80.

The Relationship Attribution Measure (RAM; Fincham & Bradbury, 1992) was developed to assess the attributional style (cognitions) for partners' behaviours, especially for negative relationship events. It is a 48-item rating instrument completed by both partners in a relationship. It describes several hypothetical negative relationship events initiated by a partner, and the respondent is asked to score statements reflecting dimensions of causality and responsibility. Several studies indicate that spouses' behaviours in interaction are related to the attributions they make for marital problems (Fincham & Bradbury, 1992). In the present sample \((n=186)\), \(\alpha\) for the different subscales ranged from .83 to .93.

The Adult Attachment Scale (AAS; Collins & Read, 1990) measures the adult attachment style. It consists of 18 items, and several different calculations are possible: one involves summing up 6 items for closeness, dependence, and anxiety; and another involves summing up 6 items for avoidant, anxious-ambivalent, and secure attachment. In the present study, we used the latter score. It has been suggested that the attachment style is related to the coping style and ways of regulating marital distress (Collins & Read, 1990). In the present sample \((n=186)\), \(\alpha\) for the different subscales ranged from .51 to .65.
The Neo Five Factor Inventory (the Neo-FFI; Hoekstra, Ormel, & de Fruyt, 1996) was developed to examine personality differences between people, using the five-factor model of personality. We selected the short version (Neo-FFI), which consists of 60 items. The dimensions of this questionnaire are neuroticism, extraversion, openness, agreeableness, and conscientiousness, all measured with composite scores derived from the Neo-FFI. Personality traits such as neuroticism are related to psychopathology. In the present sample \( (n=186) \), \( \alpha \) for the different subscales ranged from .68 to .87.

In addition, the battery of self-report questionnaires included the Dutch version of the Maudsley Marital Questionnaire (the MMQ; Arrindell, Boelens, & Lambert, 1983) as a check on relationship satisfaction, and the Dutch version of the Symptom Checklist (the SCL-90, Arrindell & Ettema, 1986) to explore the degree of individual complaints. In the present sample, the internal consistencies of these measures varied from .64 to .91.

**Results**

First of all, we started with a global factor analysis on all our measures, as a check on our differentiation of individual versus relational measures (see Table 2). Two factor analyses with varimax-rotation were conducted on the males’ and females’ scale scores. Because of our main research question, we report the two-factor solution. Scales entered were: the avoidant, anxious-ambivalent and secure attachment (AAS); neuroticism, extraversion, openness, agreeableness and conscientiousness (Neo); attribution dimensions of causality and responsibility (RAM); mutually constructive communication, demand-withdrawal communication, and mutual avoidance/withholding (CPQ); the sexual-, relational- and general life-satisfaction of the MMQ and the DAS-total subscale.

---

6 Pearsons bivariate correlations between the depressive subscale and marital adjustment was -.33, \( p < .0001 \) for the males, and -.47, \( p < .0001 \) for the females.
Table 2
*Factor Analysis into 2 factors, separately for males and females (n = 186)*

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factor 1</td>
<td>Factor 2</td>
<td>Factor 1</td>
<td>Factor 2</td>
</tr>
<tr>
<td>Adjustment DAS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>-.68</td>
<td>-.63</td>
<td>-.41</td>
<td></td>
</tr>
<tr>
<td>Satisfaction MMQ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>.66</td>
<td>.27</td>
<td>.59</td>
<td></td>
</tr>
<tr>
<td>Sexual</td>
<td>.43</td>
<td>.41</td>
<td>.34</td>
<td></td>
</tr>
<tr>
<td>Relational</td>
<td>.68</td>
<td>.67</td>
<td>.36</td>
<td></td>
</tr>
<tr>
<td>Communication CPQ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constructive</td>
<td>-.54</td>
<td>-.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Demand/withdraw</td>
<td>.60</td>
<td>.31</td>
<td>.60</td>
<td></td>
</tr>
<tr>
<td>Man Demand/Woman Withdraw</td>
<td>.48</td>
<td>.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woman Demand/Man Withdraw</td>
<td>.59</td>
<td>.30</td>
<td>.54</td>
<td></td>
</tr>
<tr>
<td>Mutual avoidance</td>
<td>.67</td>
<td>.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attachment AAS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secure</td>
<td>-.37</td>
<td>-.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambivalent</td>
<td>.31</td>
<td>.46</td>
<td>.37</td>
<td></td>
</tr>
<tr>
<td>Avoidant</td>
<td>.33</td>
<td>.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personality NEO</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neuroticism</td>
<td>.76</td>
<td>.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td>-.53</td>
<td>-.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openness</td>
<td>.11</td>
<td>.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>-.42</td>
<td>-.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-.42</td>
<td>-.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attributions RAM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Causal</td>
<td>.56</td>
<td>.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsible</td>
<td>.71</td>
<td>.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depressive subscale SCL-90</td>
<td></td>
<td></td>
<td>.68</td>
<td>.72</td>
</tr>
</tbody>
</table>

In the female subsample, Factor 1 had an eigenvalue of 6.21 and explained 27.8% of the variance. In the male subsample, Factor 1 had an eigenvalue of 6.28 and explained 25.12% of the variance. Every subscale of the CPQ, the RAM, the sexual- and satisfaction-subscale of the MMQ, and the DAS loaded significantly high on this factor, representing relational functioning.
Factor 2 had an eigenvalue of 2.53 and 2.84, respectively in the female and male subsamples, and explained 10.11 and 11.39 %, respectively of the variance. All subscales of the Neo, the AAS, the (general) life satisfaction of the MMQ, and the SCL-90 Depression loaded significantly high on this factor, representing individual characteristics.

To check on our differentiation between individual and relational measures, results globally confirmed the hypotheses, with personality traits, attachment style, depressive complaints, and general life satisfaction as individual measures on the one hand; and conflict communication, attribution style, marital adjustment, and sexual and relational satisfaction as relational measures on the other hand. With regard to the RAM, attribution style in a relational context seemed to load higher on a dimension representing relational characteristics.

In order to detect underlying association patterns of depressive symptomatology in the female and male samples, we conducted 2 multiple regression analyses with the scores of depressive symptoms for male and female as dependent variables, and all the subscales as independent variables, without indicating any direction or causality. (Tables 3 and 4). These results highlight the importance of individual characteristics, such as neuroticism and life satisfaction, co-varying with depressive complaints in a non-clinical sample.
Table 3
Multiple (Enter) Regression (n=186; Females); Dependent variable: SCL-depression; R² = .53; F (15,171) = 7.93; p < .00005

<table>
<thead>
<tr>
<th></th>
<th>Beta</th>
<th>t(184)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment DAS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>-.15</td>
<td>-1.67</td>
</tr>
<tr>
<td>Satisfaction MMQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>.16</td>
<td>2.16*</td>
</tr>
<tr>
<td>Sexual</td>
<td>.10</td>
<td>1.41</td>
</tr>
<tr>
<td>Relational</td>
<td>.07</td>
<td>.73</td>
</tr>
<tr>
<td>Communication CPQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constructive</td>
<td>.05</td>
<td>.67</td>
</tr>
<tr>
<td>Total Demand/withdraw</td>
<td>-.50</td>
<td>-.71</td>
</tr>
<tr>
<td>Man-Demand/Woman-Withdraw</td>
<td>.35</td>
<td>.83</td>
</tr>
<tr>
<td>Woman Demand/Man Withdraw</td>
<td>.25</td>
<td>.58</td>
</tr>
<tr>
<td>Mutual avoidance</td>
<td>-.03</td>
<td>-.44</td>
</tr>
<tr>
<td>Attachment AAS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secure</td>
<td>.06</td>
<td>1.08</td>
</tr>
<tr>
<td>Ambivalent</td>
<td>.04</td>
<td>.61</td>
</tr>
<tr>
<td>Avoidant</td>
<td>-.02</td>
<td>-.39</td>
</tr>
<tr>
<td>Personality NEO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neuroticism</td>
<td>.57</td>
<td>8.37****</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.06</td>
<td>.81</td>
</tr>
<tr>
<td>Openness</td>
<td>.01</td>
<td>.02</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.01</td>
<td>.05</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.06</td>
<td>1.05</td>
</tr>
<tr>
<td>Attributions RAM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Causal</td>
<td>-.02</td>
<td>-.42</td>
</tr>
<tr>
<td>Responsible</td>
<td>.03</td>
<td>.40</td>
</tr>
</tbody>
</table>

* p < .05      ** p < .005     *** p < .001     **** p < .0001
Table 4
*Multiple (Enter) Regression (n=186; Males); Dependent variable: SCL- depression; R² = .63; F (15,171) =4.70; p < .00005*

<table>
<thead>
<tr>
<th></th>
<th>Beta</th>
<th>t(184)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment DAS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>.01</td>
<td>.04</td>
</tr>
<tr>
<td>Satisfaction MMQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>.02</td>
<td>.22</td>
</tr>
<tr>
<td>Sexual</td>
<td>.08</td>
<td>.94</td>
</tr>
<tr>
<td>Relational</td>
<td>.11</td>
<td>1.04</td>
</tr>
<tr>
<td>Communication CPQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constructive</td>
<td>.06</td>
<td>.75</td>
</tr>
<tr>
<td>Total Demand/withdraw</td>
<td>.95</td>
<td>1.77</td>
</tr>
<tr>
<td>Man-Demand/Woman-Withdraw</td>
<td>-.61</td>
<td>-1.94</td>
</tr>
<tr>
<td>Woman Demand/Man Withdraw</td>
<td>-.42</td>
<td>-1.31</td>
</tr>
<tr>
<td>Mutual avoidance</td>
<td>.02</td>
<td>.25</td>
</tr>
<tr>
<td>Attachment AAS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secure</td>
<td>.05</td>
<td>.71</td>
</tr>
<tr>
<td>Ambivalent</td>
<td>.11</td>
<td>2.40*</td>
</tr>
<tr>
<td>Avoidant</td>
<td>-.04</td>
<td>.61</td>
</tr>
<tr>
<td>Personality NEO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neuroticism</td>
<td>.46</td>
<td>6.06****</td>
</tr>
<tr>
<td>Extraversion</td>
<td>-.12</td>
<td>-1.51</td>
</tr>
<tr>
<td>Openness</td>
<td>.09</td>
<td>.02</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.01</td>
<td>1.30</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.08</td>
<td>1.20</td>
</tr>
<tr>
<td>Attributions RAM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Causal</td>
<td>-.04</td>
<td>-.48</td>
</tr>
<tr>
<td>Responsible</td>
<td>.01</td>
<td>.38</td>
</tr>
</tbody>
</table>

*p < .05  ** p < .005  *** p < .001  **** p < .0001
Second, in an effort to compare the dimensional and categorical views of depression, we compared the group of most depressed subjects and their partners with a large non-clinical control sample. We conducted a series of 2 (symptomatology) × 2 (identified patients vs. partners) multivariate analysis of variance on the scores of every subscale, to test for group and IP effect on the individual and marital characteristics measured by the questionnaires. An overview of the effects is presented in Table 5.

We expected that subjects with depressive symptoms would express a higher level of marital distress, a higher level of demand-withdrawal and marital dissatisfaction, a more maladaptive attachment style, more internal negative attributions, more neurotic personality traits, more negative communication (affect), and a higher level of conflict avoidance. This hypothesis would be confirmed when we found interaction effects between symptomatology and identified patient/partner. Interaction effects were found for the subjects’ relational dissatisfaction and general life dissatisfaction, and for degree of neurotic personality traits, indicating that depressive subjects show higher levels of these characteristics. In particular, neuroticism and life dissatisfaction also proved to be characteristics co-varying with depressive complaints in a non-clinical sample.

The analysis also revealed a main group effect ("depressive" couples versus control couples) for the total score of the DAS, for the degree of constructive communication, for agreeableness and conscientiousness, indicating that couples with a depressive spouse show lower levels of these characteristics. A main group effect was also found for the level of avoidant and ambivalent attachment, neuroticism, every subscale of the MMQ, the level of responsible attributions, and the amount of woman-demand/man-withdrawal communication. These findings indicate that couples with a depressive spouse show higher levels of these characteristics (see Table 5). These results globally highlight the importance of couple variables for depression. Major effects were found on couple characteristics: between-group couple differences were significant, whereas only a few significant within-couple differences were found.
### Means and F-values for depressive and control couples

<table>
<thead>
<tr>
<th>Coupling Type</th>
<th>Effect</th>
<th>F-value (1, 183)</th>
<th>F-value (1, 183)</th>
<th>F-value (1, 183)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Depressive couples</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identified Patient</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient</td>
<td>93.5(14.01)</td>
<td>114.91(20.22)</td>
<td>110.61(8.92)</td>
<td>16.30**** .07 2.30</td>
</tr>
<tr>
<td>Partner</td>
<td>26.10(6.50)</td>
<td>30.82(9.80)</td>
<td>32.62(6.31)</td>
<td>4.10* 2.50 .10</td>
</tr>
<tr>
<td>Partner</td>
<td>30.42(8.32)</td>
<td>24.62(10.82)</td>
<td>26.12(7.52)</td>
<td>3.50 .03 .40</td>
</tr>
<tr>
<td>Partner</td>
<td>13.22(5.30)</td>
<td>13.32(6.60)</td>
<td>12.72(4.33)</td>
<td>.03 .40 .01</td>
</tr>
<tr>
<td>Partner</td>
<td>17.23(5.11)</td>
<td>11.82(5.22)</td>
<td>13.30(4.22)</td>
<td>10.60*** .72 .80</td>
</tr>
<tr>
<td>Partner</td>
<td>11.61(5.12)</td>
<td>8.70(5.32)</td>
<td>10.61(5.21)</td>
<td>.60 .01 3.40</td>
</tr>
<tr>
<td><strong>Control couples</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identified Patient</td>
<td>19.61(2.60)</td>
<td>19.52(3.22)</td>
<td>19.91(3.82)</td>
<td>.81 .09 .51</td>
</tr>
<tr>
<td>Patient</td>
<td>16.12(4.50)</td>
<td>12.31(2.10)</td>
<td>11.40(2.81)</td>
<td>14.42*** 3.52 .62</td>
</tr>
<tr>
<td>Partner</td>
<td>15.62(4.80)</td>
<td>12.61(3.50)</td>
<td>12.81(3.42)</td>
<td>8.91*** .01 .10</td>
</tr>
<tr>
<td>Partner</td>
<td>43.80(7.01)</td>
<td>31.83(7.42)</td>
<td>33.32(7.10)</td>
<td>8.70** 5.91* 10.91**</td>
</tr>
<tr>
<td>Partner</td>
<td>39.31(5.70)</td>
<td>42.30(5.92)</td>
<td>42.21(5.92)</td>
<td>2.21 .40 .52</td>
</tr>
<tr>
<td>Partner</td>
<td>39.42(5.61)</td>
<td>41.31(4.52)</td>
<td>41.31(4.52)</td>
<td>.80 6.40** 1.72</td>
</tr>
<tr>
<td>Partner</td>
<td>41.21(5.60)</td>
<td>45.12(4.92)</td>
<td>45.12(4.92)</td>
<td>10.40*** .62 .83</td>
</tr>
<tr>
<td>Partner</td>
<td>40.52(6.60)</td>
<td>44.61(6.80)</td>
<td>44.61(6.80)</td>
<td>4.62* .07 1.10</td>
</tr>
<tr>
<td><strong>Identified Partner</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Patient</strong></td>
<td>15.11(4.82)</td>
<td>7.42(3.41)</td>
<td>10.81(3.82)</td>
<td>13.21*** .01 8.50**</td>
</tr>
<tr>
<td><strong>Partner</strong></td>
<td>16.22(9.70)</td>
<td>8.90(7.11)</td>
<td>8.61(7.42)</td>
<td>5.92* 1.01 .61</td>
</tr>
<tr>
<td><strong>Partner</strong></td>
<td>28.42(15.10)</td>
<td>16.22(13.71)</td>
<td>16.22(13.71)</td>
<td>6.53** .50 3.01</td>
</tr>
<tr>
<td><strong>Partner</strong></td>
<td>25.71(7.80)</td>
<td>23.31(6.20)</td>
<td>24.41(6.32)</td>
<td>.06 .66 .83</td>
</tr>
<tr>
<td><strong>Partner</strong></td>
<td>29.06(8.20)</td>
<td>26.11(6.50)</td>
<td>25.22(7.92)</td>
<td>3.72* 1.03 .67</td>
</tr>
</tbody>
</table>

** p < .005  *** p < .001  **** p < .0001
The results of the MANOVA on the depressive subsample, and the Multiple Regression results on the total non-clinical sample, might indicate the importance of individual characteristics for no and mild depression, whereas couple characteristics only come into the picture with more severe depressive complaints. To test this hypothesis, we conducted a one-way MANOVA with severity of depressive complaints as independent variable, without indicating any direction or causality. This analysis considered 3 ascending levels of initial severity—meeting criteria for mild, moderate, and severe depressive complaints (Ruscio & Ruscio, 2000) based on the depressive score on the SCL-90. Post hoc analyses revealed no significant differences between groups 1 and 2 on any of the relational variables, whereas significant differences were found for individual variables, such as ambivalent attachment style, life satisfaction, and neuroticism. Groups 1 and 2 differ significantly from group 3 (high level of depressive complaints) on every relational or couple characteristic, and the same differences were found for the individual characteristics (see Table 6).

Table 6
ANOVA: Means and F-values for low, mild and moderate depressive symptomatology on the selected subscales

<table>
<thead>
<tr>
<th></th>
<th>1: Low</th>
<th>2: Mild</th>
<th>3: Moderate</th>
<th>F value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=60</td>
<td>N=57</td>
<td>N=69</td>
<td>(1,185)</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAS-</td>
<td></td>
<td>116.36a</td>
<td>112.38a</td>
<td>104.91b</td>
</tr>
<tr>
<td>total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMQ</td>
<td></td>
<td>6.66a</td>
<td>8.83b</td>
<td>10.67c</td>
</tr>
<tr>
<td>General</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual</td>
<td>5.96a</td>
<td>7.80a</td>
<td>10.90b</td>
<td></td>
</tr>
<tr>
<td>Relation</td>
<td>8.90a</td>
<td>12.38a</td>
<td>17.74b</td>
<td></td>
</tr>
<tr>
<td>CPQ</td>
<td>33.91a</td>
<td>33.39</td>
<td>31.07b</td>
<td></td>
</tr>
<tr>
<td>Construct</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPQ</td>
<td>17.74b</td>
<td>12.38a</td>
<td>10.90b</td>
<td></td>
</tr>
<tr>
<td>CPQ</td>
<td>33.39</td>
<td>13.26</td>
<td>14.13b</td>
<td></td>
</tr>
<tr>
<td>CPQ</td>
<td>11.65</td>
<td>13.26</td>
<td>14.13b</td>
<td></td>
</tr>
<tr>
<td>AAS</td>
<td>11.71a</td>
<td>33.91</td>
<td>31.07b</td>
<td></td>
</tr>
<tr>
<td>Construct</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambivalent</td>
<td>10.64a</td>
<td>12.09b</td>
<td>13.26c</td>
<td></td>
</tr>
<tr>
<td>RAM</td>
<td></td>
<td>11.71a</td>
<td>13.26b</td>
<td></td>
</tr>
<tr>
<td>Responsible</td>
<td>11.65</td>
<td>13.26</td>
<td>14.13b</td>
<td></td>
</tr>
<tr>
<td>AAS</td>
<td>10.11</td>
<td>11.71a</td>
<td>13.26c</td>
<td></td>
</tr>
<tr>
<td>AAS</td>
<td>12.09b</td>
<td>13.26b</td>
<td>14.13b</td>
<td></td>
</tr>
<tr>
<td>Conscientious</td>
<td>20.19</td>
<td>19.78</td>
<td>21.54b</td>
<td></td>
</tr>
<tr>
<td>Neuroticism</td>
<td>28.04a</td>
<td>32.36b</td>
<td>36.00c</td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>43.79a</td>
<td>42.47</td>
<td>41.93b</td>
<td></td>
</tr>
<tr>
<td>Responsible</td>
<td>43.79a</td>
<td>42.47</td>
<td>41.93b</td>
<td></td>
</tr>
<tr>
<td>Conscientious</td>
<td>45.39a</td>
<td>43.69</td>
<td>42.67b</td>
<td></td>
</tr>
</tbody>
</table>

* p < .05  ** p < .005  *** p < .001  **** p < .0001

abc Different indices refer to significant differences
Discussion

The present article can be situated within the continuity controversy, because it raises the question concerning whether the structure of depression is dimensional or categorical. Our data enabled us to detect a latent discontinuity at any point along the range of an absence of depressive symptoms to severe impairment (Ruscio & Ruscio, 2000). There has been widespread debate about the validity of the contemporary diagnostic classification system of depression (Santor & Coyne, 2001). We took this into account, considering a non-clinical sample on a continuum of depressive complaints and a subsample with significant depressive complaints as an indication for a categorical view.

First, a factor analysis yielded two global dimensions: an individual and a relational. Our data withstanded the empirical test on the split between these measures, with personality traits, attachment style, depressive complaints, and general life satisfaction as individual measures on the one hand; and conflict communication, attribution style, marital adjustment, and sexual and relational satisfaction as different relational measures on the other hand. Some results obtained with the factor analysis could have been anticipated from semantic differences in the measures: whether they refer to the person or the relationship. The distinction between individual and relational measures confirmed our initial expectations.

Second, the present study allowed us to see depressive complaints degraded in terms of severity, in an effort to compare the dimensional and categorical views of depression. Both approaches pointed to the same conclusion: individual characteristics co-varied with mild depression, whereas couple characteristics only came into the picture with a higher level of depressive complaints. The lowest levels of depressive complaints were associated with individual co-morbidity only, whereas increasing complaints went along with additional relational complaints. The groups with no and mild depressive complaints differed significantly from the group with a moderate level of depressive complaints on every relational or couple characteristic, and the same differences were found for the individual characteristics.
It seems apparent that the marital relationship does play an important role in at least some cases of depressive complaints, and similar to previous investigations, we found evidence for negative reciprocity in distressed couples across levels of depression. However, the present study is based on a cross-sectional design, comparing global measures of individual and marital functioning in two groups at one point in time. The findings are obtained in selected samples (not randomized), from sources such as local media and public service announcements, and in probability samples drawn from the general population (Dew, Penkower, & Bromet, 1991).

Based on these and previous findings, there is consistent cross-sectional evidence that depressive symptoms are associated with marital distress. Of course, the causal direction of this relationship cannot be determined in our study; depressive complaints may have been components precipitating marital distress or vice versa. The present study did, as stated before, not consider the causality impasse between depression and marital distress, which is a deadlock in theoretical and empirical studies. We decided to avoid the question of whether depressive symptoms worsen relationships or vice versa, expecting to overcome some of the shortcomings of traditional studies on depression and marital distress. The question of which comes first, depressive complaints or marital distress, comes down to a “punctuation” issue (Van den Broucke & Vandereycken, 1996), and it is essential to investigate the bidirectional effects between depressive symptoms and marital distress (Beach, 2001). This study was based on a reciprocal model of depression, emphasizing both individual and relational characteristics as indicators for depression and marital distress. Depressive complaints were used as a continuous variable, allowing us to evaluate the model with a broad range of depressive symptomatology. The occurrence of depressive symptoms constitutes a single event in a continuous chain of mutually dependent behaviours. Symptoms in one partner inevitably influence the other partner's functioning, regardless of his or her previous condition (Van den Broucke & Vandereycken, 1996).
Even though the direction or nature of causal effects has not been empirically evaluated, the current association of depressive complaints with marital distress remains sufficiently strong. Overall, spouses living with a depressive person report significantly more depressive complaints than general population norms, as well as numerous specific burdens (Benazon & Coyne, 2000; Coyne & Benazon, 2001). In the present study, both the depressed individual and his or her spouse were different from nondepressed counterparts, and we found that couples with a depressive spouse presented significantly higher levels of demand-withdrawal, in this case woman-demand/man-withdrawal, and lower levels of constructive communication. Both variables occurred, as expected, at couple level. We also found that couples with a depressive spouse presented a significantly lower level of marital adjustment compared to couples without a depressive spouse. Again, as expected, this indicator was found at couple level. Concerning the role of attribution style as indicator for depressive symptomatology, we found that couples with a depressive spouse presented more responsible attributions, with no within-couple differences found. These results underscore the burden experienced by the partner as well, and a focus on the “depressive couple” (instead of on the depressive spouse) can clarify the relationship between marital distress and depressive complaints for both partners. In particular, recent research suggests that, as an alternative to a therapeutic focus solely on patient outcomes, attention might also profitably be directed to the distress and burden experienced by spouses (Benazon & Coyne, 2000). Furthermore, it is argued that the appeal and use of couples therapy for depression could be substantially increased if therapists engaged spouses of depressed patients collaboratively rather than implying a causal role for them in either their relationship problems or their partner's depression (Coyne & Benazon, 2001).

Alongside individual and interpersonal differences, the initial severity of depressive symptoms is also important. This is the most consistent component in depression remission and recovery (Keller, Lavori, Rice, et al., 1986). In this study, we suggest that severity co-varies with the person's relationship, functioning in cases of no and mild depression. Based on this finding, we can emphasise the clinical necessity of making a profound and detailed assessment in every way or, in addition to specific clinical interventions. The present study differentiated specific indicators of functional versus dysfunctional relationships, indicating specific interventions based on an accurate assessment procedure.
Based on the results of this study, we can also make an alternative interpretation, due to a limitation of the nature of the questionnaire rates. These questionnaires were all self-report measures – rather than observational measures – of an individual's perception of his or her ability to deal with problems, to view problems, and to describe themselves. A number of researchers have expressed concern that these scores are influenced by the presence of depressive symptomatology. Indeed, an individual's sense of control and his or her present state, are strongly related to the presence of depression; a perception of the ability to deal effectively with problems, for example, may be strongly linked to an individual's level of self-esteem. This argument does not diminish the importance of these variables, but only implies that careful assessment of actual individual and interpersonal skills is needed. For example, if problem solving ability is adequate, cognitive therapy may be selected to change the individual's distorted perception of actual ability and his or her attribution style, instead of couple therapy or a therapy that focuses on skill training (Christian et al., 1994). A positive score on a screening instrument does not indicate a diagnosis of depression or a clear need for intervention. Taking this into account, alternatives to screening should also be considered (Coyne, Thompson, Palmer, et al., 2000; Coyne, Thompson, & Racioppo, 2001). We acknowledge that the findings we describe stem more from fundamental differences in how depressed and non-depressed people view their worlds than from “objective” differences in the quality of their relationships. The self-perceptions of persons who exhibit symptoms of depression can appear to reflect some negative distortion of their actual competence and functioning.

In conclusion, we wish to summarise several lines of research that would help shed further light on these interesting phenomena. First, longitudinal studies would help elucidate the evolution of these patterns over time, and the cross-sectional data in the present study do not permit a long-term view (Benazon & Coyne, 2000). We have to turn to longitudinal and prospective study designs in order to evaluate more fully the direction and nature of causal effects. The need for research employing designs other than cross-sectional ones is noteworthy (Dew, Penkower, & Bromet, 1991). Clinical studies must emphasise a long-term perspective, not only in terms of causality, but also in terms of onset, assessment, course, prognosis, and relapse prevention of depression and marital distress.
Furthermore, treatment outcome studies are needed to investigate the efficacy of these techniques in the treatment of concurrent discord and depression.

Second, attempts to correlate these individual and relational patterns with other relevant variables would help place these cognitive and behavioural patterns in a broader theoretical context. Additional characteristics appear to mediate, or explain the underlying processes of the relationship between depression and marital distress. To treat effectively a client presenting with a mental health problem, the clinician must ask the right questions to determine the nature of the problem and, when possible, its source (Dew, Penkower, & Bromet, 1991).

Third, it would be useful to examine the role of gender in these interactional processes by including couples in which the husband is depressed.

Fourth, it would be interesting to compare these findings of non-clinical depression with clinically depressed subjects, including three other control groups: a non-depressed marital-distressed control group; a non-depressed pathological control group (anxiety disorders); and a non-clinical, non-distressed control group. Research needs to replicate the present findings in different samples with additional measures of depression. The distinction between dimensional and categorical conceptions of clinical depression should be based on dimensional measures (such as depressive complaints) and categorical data (like diagnosis), in addition to an indication of categories.

And finally, it is important to combine two methods; namely, self-report questionnaires and interaction observation techniques. Through the self-report method, this study provides a unique opportunity to assess individual spouses' perceptions of their own and their partner's behaviour. This method is also time- and cost-efficient, and it may yield information about covert aspects of depression. The observational method can yield rich data about overt behaviour in marital conflict, and it studies couples in addition to individuals.
References


Depressive Symptoms


Chapter 3

Depression and Marital Distress: the Role of Individual and Relational Psychosocial Variables. I.7

This study was set out to determine the specific characteristics of depression and marital distress, and we selected variables such as conflict communication, attachment style, attribution style and personality traits. To separate the effects, we crossed the presence or absence of major depression with the presence or absence of marital distress. We compared a clinical sample of couples (n = 69) with a non-clinical control sample (n = 69), matched by age and sex of both partners and duration of the relationship. A separate standardised assessment session was scheduled for each couple, and they were asked to fill out a set of questionnaires, measuring communication, attachment, attributions and personality traits. Neuroticism and extraversion were found to be individual characteristics of depression; causal and responsible attributions were relational characteristics of marital distress. Ambivalent attachment, avoidant attachment, demand/withdrawal and avoidance were individual characteristics of both depression and marital distress. In sum, our findings suggest that several psychosocial variables are significantly associated with both depressive illness and marital distress, and measures of those variables may prove to be clinically useful for treatment selection and therapeutic guidelines.

7This chapter is based on Heene, E., Buysse, A., & Van Oost, P. Depression and marital distress: the role of individual and relational psychosocial indicators. I. Manuscript submitted.
Introduction

Affective disorders have a multifactorial etiology, and psychosocial variables may be of importance at onset, course, and prognosis as well as at relapses (e.g. Bauwens, Pardoen, Staner, et al., 1998; Champion & Power, 1995; Hirschfeld, Klerman, Andreasen, et al., 1986; Judd, Akiskal, Zeller, et al., 2000). Especially for depression, a strong association with marital distress has been reported by several researchers and clinicians, documenting the difficulties in psychosocial functioning exhibited by depressed persons (e.g. Berg-Cross, 1997; Beach, 2001; Beach, Sandeen, & O’Leary, 1990; Beach, Whisman & O’Leary, 1994; Coyne, Kessler, Tal, et al., 1987; Coyne, Thompson, & Palmer, 2002; Johnson, Monroe, & Simons, 1994; Johnson & Jacob, 1997; 2000; Zlotnick, Kohn, & Keitner, 2000; Zuroff, Moskowitz, & Cote, 1999).

Marital distress and depression have repeatedly been found to be associated, but little is known about variables that influence this relationship, with no definite conclusions about the causality. Furthermore, the difference between persons diagnosed with primary major depression and comorbid relational problems and couples with marital distress and comorbid depressive complaints is often vague and difficult to make. The present study did not aim to determine which came first. Instead, we wanted to identify psychosocial variables that were specific for depression and others that point out to marital distress. Previous research has found a number of characteristics of depression and marital distress, both on the individual and relational level.

In this context, a “marital discord model” has been proposed with regard to depression (Beach, Sandeen, & O’Leary, 1990; Van den Broucke & Vandereycken, 1996). According to this model, in addition to individual vulnerability factors, marital distress aggravates major stressors in the relationship and diminishes the support available from one’s partner (Heim & Snyder, 1991; Van den Broucke & Vandereycken, 1996). This model underscores the importance of marital adjustment and distress as a possible mediator in the onset and development of depression, particularly with the focus on aspects such as communication and adjustment (e.g. Christian, O’Leary, & Vivian, 1994; Coyne et al., 2002; Van den Broucke & Vandereycken, 1996).
In addition, other variables are important for depression and marital distress. For example, the interactions of maritally distressed couples are characterised by cognitive distortions and a negative attribution style (i.e. the attribution of the spouse’s negative behaviour to internal factors and positive behaviour to external factors; Schaap, 1984; Van den Broucke & Vandereycken, 1996). Studies of attribution style also suggest that depressive persons display negative cognitions in response to both interpersonal and non-interpersonal situations, blaming themselves for every negative event.

Furthermore, attachment style has been considered to be an important mediator for relational functioning (Carnelley, Pietromonaco, & Jaffe, 1994), an enduring individual vulnerability that might affect the relationship. From an attachment perspective, depressives’ problematic adult relationships derive from early negative experiences with a primary caregiver, in which they learned to expect future attachment figures to respond in a similarly rejecting or inconsistent way (Carnelley et al., 1994). Anxious-ambivalent individuals desire extreme closeness but alternate between hostility and dependency when the partners act in an unpredictable or nonsupportive manner. Avoidant individuals are uncomfortable with closeness and tend to shut down when the partners act in a rejecting manner (Berg-Cross, 1997; Feeney & Kirkpatrick, 1996). Furthermore, depressed subjects demonstrate an anxious pattern of attachment, characterised by intense care-seeking or angry withdrawal from their attachment figure (Pettem, West, Mahoney, et al., 1993).

Finally, several studies have focussed on the link between psychopathology and personality traits or disorders (Rossi, Marinageli, Butti, et al., 2001). Investigators have examined personality differences among patients with different mood disorders, using the five-factor model of personality (e.g. Bagby, Young, Schuller, et al., 1996; Bagby, Bindseil, Schuller, et al., 1997; Enns & Cox, 1997; Heerlein, Richter, Gonzalez, et al., 1998; Lozano & Johnson, 2001; Sauer, Richter, Czernik et al., 1997). Personality factors such as neuroticism and extraversion have shown a significant and consistent association with major depressive illness. According to some research, high neuroticism appears to be a powerful predictor of depression (Enns & Cox, 1997; Lozano & Johnson, 2001), with a negative prognostic value for nonendogenous depressives and persons with a bipolar disorder (Heerlein et al, 1998).
In sum, the aims of this study were as follows:

The first research question and main goal of this study is to identify psychosocial variables that are specific concomitants of depression and others that are associated with marital distress. We want to separate dysfunctional characteristics unique to depression from those that are associated with marital distress, exploring the issue as to whether they are empirically distinct entities. The variables chosen for this study are conflict communication, attachment, attribution style and personality traits - all potentially concomitants of depression and marital distress.

Secondly, we are interested in the level at which the specific correlates of depression and marital distress occur: that is, at individual or at couple level, indicating more distressed individual or marital functioning. We want to make a distinction between variables that operate at individual and couple level. The latter is especially relevant for generating indications for individual/couple interventions and clinical guidelines.
Method

Subjects and Procedure

To be included, all subjects had to be married or cohabiting for at least one year. Additionally, couples were excluded from the study if either spouse manifested current alcohol or drug abuse, organic brain syndrome, mental retardation, history of psychotic disorders or psychotic symptoms. We compared a clinical sample of couples (sample 1, n = 69 couples) with a non-clinical control sample of couples (sample 2, n = 69 couples). Both samples were matched for age and sex of both spouses, and duration of the relationship.

Sample 1 consisted of (69) clinical identified patients (62% women and 38% men) and their spouses referred to the study during a period of 4 years. Identified patients were recruited through referrals from psychiatric services and mental health services (n = 69; 56.4 % from psychiatry departments at hospitals and ambulatory care clinics, 27.3 % from mental health centers, 16.3 % from psychiatry), and they were seeking psychotherapy for depressive complaints. Diagnoses of major depressive disorder were made after a careful psychiatric examination, using all available information. This procedure included the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-IV Version 2.0; First, Spitzer, Gibbon, et al., 1995; Schneider, Van Groenestijn, Akkerhuis, et al., 1996, administered by the first author, trained in the use of the SCID), and other intake evaluations from the referring psychiatrist. Every patient also completed a brief questionnaire concerning medication and previous experience of therapy and counseling. The partner was also briefly interviewed concerning the onset of the first depressive episode, and its impact on the relationship and problem solving. Sample 2 consisted of 69 nonclinical control couples, recruited by means of public announcements (through newspaper, magazine and television advertisements, as part of a larger study on marital functioning, during the same period).

After signing voluntary informed consent forms, all subjects (sample 1 and 2) were asked to complete a screening pack. Both partners completed the Symptom Checklist (SCL-90; Derogatis, 1977; Arrindell & Ettema, 1986) as a screening instrument or a secondary measure of current depressive symptomatology or distress, using a cutoff
conforming the Dutch norm groups. Classification of marital distress was based on the scores of the Dyadic Adjustment Scale (DAS; Spanier, 1976; a total score of less than 100 for one or both spouses, Spanier, 1976) and the Maudsley Marital Questionnaire (MMQ; Arrindell, Boelens, & Lambert, 1983; a mean sumscore over 40 for both spouses, Emmanuels-Zuurveen & Emmelkamp, 1996, 1997). None of the subjects of sample 2 scored significantly on the SCL-90, the DAS or the MMQ. Other findings of the study are available elsewhere (see also Heene, Buysse, & Van Oost, 1999; 2000). Furthermore, every subject was asked to complete a battery of questionnaires relating to the individual and marital topics relevant to the model. Because a separate standardised assessment session was scheduled for each couple, it was necessary for both husband and wife to be present at the same time. They were asked to fill out their set of questionnaires separately, to prevent them from completing it together and discussing the items. By ensuring independent responses, we could be confident that any results would not be distorted by shared or collaborated response. However, each session started and ended with a joint briefing about the general procedure and aims of the investigation.

**Measures**

In order to meet the research goals, it was necessary to identify specific variables of marital adjustment and for depression, based on theoretical and empirical findings. Standardised assessment of these measures is essential in assessing couples, and it plays a central role in determining interventions and their effectiveness.

*The Structured Clinical Interview for DSM-IV Axis I Disorders* (SCID Version 2.0; First et al., 1995; Schneider et al., 1996) is a structured diagnostic interview used to gather relevant information regarding current and lifetime status of major Axis I disorders using DSM-IV criteria. The SCID also gathers basic demographic information and psychiatric history information.

*The Symptom Checklist* (the SCL-90, Derogatis, 1977; Arrindell & Ettema, 1986) consists of 90 self-report items and provides an unitary measure of current depressive symptomatology, with an emphasis on the affective component, depressed mood. Serious depressive symptoms were indicated by a criterion score of the depression-subscale of > 55. In the present samples, Cronbach’s $\alpha$ was .87 for the depressive subscale.
The Dyadic Adjustment Scale (DAS; Spanier, 1976) is a 32-item rating instrument completed by both partners in a relationship. Each DAS item is rated with one of several responses. This instrument is commonly used in both research and clinical settings (Bradbury, 1995). It contains a total score (Dyadic Adjustment) and 4 subscores: namely, Satisfaction, Cohesion, Consensus, and Affectional Expression. This scale has been proven to differentiate between distressed and non-distressed couples (Spanier, 1976). In the present samples, Cronbach’s α for the different subscales of the translated version ranged from .59 to .91.

The Communication Patterns Questionnaire (CPQ; Christensen & Sullaway, 1984) is a 35-item self-report measure that addresses a spouse's behaviour during conflict. The scores are computed in several subscales: mutually constructive communication, total demand-withdraw communication, man-demand/woman-withdraw, woman-demand/man-withdraw and mutual avoidance/withholding. Mutually constructive communication and demand/withdraw communication subscales are significantly related to marital adjustment in the expected direction (Christensen, 1988; Heavy & Christensen, 1996). In the present samples, Cronbach’s α for the different subscales of the translated version ranged from .58 to .85.

The Relationship Attribution Measure (RAM; Fincham & Bradbury, 1992) was developed to assess the attribution style (cognitions) for partners’ behaviours, especially for negative relationship events. It describes several hypothetical negative relationship events initiated by a partner, and the respondent is asked to score statements about the partner, reflecting 3 dimensions of causal and 3 dimensions of responsible attributions. Several studies indicate that spouses' behaviours in interaction are related to the attributions they make for marital problems (Fincham & Bradbury, 1992). In the present samples, Cronbach’s α for the different subscales of the translated version ranged from .84 to .94.

The Adult Attachment Scale (AAS; Collins & Read, 1990) measures the adult attachment style. It consists of 18 items, summing up 6 items for avoidant, anxious-ambivalent and secure attachment. Attachment style has been thought to be related to coping style and ways of regulating marital distress (Collins & Read, 1990). In the present samples, Cronbach’s α for the different subscales of the translated version ranged from .54 to .68.
The NEO Five-Factor Inventory (the NEO-FFI, Costa & McCrae, 1992; Hoekstra, Ormel, & de Fruyt, 1996) was developed to examine personality differences, using the five-factor model of personality. We selected the shortened version (NEO-FFI) of the Neo Personality Inventory (NEO PI-R), which consists of 60 items. The dimensions of this questionnaire are neuroticism, extraversion, openness, agreeableness and conscientiousness, all measured with composite scores derived from the NEO-FFI. Personality traits such as neuroticism are related to psychopathology. In the present samples, Cronbach’s $\alpha$ for the different subscales ranged from .67 to .89.

In addition, the battery of self-report questionnaires included the Maudsley Marital Questionnaire (the MMQ, Arrindell et al., 1983) as a check on relationship satisfaction. In the present samples (n=138), the Cronbach’s $\alpha$ of these measures varied from .78 to .88.

**Data Analysis**

Because individuals were nested within couples, the spouses’ scores could not be regarded as independent measures. In acknowledgement of this nonindependence (Gonzalez & Griffin, 1997; West & Hepworth, 1991, Buysse & Ickes, 1999a), the couple was used as the major unit of analysis in the general hypothesis tests reported below. As such, within-couple analyses distinguishing between patients and partners were possible for the clinical couples. In the non-clinical control couples, the spouse with the highest score on the depressive subscale of the SCL-90 was considered to be the “patient”, representing the highest level of depressive complaints.  

Summarised, a series of 2 (patients vs.partners) x 2 (depression or not) x 2 (marital distress or not) multivariate analysis of variance was conducted with patient/partner as “within-couple” factor and depression and marital distress as “between couples” factors. Our dependent measures were conflict communication, attribution style, attachment style and personality traits.

---

8 To test the stability of the results, we conducted the same analyses with the other spouse in the non-clinical control couples as “patient”, but our results did not reveal any differences.
Results

In sample 1, the mean age of the patients was 38.3 years, ranging from 19 - 52 years of age (SD 8.3 years). The mean age of the partners was 39.4 years, ranging from 20-57 years of age (SD 9.4 years). On average, subjects had been with their current partner for 14.8 years (SD 4.2 years). Of all the couples, 16% had no children, 55.6% had one or two children at home, and 28.4% had 3 children or more. Forty-seven percent of the subjects indicated a high school diploma or its equivalent as their highest level of education, 36.9% had attended technical or professional school, and 13.9% had a university degree. In sample 2, the mean age of the patients was 38.8 years, ranging from 19 - 49 years of age (SD 7.3 years). The mean age of the partners was 40.4 years, ranging from 20 - 55 years of age (SD 8.4 years). On average, participants had been with their current partner for 14.4 years (SD 4.2 years). Of all the couples, 25.7% had no children, 54.8% had one or two children at home, and 19.5% had 3 children or more. Fifty-one percent of the subjects indicated a high school diploma or its equivalent as their highest level of education, 25.5% had attended technical or professional school, and 23.5% had a university degree.

The main purpose of this study was to identify psychosocial variables that are specific for depression and others that are linked with marital distress\(^9\). The presence or absence of a spouse with depression (based on the SCID, major depressive disorder, and the depression subscale of the SCL-90\(^{10}\)) was crossed with the presence or absence of marital distress (based on the DAS and the MMQ). An overview of the means and effects of the Multivariate analyses are presented in Table 1.

---

\(^9\) Pearson's bivariate correlations between the depressive subscale and marital adjustment was -.49, \(p < .0001\) for the identified patients and -.34, \(p < .0001\) for the partners.

\(^{10}\) 76% of the cases diagnosed with the SCID IV scored significantly high on the depression subscale of the SCL-90.
Clinical Depression

With 2 betweens (Depression or not & Marital Distress or not) and 1 within (Identified Patient-Partner)

<table>
<thead>
<tr>
<th></th>
<th>DEP</th>
<th>Control</th>
<th>MD</th>
<th>Control</th>
<th>IP-P</th>
<th>DEP</th>
<th>MD</th>
<th>IP-P</th>
<th>DEP</th>
<th>MD</th>
<th>IP-P</th>
<th>MD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD</td>
<td>N=27</td>
<td>N=26</td>
<td>N=38</td>
<td>N=47</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>14.2</td>
<td>14.1</td>
<td>13.4</td>
<td>14.7</td>
<td>15.6</td>
<td>11.4</td>
<td>11.9</td>
<td>1.8</td>
<td>5.8*</td>
<td>20.6****</td>
<td>6.5*</td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td>(.2)</td>
<td>(.7)</td>
<td>(.6)</td>
<td>(.9)</td>
<td>(.9)</td>
<td>(.5)</td>
<td>(.5)</td>
<td>(.5)</td>
<td>(.5)</td>
<td>(.5)</td>
<td>(.5)</td>
<td>(.5)</td>
</tr>
<tr>
<td>IP</td>
<td>18.3</td>
<td>18.8</td>
<td>17.9</td>
<td>19.7</td>
<td>18.6</td>
<td>18.4</td>
<td>19.6</td>
<td>.1</td>
<td>2.1</td>
<td>.1</td>
<td>.1</td>
<td>.2</td>
</tr>
<tr>
<td></td>
<td>(.9)</td>
<td>(.6)</td>
<td>(.5)</td>
<td>(.8)</td>
<td>(.7)</td>
<td>(.4)</td>
<td>(.4)</td>
<td>(.4)</td>
<td>(.4)</td>
<td>(.4)</td>
<td>(.4)</td>
<td>(.4)</td>
</tr>
<tr>
<td>P</td>
<td>14.9</td>
<td>17.9</td>
<td>16.1</td>
<td>14.8</td>
<td>15.7</td>
<td>14.2</td>
<td>14.4</td>
<td>8.3**</td>
<td>17.1****</td>
<td>1.9</td>
<td>13.3***</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>(.2)</td>
<td>(.6)</td>
<td>(.6)</td>
<td>(.8)</td>
<td>(.9)</td>
<td>(.5)</td>
<td>(.5)</td>
<td>(.5)</td>
<td>(.5)</td>
<td>(.5)</td>
<td>(.5)</td>
<td>(.5)</td>
</tr>
<tr>
<td>P</td>
<td>24.1</td>
<td>30.1</td>
<td>29.3</td>
<td>25.1</td>
<td>22.1</td>
<td>34.3</td>
<td>33.9</td>
<td>.4</td>
<td>7.8**</td>
<td>56.1****</td>
<td>3.8</td>
<td>1.3</td>
</tr>
<tr>
<td></td>
<td>(2.3)</td>
<td>(1.3)</td>
<td>(1.2)</td>
<td>(1.8)</td>
<td>(1.6)</td>
<td>(9)</td>
<td>(9)</td>
<td>(.9)</td>
<td>(.9)</td>
<td>(.9)</td>
<td>(.9)</td>
<td>(.9)</td>
</tr>
<tr>
<td>IP</td>
<td>9.0</td>
<td>11.9</td>
<td>13.2</td>
<td>13.3</td>
<td>13.4</td>
<td>10.5</td>
<td>10.1</td>
<td>.1</td>
<td>.8</td>
<td>.1</td>
<td>.1</td>
<td>.14</td>
</tr>
<tr>
<td></td>
<td>(1.5)</td>
<td>(.9)</td>
<td>(.8)</td>
<td>(1.2)</td>
<td>(1.1)</td>
<td>(6)</td>
<td>(6)</td>
<td>(.6)</td>
<td>(.6)</td>
<td>(.6)</td>
<td>(.6)</td>
<td>(.6)</td>
</tr>
<tr>
<td>P</td>
<td>14.8</td>
<td>12.6</td>
<td>13.9</td>
<td>16.3</td>
<td>18.3</td>
<td>13.4</td>
<td>12.8</td>
<td>.9</td>
<td>.0</td>
<td>22.3****</td>
<td>3.4</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>(1.7)</td>
<td>(.9)</td>
<td>(.8)</td>
<td>(1.2)</td>
<td>(1.2)</td>
<td>(6)</td>
<td>(6)</td>
<td>(.6)</td>
<td>(.6)</td>
<td>(.6)</td>
<td>(.6)</td>
<td>(.6)</td>
</tr>
<tr>
<td>IP</td>
<td>11.4</td>
<td>12.1</td>
<td>13.6</td>
<td>14.8</td>
<td>15.8</td>
<td>11.8</td>
<td>11.6</td>
<td>.8</td>
<td>.7</td>
<td>20.8****</td>
<td>2.3</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>(1.6)</td>
<td>(.9)</td>
<td>(.8)</td>
<td>(1.2)</td>
<td>(1.2)</td>
<td>(6)</td>
<td>(6)</td>
<td>(.6)</td>
<td>(.6)</td>
<td>(.6)</td>
<td>(.6)</td>
<td>(.6)</td>
</tr>
<tr>
<td>P</td>
<td>10.4</td>
<td>9.6</td>
<td>10.1</td>
<td>13.2</td>
<td>13.3</td>
<td>7.4</td>
<td>7.8</td>
<td>2.5</td>
<td>1.4</td>
<td>29.2****</td>
<td>3.7</td>
<td>6.0*</td>
</tr>
<tr>
<td></td>
<td>(1.4)</td>
<td>(.8)</td>
<td>(.7)</td>
<td>(1.1)</td>
<td>(9)</td>
<td>(6)</td>
<td>(5)</td>
<td>(.5)</td>
<td>(.5)</td>
<td>(.5)</td>
<td>(.5)</td>
<td>(.5)</td>
</tr>
</tbody>
</table>

SP = depression, MD = Marital Distress, IP = Identified Patient, P = Partner; AAS-Ambiv = Ambivalent Attachment, AAS-Avoid = Avoidant Attachment constr = Constructive communication, CPQ-MD/W = Man-Demand/Woman-Withdrawal; CPQ-WD/M = Woman-Demand/Man-Withdrawal, total Demand/Withdrawal; CPQ-Avoid = mutual avoidance. Effects: F IP-P = main effect of Patient-Partner; F DEP = main effect of Depression; F MD = main effect of Marital Distress; F IP-P × DEP = 2 way interaction of Patient-Partner × Depression; F IP-P × MD = 2 way interaction of Patient-Partner × Marital Distress; F DEP × MD = 2 way interaction of Marital Distress × Depression; F IP-P × DEP × MD = 3 way interaction of Patient-Partner × Marital Distress × Depression.

* p<.05 ** p<.01 ***p<.001 ****p<.0001
### Means(SD)

<table>
<thead>
<tr>
<th></th>
<th>DEP Control N=27</th>
<th>MD Control N=38</th>
<th>IP-P Control N=47</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>42.6 (1.8)</td>
<td>44.7 (2.0)</td>
<td>42.1 (1.1)</td>
</tr>
<tr>
<td>IP</td>
<td>43.4 (1.1)</td>
<td>45.4 (1.4)</td>
<td>37.6 (1.5)</td>
</tr>
<tr>
<td>P</td>
<td>45.3 (1.3)</td>
<td>44.2 (1.5)</td>
<td>41.8 (1.5)</td>
</tr>
<tr>
<td>IP</td>
<td>41.9 (1.3)</td>
<td>43.3 (1.4)</td>
<td>39.3 (1.5)</td>
</tr>
<tr>
<td>P</td>
<td>42.7 (1.3)</td>
<td>45.5 (1.4)</td>
<td>41.6 (1.5)</td>
</tr>
<tr>
<td>IP</td>
<td>42.8 (1.3)</td>
<td>44.7 (1.4)</td>
<td>41.9 (1.5)</td>
</tr>
<tr>
<td>P</td>
<td>42.8 (1.2)</td>
<td>44.7 (1.3)</td>
<td>41.9 (1.4)</td>
</tr>
<tr>
<td>IP</td>
<td>43.4 (1.3)</td>
<td>44.7 (1.4)</td>
<td>41.9 (1.5)</td>
</tr>
</tbody>
</table>

### Effects F (1, 134)

<table>
<thead>
<tr>
<th></th>
<th>DEP × MD</th>
<th>IP-P × DEP</th>
<th>IP-P × MD</th>
<th>DEP × IP-P × MD</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>3.8</td>
<td>.6</td>
<td>3.7</td>
<td>3.4</td>
</tr>
<tr>
<td>IP</td>
<td>3.7</td>
<td>3.4</td>
<td>1.5</td>
<td>3.6</td>
</tr>
<tr>
<td>P</td>
<td>1.1</td>
<td>3.8</td>
<td>.6</td>
<td>1.7</td>
</tr>
</tbody>
</table>

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

*IP = depression, MD = Marital Distress, IP = Identified Patient, P = Partner; Neo-Agreeab = Agreeableness, Neo-Consc = Conscientious-ness, Neo-Neurotic = Neuroticism, RAM- Respos = responsible attributions. Effects: F IP-P = main effect of Patient-Partner; F DEP = depression; F MD = main effect of Marital Distress; F IP-P × DEP = 2 way interaction of Patient-Partner × Depression; F IP-P × MD = 2 way Patient-Partner × Marital Distress; F DEP × MD = 2 way interaction of Depression × Marital Distress; F IP-P × DEP × MD = 3 way interaction.**
The three-way interaction patient-partner × depression × marital distress was significant for avoidant attachment, woman-demand/man-withdrawal, total demand-withdrawal and avoidance, indicating that depressive subjects in distressed couples show higher levels of these characteristics than their partners, whereas this difference did not occur in the other couples (see table 1). The three-way interaction patient-partner × depression × marital distress was also significant for constructive communication, indicating that depressive subjects in distressed couples show a lower level of constructive communication than their partners, whereas this difference did not occur in the other couples.

The two-way interaction patient-partner × depression was significant for ambivalent attachment and for neuroticism, indicating that depressive patients show higher levels of these characteristics than their partners, regardless of the presence of marital distress, whereas this within-couple difference does not occur in control couples. The two-way interaction patient-partner × depression was also significant for extraversion, indicating that depressive subjects show lower levels of this characteristic than their spouses, regardless of the presence of marital distress, whereas this within-couple difference does not occur in control couples.

There were no significant two-way interaction patient-partner × marital distress. The main between-couple effects of marital distress were the three causal and responsible attribution dimensions of the RAM, indicating that couples with marital distress show higher levels of these attributions than other couples, regardless of depression.

In conclusion, characteristics were concomitants of depression when there was a main between-couple effect for depression, no main between-couple effect for marital distress, and no interaction effect for depression by marital distress. This was the case for neuroticism and extraversion, with higher levels of neuroticism and lower levels of extraversion associated with depression. Characteristics were unique to marital distress if there was a main between-couple effect for marital distress, no main between-couple effect for depression and no interaction effect for depression by marital distress. This was the case for higher levels of dysfunctional causal and responsible attributions, being correlates of marital distress.
In addition, several variables varied with (the combination of) both depression and marital distress. Significant (within × between) interaction effects for patient-partner × depression × marital distress were found for avoidant attachment, woman-demand/man-withdrawal, total demand-withdrawal and avoidance, indicating that depressive subjects in distressed couples show higher levels of these characteristics than their partners, whereas this difference did not occur in the other couples. This three-way interaction was also significant for constructive communication, indicating that depressive subjects in distressed couples show a lower level of constructive communication than their partners, whereas this difference did not occur in the other couples.

No between-couple interactions were found for depression by marital distress, and instead, there was an (additive) effect of depression and marital distress for ambivalent attachment, indicating that the combination of both depression and marital distress result in the highest scores of ambivalent attachment.

Secondly, we also investigated the level at which the specific concomitants for depression and marital distress occur: at the individual or the couple level, indicating more individual or relational functioning. Neuroticism and extraversion occurred on an individual level, represented by interaction effects for patient-partner × depression, indicating specific individual characteristics of depressive patients. The causal and responsibility dimensions of attributions occurred at couple level, represented by significant between-couple effects in the absence of both within-couple and interaction effects, indicating specific relational characteristics of couples with marital distress. Avoidant attachment, woman-demand/man-withdrawal, total demand/withdrawal, avoidance and a lower level of constructive communication occurred at individual level, represented by (within × between) interaction effects, indicating specific individual characteristics of depressed subjects in distressed couples. Ambivalent attachment occurred at individual level, represented by a significant within-couple effect (patient-partner) and an additive interaction effect for depression × marital Distress.

An overview is presented in Table 2.
Table 2

*Individual and Relational Concomitants of Depression and Marital Distress*

<table>
<thead>
<tr>
<th></th>
<th>Individual</th>
<th>Relational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Neuroticism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital Distress</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>Causal &amp;</td>
<td></td>
<td>Responsible Attributions</td>
</tr>
<tr>
<td>Constructive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attachment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambivalent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attachment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constructive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woman-Demand/Man-Withdrawal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Demand/Withdrawal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mutual avoidance</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. cell 1: interaction effect (IE) DEP × Patient-Partner; no IE DEP × MD, no main effect of MD, no IE DEP × Patient-Partner × MD
2. cell 2: no effects (main effect DEP, no IE of DEP × Patient-Partner, no IE of DEP × MD, no main effect MD, only between-couple effects)
3. cell 3: no effects (main effect MD, IE of MD × Patient-Partner, no IE of DEP × MD, no main effect DEP)
4. cell 4: main effect MD, no IE of MD with DEP, no main effect of DEP, no IE of Patient-Partner with MD)
5. cell 5: 3 way interaction effects of DEP × MD × Patient-Partner
6. cell 6: main effect of DEP, main effect of MD (only between-couple effects, no IE, additive 2 way interaction effect of DEP × MD)
Discussion

The present study wanted to identify psychosocial variables that are specific correlates of depression and others that are associated with marital distress. We expected that depressive subjects would express a higher level of maladaptive individual functioning, and that couples with marital distress would express a higher level of maladaptive relational characteristics. The most innovative aspect of this study is the two-dimensional approach: on a first dimension, we separated depression (major depressive disorder) from marital distress; and on a second dimension, we separated individual from couple effects. This resulted in a $2 \times 2$ (depression, marital distress) × (individual, relational) summary of our results. Although couples with depression revealed dysfunctional relational patterns, we obtained no evidence for dysfunctional relational patterns associated with depression, nor dysfunctional individual variables associated with marital distress. More specifically, congruent along our analyses, neuroticism and extraversion were found to be individual correlates of depression. Dysfunctional causal and responsible attributions were relational correlates of marital distress, and avoidant attachment, ambivalent attachment, total demand-withdrawal, woman-demand/man-withdrawal and mutual avoidance were individual concomitants of the combination of depression and marital distress.

This study replicated some of the findings of previous studies: for example, the link between depression and personality traits such as neuroticism and extraversion (e.g. Bagby et al., 1996; 1997; Enns & Cox, 1997; Heerlein et al., 1998; Lozano & Johnson, 2001). Moreover, previous research on unipolar depression suggested that high neuroticism is associated with increases in depressive symptoms across time (Lozano & Johnson, 2001). There is also substantial evidence confirming the association between marital distress and negative attribution style (e.g. Bradbury & Fincham, 1992; Horneffer & Fincham, 1996, 1997; Schaap, 1984; Van den Broucke & Vandereycken, 1996). In the present study, no evidence was obtained to support the suggestion that maritally distressed spouses simply manifest the depressogenic attributions associated with depression.
Despite the overall failure to find relational characteristics unique to depressed couples or individual characteristics unique to marital distress, it is quite interesting to see that only three-way interaction effects were significant, considering also the patient vs. partner within-couple variable. These findings suggest that depression and marital distress do interact, at individual level. For example, depressed patients in marital distressed couples showed higher levels of ambivalent-anxious attachment, indicating intense care-seeking or angry withdrawal from their partner (see also Pettem et al., 1993). Moreover, there was an additive effect of depression and marital distress, and both variables were independently associated with ambivalent attachment. Furthermore, depressed patients in marital distressed couples showed significant higher levels of avoidant attachment. Avoidant attached people want their partners to make them feel more secure or less avoidant (Feeney & Kirkpatrick, 1996). However, in marital distressed couples, when partners are more rejecting or distant (see also Coyne et al., 2002), subjects become highly emotional, dysfunctional and even depressed. Finally, this study found that higher levels of conflict avoidance characterised the interactions of depressed subjects in distressed couples. Our results globally revealed that these problems are intensified in couples with marital distress, and in the presence of depression.

Additionally, we were also interested in the level at which the specific concomitants of occurred: at individual or at couple level, indicating more individual or marital functioning. This difference is especially relevant for generating specific interventions and therapeutic guidelines. Our findings pointed to the same conclusions: neuroticism and extraversion are individual characteristics associated with depressed subjects. Attachment style and conflict communication also operate at individual level, associated with depression and marital distress. Dysfunctional causal and responsible attributions are relational correlates of marital distress, at couple level. As stated before, it seems apparent that depression and marital distress are associated in several ways, and it is important to recognize the interaction of individual properties and relational processes.

The recognition of this comorbidity on both levels has important clinical significance, because the presence of other problems can influence treatment planning of depression. Moreover, the present study highlights the need for clinicians to consider the link between depression and marital distress, in order to challenge the nature,
course and high rates of relapse of depressive disorders (see also Street, Sheeran, & Orbell, 2001). Our findings suggest that several psychosocial variables are significantly associated with both depressive illness and marital distress, and measures of those variables may prove to be clinically useful for treatment selection. Effective strategies emphasise individualised and profound assessment, generating indications for individual, marital or family interventions and psychoeducation. In this context, the recognition of comorbid conditions of depression allows for greater accuracy in assessing, describing and differentiating patients, and therefore, greater precision in describing the most efficacious treatment plan.

Definitive conclusions regarding the relationship between marital distress and depression are not yet possible. The present study had several potential limitations, and there are some concerns regarding these data that raise important questions for future research. First of all, this study is simply a cross-sectional slice of individual and relational functioning, and our data provide no hints of causal direction or how processes came to be. Our study did not consider the causality impasse between depression and marital distress, which is a deadlock in theoretical and empirical studies. We have to turn to longitudinal and prospective study designs in order to evaluate more fully the direction and nature of causal effects. Furthermore, clinical studies must emphasise a long-term perspective in terms of onset, assessment, course, prognosis and relapse prevention of depression and marital distress. Secondly, another limitation of this study is the use of findings based on self-report measures (with the exception of the SCID). Several researchers have expressed concern that these scores are influenced by the presence of depressive symptomatology. Indeed, an individual's perception of his or her ability to deal with problems is associated with the presence of depression or marital distress. This argument does not diminish the importance of these variables, but only implies that careful assessment of actual individual and interpersonal skills is needed. Thirdly, as in most of the research that compares clinical populations with normal or functional control groups, different recruiting strategies were used for the different groups. It is possible that the subjects who were seeking treatment were motivated to show their problems in the hope of receiving help. Control couples from a community sample may present themselves as happy couples, hiding their problems (see also Schmaling & Jacobson, 1990).
References


Buysse, A., & Heene, E. (1997). Dutch versions of the Dyadic Adjustment Scale (DAS, Spanier, 1976), the Communication Patterns Questionnaire (CPQ, Christensen & Sullaway, 1984), the Relationship Attribution Measure (RAM, Fincham & Bradbury,
Clinical Depression

1992), and the Adult Attachment Scale (AAS, Collins & Read, 1990). Faculty of Psychology, University of Ghent. Unpublished manuscripts.


Chapter 4

Depression and Marital Distress: the Role of Individual and Relational Psychosocial Variables. II

The main purpose of this study was to explore the latent factor structure of marital distress and depression, analysing the stability of a two-factor hypothesised model (depression and marital distress) in comparison with a one-factor model (distress). The models were specified in advance by defining a pattern of linkage between the observed scores and one or two underlying factors. We used a Confirmatory Factor Analysis to re-examine the relationship between depression and marital distress, analysing the same data ($n=138$) with a cross-validation on a different sample ($n=124$). Based on the goodness-of-fit-summary, results favoured the two-factor-solution, and we found that this model provided a good fit to the data in all four subsamples. Furthermore, the invariance of the factor structure was investigated using multi-sample analyses. Furthermore, future studies concerning the utility of the two-factor model need to be extended to other clinical and nonclinical samples, considering age and gender differences.

---

12 This chapter is based on Heene, E., Buysse, A., & Van Oost, P. Depression and marital distress: the role of individual and relational psychosocial indicators. II. Manuscript submitted.
Introduction

Several studies have documented the difficulties in psychosocial functioning exhibited by depressed persons (e.g. Bauwens, Pardoen, Staner, et al., 1998; Champion & Power, 1995; Hirschfeld, Klerman, Andreasen, et al., 1986; Judd, Akiskal, Zeller, et al., 2000). More specifically, marital distress and depression have repeatedly been found to be associated (e.g. Berg-Cross, 1997; Beach, 2001; Beach, Sandeen, & O’Leary, 1990; Beach, Whisman & O’Leary, 1994; Coyne, Kessler, Tal, et al., 1987; Coyne, Thompson, & Palmer, 2002; Johnson, Monroe, & Simons, 1994; Johnson & Jacob, 1997; 2000; Zlotnick, Kohn, & Keitner, 2000; Zuroff, Moskowitz, & Cote, 1999), but little is known about the psychosocial variables that influence this relationship. In this context, we identified variables that were concomitants of depression, marital distress or both. Our previous results revealed that neuroticism and extraversion were associated with depression. Dysfunctional causal and responsible attributions were associated with marital distress, and avoidant attachment, ambivalent attachment, demand-withdrawal and mutual avoidance were concomitants of the combination of depression and marital distress.

However, additional analysis of these findings seems warranted, considering the continuity controversy on psychopathological constructs. In this context, findings from several sources suggest that depression could be better expressed as a spectrum rather than as a set of discrete subtypes (e.g. Angst, Sellaro, & Merikangas, 2000; Angst & Merikangas, 2001; Enns, Cox, & Borger, 2001; Flett, Vredenburg & Krames, 1997; Preisig, Merinkangas, & Angst, 2001). The goal of the present (and former) study is not to determine whether the structure of depression is categorical or dimensional.

Given the rising interest in dimensional psychopathology (e.g. Cooke & Michie, 2001; Spangler, Simons, Monroe, et al., 1997), we want to examine the validity of a dimensional approach on our a priori conceptualised model (see Heene, Buysse, & Van Oost, submitted, described in chapter 3). In addition to a categorical perspective, a dimensional approach may be useful to determine meaningful clinical relationships that operate in a nonlinear way, potentially obscured by a sole focus at a categorical level (Brown, 2001). Furthermore, exclusive tests of the latent structure of
depression and marital distress are needed to determine the relationship between these two variables (see also Spangler et al., 1997).

The present study uses CFA to re-examine the relationship between depression and marital distress, and reanalyse the adequacy of our a priori conceptualized model. The use of CFA avoids two problems inherent in exploratory factor analysis (EFA): first, how many factors to extract and second, how to rotate the factors extracted (Watson, Clark, & Harkness, 1994, in Cooke & Michie, 2001). Furthermore, CFA allows a priori specification of theoretical models by dictating the factors on which the variables do and do not load, as well as the relations between the factors (Lonigan, Hooe, David, et al., 1999). CFA is generally based on a theoretical and/or empirical foundation that allows the researcher to specify an exact factor model in advance (Bandelos, 1996, in Stevens, 1996). It is more of a theory-testing procedure than is EFA, and a theory is supported in CFA when its specified model does a good job reproducing data from a sample different than that used to develop the model. Moreover, a model can be more precisely crossvalidated using CFA, allowing group differences, in factor structure to be systematically and statistically assessed. Finally, the latent variables resulting from CFA are less contaminated by error than observed variables, allowing a more precise determination of the relation of the underlying constructs to each other and other constructs (Lonigan et al., 1999).

Only few studies have taken advantage of the methodological advantages of CFA for testing hypotheses regarding the structure of depression and relations to symptoms of psychopathology. Therefore, CFA is used in the current study to achieve two interrelated goals. First, we expect that our a priori conceptualised two-factor model would provide a good fit to the data. We want to explore the factor structure of depression and marital distress, and anticipated that both constructs would be differently related to the selected measures. Therefore, the main goal of this study is to evaluate the adequacy of fit of our two-factor solution (depression and marital distress), compared to a single factor model (distress). A second goal is to investigate whether this two-factor solution extends to different subgroups. We compare two samples, and analyse data from both partners of the couples, resulting in four subsamples. In line with the previous study, we expect that neuroticism and extraversion would load on depression only, that causal and responsible attributions would load on marital distress only, and that ambivalent and avoidant attachment,
constructive communication, demand/withdrawal and avoidance would load on both constructs. The third aim was to investigate the stability of the factor structure in these subgroups, and we investigate the invariance of the factor structure by means of a multi-sample analysis.

Method

Subjects and Procedure

To be included, all subjects had to be married or cohabiting for at least one year. Additionally, couples were excluded from the study if either spouse manifested current alcohol or drug abuse, organic brain syndrome, mental retardation, history of psychotic disorders or psychotic symptoms.

Sample 1 consisted of 138 couples: 69 clinical couples with a depressed spouse and/or marital distress, and 69 non-clinical couples, matched on age, sex and duration of the relationship. This sample is described in detail elsewhere (see methods: Heene, Buysse, & Van Oost, submitted). Clinical patients (69) were recruited through referrals from psychiatric services and mental health services, and diagnoses of major depressive disorder were made after a careful psychiatric examination. This procedure included the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-IV Version 2.0; First, Spitzer, Gibbon, et al., 1995; Schneider, Van Groenestijn, Akkerhuis et al., 1996, administered by the first author, trained in the use of the SCID), and other intake evaluations from the referring psychiatrist. Every patient also completed a brief questionnaire concerning medication and previous experience of therapy and counseling. The partner was also briefly interviewed concerning the onset of the first depressive episode, and its impact on the relationship and problem solving. Sample 2 consisted of 124 nonclinical couples, recruited by means of public announcements (through newspaper, magazine and television advertisements, as part of a larger study). These couples came also from all socio-economic classes.
The procedure of sample 1 and 2 is described in detail elsewhere (see Methods: Heene, Buysse & Van Oost, submitted). After signing voluntary informed consent forms, all subjects were asked to complete a screening pack. Couples completed the Symptom Checklist (SCL-90; Derogatis, 1977; Arrindell & Ettema, 1986), the Dyadic Adjustment Scale (DAS; Spanier, 1976) and the Maudsley Marital Questionnaire (MMQ; Arrindell, Boelens, & Lambert, 1983) as screening instruments for depressive symptomatology or marital distress. Furthermore, every participant was asked to complete a battery of questionnaires relating to the individual and marital topics relevant to the model. Because a separate standardised assessment session was scheduled for each couple, it was necessary for both husband and wife to be present at the same time. They were asked to fill out their set of questionnaires separately, to prevent them from completing it together and discussing the items. By ensuring independent responses, we could be confident that any results would not be distorted by shared or collaborated response. However, each session started and ended with a joint briefing about the general procedure and aims of the investigation.

**Measures**

In order to meet the research goals, it was necessary to identify specific correlates of marital adjustment and depression, based on theoretical and empirical findings. Standardised assessment of these measures is essential in assessing couples, and it plays a central role in determining interventions and their effectiveness. In both samples, valid international questionnaires were used. Specifically, measures included the Dyadic Adjustment Scale (Spanier, 1976), the Communication Patterns Questionnaire (CPC; Christensen & Sullaway, 1984), the Relationship Attribution Measure (RAM; Fincham & Bradbury, 1992), and the Adult Attachment Scale (AAS; Collins & Read, 1990), and we used the translated and reviewed versions (Buysse & Heene, 1997). For the different subscales, Cronbach’s α ranged from .51 to .87 in sample 2.
Data Analysis

Confirmatory factor analyses were conducted on both spouses of sample 1 (n=138) and sample 2 (n=124) to compare the adequacy of fit of a one-factor model (distress) with a two-factor model (depression and marital distress). Because individuals were nested within couples, the spouses’ scores could not be regarded as independent measures. In acknowledgement of this nonindependence (Gonzalez & Griffin, 1997; West & Hepworth, 1991, Buysse & Ickes, 1999a), it is warranted to consider both spouses separately. As such, in both samples, the individuals were used as the major unit of analysis, and we distinguished between patients and partners. In the non-clinical control couples, the spouse with the highest score on the depressive subscale of the SCL-90 was considered to be the “patient”, with the highest level of depressive complaints\(^{13}\). As such, we compared the models across 4 different samples (sample 1: 69 clinical patients and their partners with depression and/or marital distress and 69 matched nonclinical patients and their partners (n = 138); sample 2: 124 non-clinical “patients” and their partners (124)).

Measurement models were assessed using LISREL 8.50 (Jöreskog & Sorbom, 2001). In line with the recommendations of Bollen and Long (1993), several fit indices were used to assess model fit. In the present study, model fit is assessed using the following goodness-of-fit indices: Chi Square, Root Mean Square Error of Approximation (RMSEA), and Comparative Fit Index (CFI). The chi-square goodness of fit test assessed the adequacy of the theorized model in terms of its ability to recreate the observed covariance matrix. Within this procedure, models that result in a predicted covariance matrix that significantly deviates from the observed covariance matrix (i.e., residual matrix significantly deviates from zero) are judged to be inadequate (see also Spangler et al., 1997). Thus, statistically significant values of chi-square result in model rejection. The chi-square statistics in CFA test the hypothesis that the model fits, or is consistent with, the pattern of covariation among the observed variables. If this hypothesis was rejected, it would mean that the two-factor model is not reasonable, or does not fit our data. Therefore, contrary to the

\(^{13}\) To test the stability of the results, we conducted the same analyses with the other spouse in the non-clinical control couples as “patient”, but our results did not reveal any differences.
usual hypothesis-testing procedures, we do not want to reject the null hypothesis. Unfortunately, the chi-square statistics used in CFA is very sensitive to sample size. This dilemma has led to the development of many other statistics designed to assess overall model fit in some way, for example the RMSEA and the CFI.

The RMSEA (Steiger, 1990) is a fit measure based on the population error of approximation. The idea behind it is that it is unreasonable to assume that the model holds exactly in the population. The RMSEA takes account of the error of approximation in the population. According to Browne & Cudeck (1993), a RMSEA value of 0.05 indicates a close fit and values up to 0.08 represent reasonable errors of approximation in the population.

The CFI, a comparative fit index, was introduced by Bentler & Bonnet (1980). This index (Bentler, 1990) is an incremental fit index, and it compares the fit of the hypothesised model to a baseline or null model. The most commonly used null model is that of completely uncorrelated variables. The CFI represents the proportionate improvement in model fit by comparing the target model with that baseline model. Values range from zero to one, with higher values indicative of a greater improvement in fit, and values greater than .90 are usually considered indicative of a good fit (Bentler, 1990).

Furthermore, it is essential to examine the values of individual parameter estimates, in addition to the overall fit. An inspection of the t-values of the two-factor model for the parameter estimates will reveal if they are significant or not. Values of t greater than $|2.0|$ are commonly taken to be significant. The significance of the factor loadings is of special interest, because they indicate whether or not the variables did have significant loadings on the factors they were intended to measure.
Results

Sample Characteristics

In sample 1, the mean age of the patients was 38.5 years, ranging from 19 - 52 years of age (SD 8.7 years). The mean age of the partners was 39.9 years, ranging from 20 - 57 years of age (SD 8.6 years). On average, participants had been with their current partner for 14.6 years (SD 4.4 years). Of all the couples, 20.8 % had no children, 55.3 % had one or two children at home, and 23.9 % had 3 children or more. Forty-nine percent of the subjects indicated a high school diploma or its equivalent as their highest level of education, 30.5 % had attended technical or professional school, and 20.5% had a university degree. In sample 2, the mean age of the patients was 35.8 years, ranging from 18 - 50 years of age (SD 8.3 years). The mean age of the partners was 38.4 years, ranging from 20 - 54 years of age (SD 8.4 years). On average, participants had been with their current partner for 15.8 years (SD 4.2 years). Of all the couples, 26.9 % had no children, 49.8 % had one or two children at home, and 23.3 % had 3 children or more. Fifty percent of the subjects indicated a high school diploma or its equivalent as their highest level of education, 26.1 % had attended technical or professional school, and 23.9 % had a university degree.

Model Comparisons

The main purpose of this study was to explore the latent factor structure of marital distress and depression, analysing the stability of this two-factor hypothesised model (see figure 1) in comparison with a one-factor model (distress). The models were specified in advance by defining a pattern of linkage between the observed scores and one or two underlying factors. In model 1, one-factor model (distress) was linked to all observed measures. Model 2 was hypothesised in line with the previous study, and we expected that neuroticism and extraversion were associated with depression, that causal and responsible attributions were linked with marital distress, and that ambivalent and avoidant attachment, constructive communication, total demand/withdrawal and avoidance were related with both constructs (see figure 1).
Figure 1: Two factor model of depression and marital distress
To assess the stability of the factor structure of depression and marital distress, 2 models were compared in four samples. Means and standard deviations of the four samples for the DAS, SCL-90 and MMQ are presented in table 1. Table 2 summarizes the goodness-of-fit indices for the two models. These suggest that the two-factor model is the best model for all four subsamples.

Table 1
Means and standard deviations of the DAS-, MMQ- an SCL-depression scores in the patients and partners of sample 1 and 2

<table>
<thead>
<tr>
<th></th>
<th>DAS (Means &amp; sd)</th>
<th>MMQ (Means &amp; sd)</th>
<th>Scl-90 Depression (Means &amp; sd)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample 1 (n=138)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients</td>
<td>106.38 (16.86)</td>
<td>43.32 (26.13)</td>
<td>45.97 (15.51)</td>
</tr>
<tr>
<td>Partners</td>
<td>108.82 (17.44)</td>
<td>40.18 (23.87)</td>
<td>26.33 (9.39)</td>
</tr>
<tr>
<td><strong>Sample 2 (n = 124)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Patients”</td>
<td>97.31 (12.23)</td>
<td>31.24 (18.32)</td>
<td>26.24 (6.33)</td>
</tr>
<tr>
<td>Partners</td>
<td>78.91 (15.61)</td>
<td>26.27 (16.39)</td>
<td>19.98 (3.63)</td>
</tr>
</tbody>
</table>

Table 2
Goodness-of-fit-summary for one- and two-factor model across 4 samples

<table>
<thead>
<tr>
<th>Sample 1: Patients (n=138)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1: one factor</td>
<td>167.44</td>
<td>.00 (27)</td>
<td>.20  .71</td>
</tr>
<tr>
<td>Model 2: two factors</td>
<td>20.17</td>
<td>.85 (21)</td>
<td>.00  .98</td>
</tr>
<tr>
<td>Sample 1: Partners (n=138)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1: one factor</td>
<td>125.09</td>
<td>.00 (27)</td>
<td>.13  .75</td>
</tr>
<tr>
<td>Model 2: two factors</td>
<td>25.88</td>
<td>.58 (20)</td>
<td>.00  .97</td>
</tr>
<tr>
<td>Sample 2: Patients (n=124)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1: one factor</td>
<td>83.52</td>
<td>.00 (27)</td>
<td>.10  .77</td>
</tr>
<tr>
<td>Model 2: two factors</td>
<td>42.22</td>
<td>.07 (18)</td>
<td>.08  .91</td>
</tr>
<tr>
<td>Sample 2: Partners (n=124)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1: one factor</td>
<td>53.44</td>
<td>.05 (27)</td>
<td>.07  .91</td>
</tr>
<tr>
<td>Model 2: two factors</td>
<td>31.85</td>
<td>.22 (19)</td>
<td>.03  .98</td>
</tr>
</tbody>
</table>
In Sample 1, the two-factor model shows a good fit to the data, for both the patients and the partners, respectively (IP: $\chi^2 (21) = 20.17, p = .85$; RMSEA < .0001, CFI = .98; partners: $\chi^2 (20) = 25.88, p = .58$; RMSEA < .0001; CFI = .97). In Sample 2, the two-factor model provides an acceptable fit for the data of the patients (IP: $\chi^2 (18) = 42.22, p = .07$; RMSEA = .080; CFI = .91), and a good fit for the data of the partners ($\chi^2 (19) = 31.85, p = .22$; RMSEA < .05; CFI = .98). Overall, the one-factor model did not provide an acceptable fit to the data in all samples (see table 2), for both spouses.

Because the models are nested, we can statistically compare the adequacy of the models using $\chi^2$ difference tests. The comparison of the one-factor model with the two-factor model revealed that the latter model explains the data significantly better than the former in the patients of sample 1, ($\Delta \chi^2 (6) = 146.98, p < 0.0001$), and the partners of sample 1 ($\Delta \chi^2 (7) = 103.48, p < 0.0001$). Furthermore, the two-factor model explains the data significantly better than the two-factor model in sample 2, for both the patients ($\Delta \chi^2 (6) = 37.32, p < 0.001$) and the partners ($\Delta \chi^2 (6) = 19.91, p < 0.01$). These results indicate that depression and marital distress can be considered as two latent dimensions.

To examine whether the two-factor model is invariant across the different groups, multi-sample analyses were conducted. A $\chi^2$ statistic for the overall fit was computed to assess overall parameter invariance, as well as the RMSEA and the CFI. The results of this multi-sample analysis showed that the specified two-factor model can be considered as acceptably fitting the data, on condition that we set the error covariance free, as well as the paths linking the observed variables attachment and conflict communication to the latent variables depression and marital distress. For a review, see table 3.

Table 3

<table>
<thead>
<tr>
<th></th>
<th>$\chi^2$; p (d.f.)</th>
<th>RMSEA</th>
<th>CFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1</td>
<td>539.69, .00 (156)</td>
<td>.14</td>
<td>.67</td>
</tr>
<tr>
<td>Model 2</td>
<td>422.04, .00 (129)</td>
<td>.13</td>
<td>.78</td>
</tr>
<tr>
<td>Model 3</td>
<td>126.48, .01 (117)</td>
<td>.06</td>
<td>.95</td>
</tr>
<tr>
<td>Model 4</td>
<td>102.21, .05 (114)</td>
<td>.05</td>
<td>.97</td>
</tr>
</tbody>
</table>
A sequence of decreasingly restrictive hypotheses was evaluated (model 1: restrictive model; model 2: error variance free; model 3: model 2 + paths between attachment, conflict communication and latent variables free; model 4: model 3 + error covariance free). Again, we can statistically compare the adequacy of the models using $\chi^2$ difference tests. The comparison of model 1 with model 2 revealed that the latter model explains the data significantly better than the former in the patients of sample 1, ($\Delta \chi^2 (27) = 117.65, p < 0.0001$). Furthermore, the comparison of model 2 with model 3 revealed that the latter model explains the data better than the former ($\Delta \chi^2 (12) = 295.56, 103.48, p < 0.0001$), and model 4 explained the data better than model 3 ($\Delta \chi^2 (3) = 24.27, p < 0.0001$).

Furthermore, we examined the values of individual parameter estimates, in addition to the overall fit. Our evaluation of the parameter values and t statistics did indicate support for the hypothesised two-factor structure, but the invariance was not always pertained to all the factor loadings (see table 4 and 5). The factor loadings of our two-factor model were significant and stable for several observed variables. For example, neuroticism and extraversion were significantly related to depression in the four subsamples. Additionally, the causal and responsible dimensions of attribution were significantly related to marital distress in the four subsamples. However, for attachment style and communication, results were more complicated, as revealed by the multi-sample analysis. In both subsamples of the partners, ambivalent attachment, avoidant attachment, constructive communication, demand-withdrawal and avoidance were significantly related to depression only, and not to marital distress. In the patients of sample 1, ambivalent attachment, constructive communication, demand-withdrawal and avoidance were significantly related to both depression and marital distress; avoidant attachment was related to depression only. In the patients of sample 2, constructive communication, demand-withdrawal, avoidance and ambivalent attachment were significantly related to marital distress only; avoidant attachment was also related to depression only.
Table 4

_Factor loadings and t-values for the two-factor model in Sample 1_

<table>
<thead>
<tr>
<th></th>
<th>Depression</th>
<th>Marital distress</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Factor loadings</td>
<td>t-value</td>
</tr>
<tr>
<td>PATIENTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambiv. Attachment</td>
<td>-.71</td>
<td>-7.93*</td>
</tr>
<tr>
<td>Avoid. Attachment</td>
<td>-.62</td>
<td>-7.22*</td>
</tr>
<tr>
<td>Construct. Comm.</td>
<td>-.31</td>
<td>-3.88*</td>
</tr>
<tr>
<td>Total Demand:</td>
<td>.45</td>
<td>2.78*</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>.28</td>
<td>3.27*</td>
</tr>
<tr>
<td>Extraversion</td>
<td>-.64</td>
<td>-6.61*</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>.67</td>
<td>7.86*</td>
</tr>
<tr>
<td>Causal Attributions</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Responsible</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PARTNERS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambiv. Attachment</td>
<td>-.55</td>
<td>-5.11*</td>
</tr>
<tr>
<td>Avoid. Attachment</td>
<td>-.23</td>
<td>-2.12*</td>
</tr>
<tr>
<td>Construct. Comm.</td>
<td>-.48</td>
<td>-4.43*</td>
</tr>
<tr>
<td>Total Demand:</td>
<td>.66</td>
<td>5.95*</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>.62</td>
<td>5.58*</td>
</tr>
<tr>
<td>Extraversion</td>
<td>-.24</td>
<td>-2.44*</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>.33</td>
<td>3.24*</td>
</tr>
<tr>
<td>Causal Attributions</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Responsible</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

_t- value * Values of t greater than | 2.0 | are significant_
Table 5

Factor loadings and t-values for the two-factor model in Sample 2

<table>
<thead>
<tr>
<th>Factor loadings</th>
<th>Depression</th>
<th>t-value</th>
<th>Marital distress</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PATIENTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambiv. Attachment</td>
<td>.17</td>
<td>1.59</td>
<td>-.25</td>
<td>-2.23*</td>
</tr>
<tr>
<td>Avoid. Attachment</td>
<td>-.19</td>
<td>-2.00*</td>
<td>.24</td>
<td>1.58</td>
</tr>
<tr>
<td>Construct. Communication</td>
<td>.03</td>
<td>.21</td>
<td>-.45</td>
<td>-3.67*</td>
</tr>
<tr>
<td>Total Demand-Withdrawal</td>
<td>.11</td>
<td>.87</td>
<td>.40</td>
<td>4.01*</td>
</tr>
<tr>
<td>Mutual Avoidance</td>
<td>.02</td>
<td>.13</td>
<td>.38</td>
<td>3.37*</td>
</tr>
<tr>
<td>Extraversion</td>
<td>-.52</td>
<td>-4.13*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>.87</td>
<td>5.36*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Causal Attributions</td>
<td>-</td>
<td>-</td>
<td>.82</td>
<td>8.71*</td>
</tr>
<tr>
<td>Responsible Attributions</td>
<td>-</td>
<td>-</td>
<td>.66</td>
<td>6.47*</td>
</tr>
<tr>
<td>PARTNERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambiv. Attachment</td>
<td>-.33</td>
<td>-2.15*</td>
<td>.13</td>
<td>.91</td>
</tr>
<tr>
<td>Avoid. Attachment</td>
<td>-.31</td>
<td>-2.16*</td>
<td>.10</td>
<td>.72</td>
</tr>
<tr>
<td>Construct. Communication</td>
<td>-.47</td>
<td>-2.81*</td>
<td>.27</td>
<td>1.89</td>
</tr>
<tr>
<td>Total Demand-Withdrawal</td>
<td>.42</td>
<td>3.07*</td>
<td>.25</td>
<td>1.57</td>
</tr>
<tr>
<td>Mutual Avoidance</td>
<td>.44</td>
<td>2.68*</td>
<td>.25</td>
<td>1.57</td>
</tr>
<tr>
<td>Extraversion</td>
<td>-.38</td>
<td>-2.83*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>.26</td>
<td>2.01*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Causal Attributions</td>
<td>-</td>
<td>-</td>
<td>.69</td>
<td>7.58*</td>
</tr>
<tr>
<td>Responsible Attributions</td>
<td>-</td>
<td>-</td>
<td>.91</td>
<td>10.23*</td>
</tr>
</tbody>
</table>

* t-value * Values of t greater than |2.0| are significant
Discussion

The main goal of the present study was to examine the validity of a dimensional approach. Therefore, we investigated the factor structure of depression and marital distress, using CFA in four different samples. Our hypothesised two-factor model was based on previous findings (see Heene, Buysse, & Van Oost, 2000; submitted). Of importance to this study was a comparison of fit of the two-factor model with the one-factor model. We analysed the stability of both models and did a crossvalidation. Based on the goodness-of-fit-summary, results favoured the two-factor-solution, and we found that this model provided a good fit to the data in all four subsamples. Furthermore, the invariance of the factor structure was investigated using multisample analyses. Although the two-factor model has served as a useful model with a good fit to the data, future studies hould focus on new models, especially with exclusive tests of the patterns of associations between attachment, conflict communication, depression and marital distress.

In addition to the general fit and the factor structure of depression and marital distress, we examined the values of individual parameter estimates of the two-factor model. In sum, neuroticisme and extraversion were significantly related to depression in the four subsamples. The causal and responsible dimensions of attribution were significantly related to marital distress in the four subsamples, representing characteristics for marital distress. However, for attachment style and communication, results were more complicated, without stable factor loadings across the four subsamples.

As stated before, this study did not intend to determine whether the structure of depression is categorical or dimensional; instead, we wanted to emphasise the need of both perspectives. Research will ultimately point to the importance of incorporating dimensional elements into formal classifications systems, considering salient dimensional individual differences within typological syndromes. The optimal understanding of the etiology, pathology and treatment of mental disorders is more likely to be complex and multifactorial (Widiger, 2001), considering specific conrelates on several dimensions. As such, clinical studies of affective disorders suggest the importance of a more dimensional approach to their classification (see also Angst et al., 2000; Angst & Merikangas, 2001; Enns et al., 2001; Flett et al.,
1997; Preisig et al., 2001), considering fluctuating symptoms and a lack of longitudinal stability of diagnostic subtypes.

The present study highlights the need for additional research, and several limitations concerning the results are in order. First, results concerning the utility of the two-factor model need to be extended to other samples. Moreover, examination of the differences, of any, between application of the model to clinical versus nonclinical populations is needed. Second, although our results indicated the relevance of the two-factor model across adult men and women, our sample was not suitable to subdivide into age or gender differences. Finally, most of the data analysed came from paper-and-pencil self-report measures. We are sensitive to the problems due to this method, and these scores can be influenced by the presence of depressive symptomatology or other difficulties. This argument does not diminish the importance of these variables, but only implies that careful assessment of actual individual and interpersonal skills is needed.
References


Chapter 5

Looking for Common Antecedents, Mediators and Moderators for the link between Depressive Symptoms and Marital Adjustment\textsuperscript{14}: the Role of Conflict Communication, Attributions, Attachment Style and Personality Traits.

\begin{adjustwidth}{-1.5cm}{-1.5cm}
Previous studies have focussed on concomitants of depression and marital distress in order to help explain the relationship between the two. The findings of these studies suggested that several variables such as conflict communication, attribution style, attachment style and personality traits are associated with depression, marital distress or both. In the present study, we hypothesise that the selected “third variables” may be important variables that are either common antecedents (hypothesis 1), mediators (hypothesis 2) or moderators (hypothesis 3) of the association between depressive symptoms and marital adjustment. A series of regression analyses were conducted to test these hypotheses in a total sample of 415 couples. Results indicated that extraversion was a common antecedent, whereas demand-withdrawal and causal attributions were significant mediators of the link between depressive symptoms and marital distress. Several conclusions and implications for future research are discussed in this chapter.

\end{adjustwidth}

\textsuperscript{14} This chapter is based on Heene, E., Buysse, A., & Van Oost, P. Looking for common antecedents, mediators and moderators for the link between between depressive symptoms and marital adjustment: the role of conflict communication, attributions, attachment style and personality traits. Manuscript submitted.
Introduction

A bulk of evidence substantiated the strong association between marital distress and depression, treated both as a continuous variable and as a discrete disorder. Moreover, not all individuals who experience marital discord also experience depressive symptoms. This would seem to indicate that other factors should be incorporated. The marital discord model of depressive symptoms (Beach, Sandeen, & O’Leary, 1990) for example suggests that marital relationships are important in understanding the development of depressive symptoms in certain groups of susceptible individuals. According to the model, marital dysfunction increases overt hostility, threats or divorce, already disrupted marital routines and severe denigration. Beach et al. (1990) suggested that these by-products of marital dysfunction might account for the relationship between marital dysfunction and depressive symptoms (Beach et al., 1990; Scott & Cordova, 2002). Furthermore, in a longitudinal study, Beach & O’Leary (1993) found that individuals who were chronically dysphoric were more susceptible to depressive symptoms when stresses arose in the marital relationship.

However, one restriction in current literature is that it has partially ignored the role of third variables in the association between depression and marital distress. In this context, our previous studies have indicated the importance of conflict communication, attributions, attachment style and personality traits, thus contributing to the association between depression and marital distress. As such, neuroticism and extraversion were found to be concomitants of depression, whereas causal and responsible attributions were associated with marital distress. Ambivalent and avoidant attachment, constructive communication, demand-withdrawal and avoidance finally were correlates of both depression and marital distress. Future progress in understanding the magnitude and nature of these associations is most likely to be made in studies evaluating moderational and mediational hypotheses about the relationship between depressive symptoms and marital distress. Such studies should not only increase the understanding of the onset and course of depression and marital distress, but may also have important implications regarding its prevention and treatment.
In one of the few recent studies conducted evaluating the mediation on the link between depression and marital distress, Culp & Beach (1998) reported that the cross-sectional association between both variables was mediated by self-esteem for women but that this was not the case in men (Culp & Beach, 1998; Whisman, 2001). They also found that self-esteem moderated the association between marital distress and depressive symptoms for men but not in the case of women (Culp & Beach, 1998; Whisman, 2001). Furthermore, Scott & Cordova (2002) concluded that adult attachment style moderated the association between depressive symptoms and marital adjustment. Their findings thereby supported the hypothesis that depressive symptoms and marital dysfunction were primarily associated with anxious-ambivalent attachment style in these individuals. In addition, individuals with a more secure attachment style tended to have marriages that were better adjusted with fewer symptoms of depression.

To date, no consistent findings have been obtained for common antecedents, mediators or moderators in the link between depressive symptoms and marital distress. Given the paucity of research in this area, future research needs to investigate variables that precede, mediate or moderate the cross-sectional association between depression and marital distress (Whisman, 2001). In the present study, we hypothesise that the selected “third variables” may be important variables that are either common antecedents (hypothesis 1), mediators (hypothesis 2) or moderators (hypothesis 3) of the association between depressive symptoms and marital adjustment. In this context, several studies place an emphasis on attachment and personality traits as possible predictors or antecedents of depression or marital distress, as vulnerability factors or markers for the developmental trajectory of psychopathology, whereas attributions and communication are rather seen as mediational of moderational processes.
Method

Subjects

Our total sample consisted of 415 couples, a sum of the samples in previous studies. All couples were married or cohabiting for at least one year. The mean age of the females was 34.18 years (SD = 12.30), and 36.46 years (SD = 11.98) for the males. In the hypotheses tested, the couple was used as the major unit of analysis, using the average total scores of both spouses.

Measures

Both the procedure and the measures have been described in detail in previous chapters. The survey consisted of a standard battery of questionnaires, including the Dyadic Adjustment Scale (DAS; Spanier, 1976); the Maudsley Marital Questionnaire (MMQ; Arrindell, Boelens, & Lambert, 1983), the Communication Patterns Questionnaire (CPQ; Christensen & Sullaway, 1984), the Relationship Attribution Measure (RAM; Fincham & Bradbury, 1992), the Adult Attachment Scale (AAS; Collins & Read, 1990), the NEO Five-Factor Inventory (the NEO-FFI; Costa & McCrae, 1992; Hoekstra, Ormel, & de Fruyt, 1996), and the Symptom Checklist (the SCL-90; Derogatis, 1977; Arrindell & Ettema, 1986). We used translated and adapted versions of the DAS, the CPQ, the RAM and the AAS (see Buysse & Heene, 1997).

Statistical analyses

Before common antecedents/mediation hypotheses can be tested, both variables must be significantly associated with each other, and with the hypothesised antecedent/mediator (Baron & Kenny, 1986; Holmbeck, 1997, 2002). In order to confirm the common antecedent/mediation, the impact of the significant association between both variables must be reduced after controlling for the hypothesised preceding or mediating variables. In other words, a common antecedent/mediator is a variable that accounts for the relation between both variables, and indicates how or why such effects occur (Baron & Kenny, 1986). A series of multiple regression analyses was conducted (see Baron & Kenny, 1986; Holmbeck, 1997, 2002).
Second, a *moderating variable* influences the strength of the association between both variables, without being the cause of this relationship. In other words, the association between both variables changes as a function of a third variable (Baron & Kenny, 1986). To test for moderation described in our second hypothesis, we needed to enter the cross-products terms of the hypothesised moderators and depressive symptoms or marital adjustment (Baron & Kenny, 1986) in the equation. To reduce the effects of multicollinearity, variables were centred (Aiken & West, 1991).

**Results**

**Preliminary analyses**

As can be seen in table 1, the three criteria were fulfilled for nearly all selected variables, except for responsible attributions. A series of multiple regression analyses was performed in order to investigate the patterns of association between depressive symptoms and the selected variables, between depressive symptoms and marital adjustment, and between the selected variables and marital adjustment. Results indicated that depressive symptoms were significantly associated with constructive communication, demand-withdrawal, mutual avoidance, causal attributions, ambivalent attachment, avoidant attachment, extraversion and neuroticism. Moreover, depressive symptoms were also significantly correlated with marital adjustment. For a review, see table 1.

**Table 1**

*Preliminary criteria: Pearson’s Intercorrelations*

<table>
<thead>
<tr>
<th></th>
<th>Depressive symptoms</th>
<th>CPQ</th>
<th>Constructive</th>
<th>Demand-Withdrawal</th>
<th>Mutual Avoidance</th>
<th>Causal</th>
<th>Responsible</th>
<th>Ambivalent</th>
<th>Avoidant</th>
<th>Extraversion</th>
<th>Neuroticism</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCL</td>
<td>Depressive symptoms</td>
<td>CPQ</td>
<td>Constructive</td>
<td>Demand-Withdrawal</td>
<td>Mutual Avoidance</td>
<td>Causal</td>
<td>Responsible</td>
<td>Ambivalent</td>
<td>Avoidant</td>
<td>Extraversion</td>
<td>Neuroticism</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>-.41****</td>
<td>.10*</td>
<td>.31****</td>
<td>.12*</td>
<td>.21****</td>
<td>.51****</td>
<td>.43****</td>
<td>-.28****</td>
<td>.63****</td>
</tr>
</tbody>
</table>

* p < .05  ** p < .005  *** p < .001  **** p < .0001
Table 1

*Preliminary criteria: Pearson’s Intercorrelations*

<table>
<thead>
<tr>
<th></th>
<th>Depressive symptoms</th>
<th>DAS</th>
<th>Marital adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCL</td>
<td></td>
<td>DAS</td>
<td>-.17****</td>
</tr>
<tr>
<td>CPQ</td>
<td>Constructive</td>
<td>DAS</td>
<td>.28****</td>
</tr>
<tr>
<td></td>
<td>Demand-Withdrawal</td>
<td></td>
<td>-.64****</td>
</tr>
<tr>
<td></td>
<td>Mutual Avoidance</td>
<td></td>
<td>-.33****</td>
</tr>
<tr>
<td>RAM</td>
<td>Causal</td>
<td></td>
<td>-.47****</td>
</tr>
<tr>
<td></td>
<td>Responsible</td>
<td></td>
<td>-.06</td>
</tr>
<tr>
<td>AAS</td>
<td>Ambivalent</td>
<td></td>
<td>-.19****</td>
</tr>
<tr>
<td></td>
<td>Avoidant</td>
<td></td>
<td>-.17****</td>
</tr>
<tr>
<td>NEO</td>
<td>Extraversion</td>
<td></td>
<td>.24****</td>
</tr>
<tr>
<td></td>
<td>Neuroticism</td>
<td></td>
<td>-.16***</td>
</tr>
</tbody>
</table>

*p < .05  ** p < .005  *** p < .001  **** p < .0001

**Common Antecedent and Mediation Analyses**

To test the common antecedent/mediational role of these variables in the link between depressive symptoms and marital adjustment, we entered depressive symptoms, every concomitant and marital adjustment. In order to confirm the common antecedent/mediational hypothesis, the original significant relation between depression and marital distress had to become nonsignificant or significantly reduced when the mediators were added to the multiple regression. For a review, see table 2. Our findings indicate that the original relationship between depressive symptoms and marital adjustment was reduced from -.17 to -.07, thereby confirming an antecedent role for extraversion and a mediational role for demand withdrawal and causal attributions15.

15 To determine whether the total effect of depressive symptoms was reduced significantly upon introduction of the hypothesised mediators, we used z-score comparisons. Analyses revealed a z-score of 1.44 n.s., indicating that although the association between depressive symptoms and marital adjustment became nonsignificant after controlling for the mediators, the reduction in significance was not significant.
Table 2

**Regression analyses with marital adjustment, depressive symptoms and the hypothesised common antecedents and mediators**

<table>
<thead>
<tr>
<th>Equation</th>
<th>Variables Entered</th>
<th>Adjusted R square</th>
<th>Standardised Beta</th>
<th>t(397)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SCL Depressive symptoms</td>
<td>.03</td>
<td>-.17.</td>
<td>-3.44***</td>
</tr>
<tr>
<td>2</td>
<td>SCL Depressive symptoms</td>
<td>.54</td>
<td>-.07</td>
<td>-1.24</td>
</tr>
<tr>
<td></td>
<td>CPQ Constructive</td>
<td>.08</td>
<td>1.63</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CPQ Demand-withdrawal</td>
<td>-.52</td>
<td>-12.63****</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CPQ Mutual avoidance</td>
<td>.04</td>
<td>.78</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RAM Causal</td>
<td>-.22</td>
<td>-5.30****</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AAS Ambivalent</td>
<td>.01</td>
<td>.10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AAS Avoidant</td>
<td>.01</td>
<td>.12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEO Extraversion</td>
<td>.14</td>
<td>3.51***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEO Neuroticism</td>
<td>.05</td>
<td>1.02</td>
<td></td>
</tr>
</tbody>
</table>

* p < .05 ** p < .005 *** p < .001 **** p < .0001

**Moderation analyses**

In order to study which variables may have a moderating role, multiple regression analyses predicting marital adjustment were performed. Analyses revealed that depressive symptoms and all the indicators selected were significantly associated with marital adjustment. We examined whether the interaction variables (depressive symptoms \( \times \) hypothesised moderators) were significantly associated with marital adjustment, after verifying them for the relationship with depressive symptoms and the selected variables. Main effects were the same as those described in the mediational analyses. Results revealed that R square (.51) and the adjusted R square (.50) were not better than R square (.56) and the adjusted R square (.54) without the interaction variables. Therefore, it can be concluded that the moderational hypothesis was not confirmed, with no significant moderators of the link between depressive symptoms and marital adjustment.
Discussion

The main objective of the present study was to test the common antecedent/mediational and moderational role of the selected concomitants for the link between depressive symptoms and marital adjustment. To date, no consistent findings have been obtained, although the importance of third variables in the link between individual vulnerabilities and marital distress has been confirmed. In this context, the investigation of the potential mediational and moderational role of these characteristics could be an essential focus for research, thereby clarifying the association between individual vulnerabilities and marital problems. In sum, we found that the association between depressive symptoms and marital adjustment became non-significant when a common antecedent such as extraversion was incorporated, as well as mediators such as demand-withdrawal and causal attributions.

Firstly, personality traits such as extraversion are frequently used to explore how individual differences are related to depressive symptomatology and marital functioning. Several studies have suggested that a personality characterized by high neuroticism and low extraversion predisposes individuals to depression and anxiety, possibly resulting in marital distress. In the present study, extraversion was found to be a significant common antecedent of depression and marital distress, negatively associated with both variables. In this context, common features might reflect a common vulnerability, and some studies have proposed that certain personality traits may predispose an individual to both depression and marital problems. Extraversion quantifies the extent to which individuals are gregarious, assertive and sociable. Individuals who score low on extraversion tend to be quiet and private, with a higher risk for depression. They may feel too timide to engage in problemsolving interactions or conversations, which could possibly be linked with marital dissatisfaction. Research has already shown that many interrelations exist between an individual’s personality and mental health on the one hand and aspects of his or her marriage on the other (Van den Broucke & Vandereycken, 1996), especially with a focus on neuroticism and extraversion (e.g. Karney & Bradbury; 1995; Heerlein, Richter, Gonzalez, et al., 1998). Because of its breadth and prevalence in personality research, the Big Five conceptualisation provides a broad exploration of the association between personality and the marital functioning of couples with a depressive spouse.
Secondly, we found that demand-withdrawal and attributions were significant mediators, and they accounted for the association between depressive symptoms and lower levels of marital adjustment, emphasizing the ways in which depressed individuals handle marital conflicts. This is also consistent with “the vulnerability-stress-adaptation model” proposed by Karney & Bradbury (1995), which postulated that marital interaction mediates the connection between individual differences and marital distress (Karney & Bradbury, 1995). In addition, the marital discord model (Beach et al., 1990) suggested that dysfunctional communication and adjustment accounted for the relationship between marital distress and depressive symptoms, underscoring the importance of these negative characteristics. A high frequency of demand-withdrawal and causal attributions within couples might be responsible for generating stress and vulnerability to depression in the case of marital distress, and such depletions might be associated with other marital difficulties over time.

In general, the present findings hint at an integration of cognitive and interpersonal approaches to depression by examining the depressed individual’s internal working models of personality traits, communication and attributions and how these individual function in close relationships. In this context, it has become clear that depression involves both interpersonal and cognitive dysfunctions that are hypothesised to play a crucial role in the aetiology and maintenance of these difficulties. This conceptualisation offers clinicians and researchers a better understanding of the factors that maintain an individual’s susceptibility to depression in the context of marital distress. It could be inferred that individual vulnerability originates in maladaptive interactions. This suggests that individual differences influence the couples’ tendency to engage in specific communication patterns. A further explanation of the reciprocal processes between personality, attribution and communication could help us understand the nature of close relationships in general. However, further longitudinal investigation is needed to determine whether particular working models of others increase vulnerability to depression or whether depressive symptoms alter individuals’ view of others.

Several caveats should be taken into account when interpreting the results of this study, each of which point to directions for future research. Firstly, although the significant relationship between depressive symptoms and marital adjustment became non-significant when the mediators and moderators were introduced, the
reduction in significance was not significant. Our results should therefore be interpreted with caution. Secondly, all findings were based on cross-sectional and correlational data. This means that significant correlations do not indicate causal effects, nor can we postulate any definitive conclusions about vulnerabilities. We were unable to infer the direction of the effects, and it is possible that some of the obtained relationships may have been strengthened by the procedure of measuring the various constructs at the same point in time. These mediational and moderational hypotheses should be applied to longitudinal data in order to provide firm evidence about the causal relations between the variables. Thirdly, the reliance on self-report data is an obvious restriction, and the variables in this study were assessed using self-report instruments. It is possible that this commonly used method has biased the results, which could be influenced by demand effects, psychometric properties or the potential content overlap between instruments. Further research should include multiple methods in order to assess these indicators, including interview or observational measures. Also, these findings are based on retrospective reports and therefore may be biased by the respondent’s current mood and current relationship experiences. Fourthly, it is also important to note that the small variance in depressive symptoms may have prevented us from detecting other associations, and the present findings can therefore not be generalised to clinical populations. We need to consider these indicators in some detail in order to understand the sources of stability and instability of clinical depression in adult relationships, and compare a dimensional and categorical perspective. Finally, our findings did not confirm the moderating hypothesis of Scott & Cordova (2002), which indicated that the relationship between marital dissatisfaction and depression only held for those individuals who rated themselves as high on anxious-ambivalent attachment. Future research is needed to investigate the role of attachment in the link between depression and marital distress. This could help understand the way in which interpersonal patterns become internalised as characteristics for depressive symptoms in the case of marital distress or vice versa.
References


Chapter 6

Analysis of the Effect of Experimental Induction of Depressed Mood on Self-Reported Indicators of Depression and Marital Distress

Previous studies have focussed on concomitants of depression and marital distress, to help explain the relationship between the two. These findings suggested that several variables such as attachment style, personality traits, attribution style, communication patterns, dyadic adjustment and relationship satisfaction are associated with depression, marital distress or both. However, a limitation of most of these studies is the use of findings based on self-report measures. Results measured by self-report may be consequences of depressive episodes, being affective-state dependent. Therefore, the main goal of the present study was to analyse the effect of mood on self-reported measures, evaluating the concordance of depression and marital distress under condition of neutral and negative emotion in a non-clinical population (n = 70). We applied a combined experimental mood induction procedure, based on music, autobiographical recall and environmental manipulation. Results showed that the mood manipulation was highly effective, and the depressed-MIP and neutral-MIP groups did not differ in their self-rated measures. The present study therefore supports the hypothesis that these variables represent a stable concordance between depression and marital distress. Implications for future research are discussed.

16This chapter is based on Heene, E., Buysse, A., De Raedt, R. & Van Oost, P. Analysis of the effect of experimental induction of depressed mood on self-reported indicators of depression and marital distress. Manuscript submitted.
Introduction

Previous studies have focussed on the comorbidity of depression and marital distress, documenting the difficulties in psychosocial functioning exhibited by depressed persons (e.g. Berg-Cross, 1997; Beach, 2001; Beach & O’Leary, 1992; Beach, Whisman, & O’Leary, 1994; Coyne, Kessler, Tal, et al., 1987; Coyne, Thompson, & Palmer, 2002; Johnson, Monroe, Simons, et al., 1994; Johnson & Jacob, 1997; 2000; Levkovitz, Fennig, Horesh, et al., 2000; Zlotnick, Kohn, Keitner, et al., 2000). Marital distress and depression have repeatedly been found to be associated, with no definite conclusions concerning causality. Researchers acknowledge that both variables are mutually influential (Denton, Golden, & Walsh, 2003), and recent studies have moved beyond the simplistic suggestion that marital distress is a sufficient explanation for depression, or vice versa (Beach, 2001).

Instead, investigators have begun to look at indicators of depression and marital distress, to help explain the relationship between the two. For example, higher levels of conflict avoidance characterised the interactions of depressed subjects in distressed couples (e.g. Christensen & Heavy, 1990; Christensen & Shenk, 1991; Heene, Buysse, & Van Oost, 1999; Heavy, Christensen, & Malamuth, 1995; Jacobson, Dobson, Fruzetti, et al., 1991; Schmaling & Jacobson, 1990). Furthermore, previous studies emphasised the association between depression and personality traits such as neuroticism and extraversion (e.g. Bagby, Young, Schuller, et al., 1996; Bagby, Bindseil, Schuller, et al., 1997; Enns & Cox, 1997; Heerlein, Richter, Gonzalez, et al., 1998; Jain, Blais, Otto, et al., 1999; Lozano & Johnson, 2001), or the association between marital distress and negative attribution style (e.g. Bradbury & Fincham, 1992; Horneffer & Fincham, 1996, 1997; Schaap, 1984; Van den Broucke & Vandereycken, 1996). In addition, attachment style has been considered as a more or less enduring individual characteristic that might influence the relationship (Carnelley, Pietromonaco, & Jaffe, 1994), and depressed patients in marital distressed couples showed significantly higher levels of avoidant attachment.

The recognition of the concomitance between depression and marital distress has important clinical significance, because the presence of other problems can influence the planning of treatment for depression. Since these findings suggest that several psychosocial variables are significantly associated with both depressive illness and
marital distress, measures of those variables may prove to be clinically useful for treatment selection.

However, a limitation of most of these studies is the use of findings based on self-report measures. Some researchers have expressed concern that these scores are influenced by the presence of a depressive mood (see also Enns, Cox, & Larsen, 2000). Based on research on mood-congruent recall, it is hypothesised that mood can act as a distinctive “state” or “context” which affects memory. A depressed, dysphoric mood state may be associated with a biased autobiographical recall, which may lead people to perceive themselves and their relationship more critically and negatively (Williams, Watts, MacLeod et al., 1997). In this context, results measured by self-report may be consequences of depressive episodes, being affective-state dependent (see also Enns et al., 2000; Van der Does, 2002).

Since we are sensitive to the above-mentioned problems due to this method, the present study was designed to address these limitations. Without another assessment under normal mood conditions, we cannot tell whether dysphoric participants’ reports of the individual and relational measures are stable versus mood-dependent (see also Haaga, Yarmus, Hubbard, et al., 2002). To analyse the effects of subjects’ emotional states on self-reported measures, several procedures have been used (e.g. pre-experimental classification, a comparison of non-clinical subjects with clinical patients, naturally occurring emotions, etc.). Most of these procedures are quasi-experimental and do not manipulate mood state as an independent variable.

We therefore used the most rigorous method of experimental mood induction in a non-clinical population, applied in the laboratory (Gerrads-Hesse, Spies & Hesse, 1994). We aimed at changing mood following exposure to different types of music, combined with autobiographic recall. This method should help us to gain insight into the question of how mood affects individual and relational self-report measures, and vice versa.

Mood induction procedures have been used successfully to evaluate cognitive models of depression, focussing on e.g. cognitive biases, responses, vulnerability and reactivity (e.g. Bradley, Mogg, & Lee, 1997; Clark, 1983; Fox, Knight, & Zelinski, 1998; Ingram & Ritter, 2000; Lawson & MacLeod, 1999; Segal, Gemar, & Williams,
1999; Riskind & Rholes, 1985; Van der Does, 2002; Williams, Connolly, & Segal, 2001). Furthermore, other studies have evaluated the effect of mood on self-reported personality dimensions (Enns et al., 2000), self-schemas (Kelvin, Goodyer, Teasdale, et al., 1999), and information use in judgements of relationship satisfaction (Conway & Hassebrauck, 1997), inducing mild dysphoria. A recent study of Haaga et al. (2002) suggested that insecure attachment is a stable correlate of depression and not an artefact of current sad mood. Previous findings also indicated that induced depressed mood levels are within the range found in participants with clinical depression (Fox et al., 1998; Goodwin & Williams, 1982; Martin, 1990; Matt, Vazquez, & Campbell, 1992), suggesting some ecological validity.

In conclusion, the present study aimed at analysing the effect of mood on self-reported measures associated with depression and marital distress, measured in a non-clinical population. If this comorbidity reflects a stable concordance, then there should be no difference between depressed-mood and neutral-mood participants in the self-rated measures. If these associations are in part a mood-state artefact, as could be hypothesised on the basis of research on mood-congruent recall, then a depressed-mood condition group should score significantly differently on the selected measures in comparison with the neutral-mood participants.
Method

Subjects

Couples for this study were recruited through advertising in local media and public service announcements (newspaper advertisements, radio and television appeals). Couples had to be married or cohabiting for at least one year. In total, 70 couples responded. In the total sample, the male participants ranged in age from 19 to 74 years (mean = 34.8 yrs, SD = 13.3 yrs). The female participants ranged in age from 19 to 69 years (mean = 32.6 yrs, SD = 12.2 yrs). Participants on average had been together with their current partner for 7.6 years. Of all the couples, 62% had no children, 32% had one or two children, and 6% had 3 children.

Procedure

The study was presented as a study on individual and marital topics. Participants were tested in group17. We explained briefly that the partners would be completing various independent questionnaires during several phases. The male and female partners of each couple were seated separately, and they were assured that neither their partner nor any other participant would be allowed to see their answers. They were also asked to answer all the questions as accurately as possible.

Phase 1: Pretest Measures and Questionnaires

During phase 1, participants initially completed a demographic information questionnaire and questions on past psychiatric history, former treatment or marital therapy. A selection of items of the current and past modules of the SCID-IV was administered to establish whether participants fulfilled DMS-IV depression criteria now or at any time in the past.

17 5 groups of 2 couples, 4 groups of 3 couples, 4 groups of 4 couples, 1 group of 5 couples, 1 group of 6 couples, 3 groups of 7 couples.
Participants were then exposed to two separate mood induction procedures (MIP). To evaluate the effectiveness of mood induction, we compared the mean score of the manipulation check measure for a depressed group (depressed MIP) with a neutral control group (neutral MIP) (see also Gerrads-Hesse et al., 1994; Martin, 1990). For both conditions and for both inductions, the same extracts of music have been used by authors in previous studies and in both cases successfully manipulated the required mood states (for review see Gerrards-Hesse et al., 1994). Musical selections were drawn from those used by Fox et al. (1998), Gemar, Segal, Sagrati, et al. (2001), Kelvin et al. (1999), and McCabe, Gotlib, & Martin (2000)\(^\text{18}\). Both mood induction procedures were understood and no participants rejected the experiment due to the complexity of the task.

For Induction of Depressed Mood: Based on techniques used by Haaga et al. (2002), Ingram & Ritter (2000), Kelvin et al. (1999), Segal et al. (1999), Teasdale & Dent (1987), Van der Does (2002), and Williams et al. (2001), and we asked the participants to listen to a selection of sad music and recall a sad event in their lives. This type of induction, combining elements of music associated with sad mood and autobiographical recall has been found to be effective across 70% of adult subjects (ranging from 30% to 93%) (Gerrads-Hesse et al., 1994; Martin, 1990). The autobiographical component was a modification of the original procedure, included following a try-out with 8 couples. The latter revealed that a singular manipulation through music did not result in between-group differences, whereas a combined

\(^{18}\) The depression cd included: Barber “Adagio for Strings” (Fox et al., 1998; first focus of 7 minutes); Beethoven Sonata no.4; Albinoni “Adagio in G minor” (Fox et al., 1998; McCabe et al., 2000; second focus of 7 minutes); Beethoven Op. 131 for Strings (Gilboa-Schechtman, Revelle, & Gotlib, 2000); Prokofiev: “Russia under the Mongolian Yoke” (The Field of the Dead) (Fox et al., 1998; Gemar et al., 2001; Kelvin et al., 1999); Grieg: Peer Gynt Suite nr. 1 – 2: The Death of Ase; Sibelius: The Swan of Tvonela. The neutral cd included Chopin: Waltzes nos. 11 and 12 (Startup & Davey, 2001). The elation cd included Smetana “Moldau”, Grieg: Peer Gynt – Morgenstimmung, and Mozart “Eine kleine Nachtmusik”.
manipulation of music and autobiographical recall (imagination) did\textsuperscript{19}. Moreover, there was no daylight, due to the use of blackout curtains, and only artificial light was used for illumination (Startup & Davey, 2001).

\textit{In the instructions of depressed MIP, subjects were told:}

“Today I want to study your ability to change your mood at will. I would like you to try to get into a depressed mood. You can use images and a sad memory to help you get into the mood. I will give you several minutes to do this, and the music you will hear is designed to help you get into that mood. You should try hard to get into the mood of depression, but also, be honest when you rate your mood later. So, if your mood doesn’t change, your ratings should show that” (Slyker & McNally, 1991). Subjects were then asked to close their eyes and to recall one autobiographical mood-evoking event that made them feel sad and then to think about the experience while getting “a picture in your head of everything that happened and how you felt” (Slyker & McNally, 1991).

\textit{For Induction of Neutral Mood:} A neutral mood induction procedure was used to gain measures as near as possible to the subjects’ baseline state, assumed to be in a neutral emotional state. The neutral group listened to music that previous research had indicated produced no significant changes in mood (Chopin’s Waltz). There was full daylight in the room, without any instruction.

In summary, the procedure can be described as followed:

A. First, a combined mood induction of music (autobiographical recall in depressed condition) and environmental manipulation was applied. This induction lasted approximately 7 minutes, a time period shown to be sufficient to induce mood shift in previous research.

\textsuperscript{19} In addition, our pilot study suggested that the context of our study did matter, influencing the effectiveness of the mood manipulation and the evaluation of the selected music. Participants in the depressed mood condition during the pilot study described the depressive music as “romantic” and “intimate” (instead of “sad” in the depressed condition afterwards). Since the study was presented as a study on marital topics, recruiting couples who had been together for at least one year, it is possible that this context influenced the mood and expectations of the participating couples in a positive, romantic way.
B. Second, partners of each couple were asked to independently complete a standard battery of questionnaires, still listening to the recordings of music consistent with the intended mood, in the same environment. In other words, unlike previous studies, the musical and environmental manipulation was not ended after 7 minutes. Instead, we continued to play a selection of music designed to retain the appropriate mood, and the volume was adjusted to a comfortable level. All participants listened to the selected music for approximately 30 to 40 minutes, the time required to fill out the questionnaires.

A. Twenty minutes after the start, a second mood induction was administered, identical to the first induction (during 7 minutes). Participants were told to take a break from writing, and required to listen closely to the music (the volume was adjusted to a higher level), recalling the same sad event in the depressed condition.

B. After 7 minutes, the volume was adjusted to a lower level, and all participants completed the remaining questionnaires. At the end of this session, participants were asked to evaluate the questionnaires (including adjectives such as difficult, easy, pleasant, challenging, enervating, agreeable, wearisome, interesting, long, confusing, clear and boring) and the music (including adjectives such as fascinating, threatening, boring, pleasant, moving, enervating, sad, exciting, aggressive, noisy and unnoticed). They had to score each adjective on a 5-point scale, 1 = not at all, 5 = very much. Participants were asked if they recognised the music recordings, (and if the music reminded them of a specific event).

**Affect Ratings**

Participants completed several standardised mood rating scales. We used a Dutch translated and shortened version of the Profile Mood states (POMS; McNair, Lorr, & Droppleman, 1971; Wald, 1984), consisting of eight depression, seven anger, six fatigue, five vigour, and six tension items. Participants gave their ratings of current mood repeatedly throughout the experiment, using 1 – 5 Likert-type rating scales, with the following anchor points: not at all (1) – extremely (5). Mood checks were
made at baseline, and before and after each mood induction procedure, to assess how successful and specific the procedure had been in inducing the desired mood. 20

**Relationship and Individual Measures (Criterion Variables)**

The survey consisted of a standard battery of questionnaires, including several individual and relationship measures. Relationship measures included the Dyadic Adjustment Scale (DAS, Spanier, 1976; translated and adapted version, see also Buysse & Heene, 1997; dyadic adjustment based on satisfaction, cohesion, consensus and affectional expression); the Maudsley Marital Questionnaire (MMQ, Arrindell, Boelens, & Lambert, 1983; as a check on relationship satisfaction), the Communication Patterns Questionnaire (CPQ, Christensen & Sullaway, 1984; translated and adapted version, see also Buysse & Heene, 1997; constructive communication, demand-withdraw communication, and mutual avoidance), the Relationship Attribution Measure (RAM, Fincham & Bradbury, 1992; translated and adapted version, see also Buysse & Heene, 1997; attribution style for partners’ behaviours), and the Relationship Beliefs Scale21 (RBS; Fletcher & Kinninmonth, 1992; factors of successful relationships, e.g. intimacy, individuality, external factors and passion).

Measures focusing mainly on individual aspects included the Adult Attachment Scale (AAS; translated and adapted version, see also Buysse & Heene, 1997; Collins & Read, 1990; avoidant, anxious-ambivalent and secure attachment), and the NEO Five-Factor Inventory (the NEO-FFI, Costa & McCrae, 1992; Hoekstra, Ormel, & de Fruyt, 1996; neuroticism, extraversion, openness, agreeableness and conscientiousness). In the present sample, the internal consistencies of the relational and individual measures varied from .64 to .97. The questionnaires were always administered in the following order: the NEO-FFI, the AAS, the MMQ, the CPQ, the DAS, the RAM, and the RBS.

20 Time 1: after the pretest measures, before the first mood induction; time 2: after the first mood induction; time 3: after 20 minutes, before the second mood induction; time 4: after the second mood induction; 5: at the end of the experiment.
21 In addition to personality traits, attributions, communication and attachment, the effect of mood on self-reported relationship beliefs was also analysed.
Phase 3: Positive Mood Induction and Posttest Measures

Once both partners of the couple had completed the questionnaires, they were led to another room. Participants were then offered a positive mood induction or mood booster, to lift or counteract any residual mood effects of the previous phase (see also Martin, 1990; Bradley et al., 1997). They were asked to complete a neutral task (a geometric figure task), listening to cheerful music again followed by the POMS (time 5). At the end of this session, they were asked to evaluate the music and the questionnaire (see also phase 2, the same adjectives and 5-point scales). Finally, all participants were thoroughly debriefed about the global aim of the study, again checking that the mood had returned to normal at the end. We thanked them for their participation and paid travelling allowances.

The ethics committee of the University of Ghent, Faculty of Psychology, approved the protocol of this study.

Results

Analyses were conducted to assess if there were associations between age, SES, gender, and pre- and post-mood induction. As would be expected, the depressed and neutral groups did not differ significantly in demographic variables. Based on a selection of SCID items, none of the participants was currently depressed and only eight participants had been depressed in the past.

Effectiveness of Mood Induction

Analyses were conducted to assess the effectiveness of the mood induction in increasing a sad mood. Table 1 presents the mean values of depression, anger, fatigue, tension and vigour before the first MIP (time 1), immediately after the first MIP (time 2), during completion of the questionnaires and before the second MIP (time 3), after the second MIP (time 4), and after the mood booster, at the end of the experiment (time 5).
Table 1

*Mean values of depression, anger, fatigue, tension and vigour across the five time points*

<table>
<thead>
<tr>
<th>POMS</th>
<th>Neutral MIP Means (sd)</th>
<th>Depressed MIP Means (sd)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Depression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>11.19(1.67)</td>
<td>9.68(1.52)</td>
</tr>
<tr>
<td></td>
<td>11.10(94)</td>
<td>9.32(1.53)</td>
</tr>
<tr>
<td>2</td>
<td>8.81(.50)</td>
<td>8.81(60)</td>
</tr>
<tr>
<td>3</td>
<td>8.84(.56)</td>
<td>8.77(.79)</td>
</tr>
<tr>
<td>4</td>
<td>9.84(.67)</td>
<td>9.55(.79)</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>9.84(1.42)</td>
<td>9.29(1.37)</td>
</tr>
<tr>
<td></td>
<td>9.80(.79)</td>
<td>9.19(1.45)</td>
</tr>
<tr>
<td>3</td>
<td>8.35(.50)</td>
<td>7.97(.68)</td>
</tr>
<tr>
<td>4</td>
<td>8.13(.55)</td>
<td>7.74(.64)</td>
</tr>
<tr>
<td>5</td>
<td>8.87(1.46)</td>
<td>9.06(.81)</td>
</tr>
<tr>
<td>Fatigue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>9.19(.22)</td>
<td>8.64(.16)</td>
</tr>
<tr>
<td></td>
<td>9.09(.78)</td>
<td>8.26(.19)</td>
</tr>
<tr>
<td>3</td>
<td>8.09(.65)</td>
<td>8.42(.58)</td>
</tr>
<tr>
<td>4</td>
<td>8.19(.68)</td>
<td>8.06(.58)</td>
</tr>
<tr>
<td>5</td>
<td>8.16(1.21)</td>
<td>7.61(.47)</td>
</tr>
<tr>
<td>Vigour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>17.09(.98)</td>
<td>17.23(.102)</td>
</tr>
<tr>
<td></td>
<td>17.35(.67)</td>
<td>17.81(.99)</td>
</tr>
<tr>
<td>3</td>
<td>15.55(.85)</td>
<td>15.39(.65)</td>
</tr>
<tr>
<td>4</td>
<td>15.48 (.84)</td>
<td>15.90 (.72)</td>
</tr>
<tr>
<td>5</td>
<td>15.74(.95)</td>
<td>15.26(.81)</td>
</tr>
<tr>
<td>Tension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td>10.47(.33)</td>
<td>9.93(.22)</td>
</tr>
<tr>
<td></td>
<td>10.87(.86)</td>
<td>9.83(.31)</td>
</tr>
<tr>
<td>3</td>
<td>8.37(.62)</td>
<td>7.43(.64)</td>
</tr>
<tr>
<td>4</td>
<td>8.17(.59)</td>
<td>7.40(.62)</td>
</tr>
<tr>
<td>5</td>
<td>8.10(1.25)</td>
<td>7.70(.72)</td>
</tr>
</tbody>
</table>

* p < .05  ** p < .005  *** p < .001  **** p < .0001

Note: time 1 = before 1st MIP, time 2 = after 1st MIP, time 3 = before 2nd MIP, time 4 = after 2nd MIP, time 5 = after mood booster
To understand the interactions between time, mood and condition, we conducted five three-factor Manovas ($2 \times 2 \times 5$) for each mood, with condition (depressed or neutral MIP) as between-couple factor, and sex (male or female) and time (5 times) as within-couple factors. For depression, the interaction between time and condition was significant ($F (4, 58) = 11.34, p < .0001$, as were the main effects for time ($F (1,60)= 17.15, p < .0001$) and condition ($F (1,60) = 10.53, p <.001$). For anger, the interaction between time and condition was significant ($F (4, 58) = 4.45, p < .001$), as were the main effects for time ($F (1,60) = 8.15, p < .001$) and condition ($F (1,60) = 6.19, p < .001$). For fatigue the main effects for time ($F (1,60) = 2.65, p < .05$) and condition ($F (1,60) = 9.00, p < .001$) were significant. For vigour, the interaction between time and condition was significant ($F (4, 58) = 11.37, p < .0001$, as were the main effects for time ($F (1,60) = 5.12, p < .001$) and condition ($F (1,60) = 2.53, p < .05$). For tension, there was a main significant effect for time ($F (1,60) = 8.71, p < .0001$).

The main effects of condition revealed an overall difference between couples in the depressed and the neutral MIP. Univariate follow-up analyses confirmed that the differences between neutral and depressed MIP sustained at time 2 for depression ($t (60) = -4.61, p < .0001$), vigour ($t (60) = 4.37, p < .0001$) and anger ($t (60) = -2.95, p < .001$) at time 3 for depression ($t (60) = -2.16$), and at time 4 for depression ($t (60) = -5.59, p < .0001$), vigour ($t (60) = 2.10, p < .05$) and anger ($t (60) = -3.61, p < .001$).

The five mood scales were not significantly different for the depressed and the neutral MIP at baseline (time 1) and at the end of the experiment (time 5).

Significant interactions between time and condition occurred for depression and vigour, as expected. Additionally, there was a significant interaction between time and condition for anger. Figures 1 to 3 illustrate the mood changes.
Mood Induction

Depression

Anger

Vigor
To assess mood change during the session, a priori contrasts between time 1–2, time 2–3, time 3–4, and time 4–5 were conducted for depression, vigour and anger, analysing interaction effects between time and condition.

For depression, a priori contrasts indicated that there was a significant mean increase in depression immediately after the first MIP for the couples in the depressed MIP condition (between time 1 and 2, interaction effect time x condition: $F (4, 58) = 9.66, p < .001$), whereas this was not the case for couples in the neutral MIP condition. Depression also significantly decreased during completion of the questionnaires for couples in the depressed condition (between time 2 and 3, interaction effect time x condition: $F (4, 58) = 12.61, p < .001$), whereas no significant differences were found for couples in the neutral condition. There was a significant mean increase after the second mood induction for the couples in the depressed MIP condition (between time 3 and 4, interaction effect time x condition: $F (4, 58) = 18.62, p < .0001$), whereas no differences were found for couples in the neutral MIP condition. Next, there was a significant mean decrease of depressed feelings only for couples in the depressed MIP condition (between time 4 and 5, interaction effect time x condition: $F (4, 58) = 7.79, p < .05$), and no differences were found for couples in the neutral condition.

A similar but reversed pattern was observed for vigour. A priori contrasts indicated a significant mean decrease immediately after the first mood induction (between times 1 and 2, $F (4, 58) = 16.45, p < .0001$), a significant increase during completion of the questionnaires (between times 2 and 3, $F (4, 58) = 20.85, p < .0001$), and a significant mean decrease after the second mood induction (between times 3 and 4, $F (4, 58) = 15.28, p < .0001$). Between times 4 and 5, a significant mean increase occurred until completion of the experiment ($F (4, 58) = 4.19, p < .05$). All these effects were only revealed by the couples in the depressed mood condition, whereas no differences were found for couples in the neutral mood condition.

Additionally, a priori contrasts also indicated that there was a mean decrease in anger after the first mood induction for couples in the depressed MIP condition (between times 2 and 3, $F (4, 58) = 4.54, p < .05$), followed by a significant mean increase during completion of the questionnaires (between times 3 and 4, $F (4, 58) = 11.96, p < .001$). However, this increase was not sustained until completion of questionnaires.
These significant differences were not found for couples in the neutral mood condition.

In conclusion, the mood manipulation was effective as participants in the depressed mood condition reported more depressed feelings after both depressed MIPs, compared with the neutral MIP. As expected, similar but reversed differences were observed for vigorous feelings, even with stronger effects. These significant group differences in mood ratings between couples in the depressed and neutral mood condition were sustained upon completion of the questionnaires. The depressed MIP was also associated with increased anger, but these effects were smaller and not maintained. Furthermore, this mean increase occurred during completion of the questionnaires (between times 2 and 3), and it seemed that the negative music also induced small effects of anger, replicating other findings (see also Martin, 1990; Williams et al., 2001).

Finally, the post-experimental mood check or final set of POMS measures, taken after the last geometric figure test, showed no significant differences between the depressed and neutral MIP groups, indicating no persistent effects of the MIP.

---

22 Participants evaluated the questionnaires mainly as easy and interesting. The music in the depressed (mood induction) condition was described as sad, in the neutral condition as unnoticed, and in the positive mood induction condition as exciting or unnoticed. Twenty six percent of the participants recognised the music recordings.
Effects of Mood Manipulation on Relationship and Individual Measures (Criterion Variables)

As noted in Table 2, the depressed-MIP and neutral-MIP group did not differ in their self-rated scores on attachment style, personality traits, attribution style, communication patterns, dyadic adjustment and relationship satisfaction. For relationship beliefs, the results were almost all similar across the two mood induction conditions, with one exception, namely the “passion-scale” of the RBS (F (1, 60) = 5.57, p < .05). There was no significant interaction between Sex x Condition, indicating that a negative mood did not have differential effects on men and women. Additionally, a main sex effect was found for extraversion (F (1, 60) = 7.35, p < .01), for neuroticism (F (1, 60) = 5.84, p < .01), indicating higher levels for the female participants.

---

23 Bivariate correlation analyses between the POMS-depression and the criterion variables yielded no significance. In addition to the absence of group differences, these analyses reveal that depressed mood is not related to answer patterns in self-reports of communication, relationship satisfaction, personality traits, attributions, attachment style and relationship beliefs.
Table 2  
**Effects of Mood Manipulation on relationship and individual measures (criterion measures)**

<table>
<thead>
<tr>
<th></th>
<th>Neutral MIP</th>
<th>Depressed MIP</th>
<th>F Sexe (1,60)</th>
<th>F MIP (1,60)</th>
<th>Sexe × MIP (4,58)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAS</strong></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>116.5(2.10)</td>
<td>117.4(2.67)</td>
<td>114.5(2.10)</td>
<td>115.1(2.67)</td>
<td>.12</td>
</tr>
<tr>
<td><strong>MMQ</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfact</td>
<td>11.32(1.41)</td>
<td>12.19(1.94)</td>
<td>11.16(1.42)</td>
<td>11.61(1.94)</td>
<td>.25</td>
</tr>
<tr>
<td>Sex</td>
<td>7.16(1.20)</td>
<td>7.87(1.40)</td>
<td>8.67(1.20)</td>
<td>10.39(1.40)</td>
<td>2.29</td>
</tr>
<tr>
<td>Life</td>
<td>8.03(9.7)</td>
<td>8.77(8.6)</td>
<td>9.58(9.7)</td>
<td>8.06(8.6)</td>
<td>.32</td>
</tr>
<tr>
<td>Total</td>
<td>26.51(2.65)</td>
<td>28.85(3.61)</td>
<td>29.75(2.65)</td>
<td>29.98(3.61)</td>
<td>.39</td>
</tr>
<tr>
<td><strong>CPQ</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construct</td>
<td>35.22(1.80)</td>
<td>35.19(1.48)</td>
<td>34.61(1.80)</td>
<td>32.51(1.48)</td>
<td>1.08</td>
</tr>
<tr>
<td>MD/WW</td>
<td>11.28(1.73)</td>
<td>10.29(1.01)</td>
<td>10.12(1.73)</td>
<td>9.16(1.01)</td>
<td>2.45</td>
</tr>
<tr>
<td>WD/MW</td>
<td>12.61(1.75)</td>
<td>11.61(1.93)</td>
<td>13.00(1.75)</td>
<td>12.19(1.93)</td>
<td>1.79</td>
</tr>
<tr>
<td>Avoidance</td>
<td>7.35(5.8)</td>
<td>7.45(6.3)</td>
<td>6.93(5.8)</td>
<td>7.61(6.3)</td>
<td>.59</td>
</tr>
<tr>
<td>Causal</td>
<td>22.57(1.01)</td>
<td>24.49(1.12)</td>
<td>23.31(1.01)</td>
<td>22.33(1.12)</td>
<td>.23</td>
</tr>
<tr>
<td>Respons</td>
<td>17.78(1.02)</td>
<td>19.38(1.14)</td>
<td>19.98(1.02)</td>
<td>17.74(1.15)</td>
<td>.08</td>
</tr>
<tr>
<td><strong>AAS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secure</td>
<td>19.93(6.9)</td>
<td>20.64(6.6)</td>
<td>19.64(6.9)</td>
<td>20.00(6.6)</td>
<td>.82</td>
</tr>
<tr>
<td>Ambival</td>
<td>13.03(5.8)</td>
<td>11.81(6.1)</td>
<td>11.68(5.8)</td>
<td>12.46(6.1)</td>
<td>.15</td>
</tr>
<tr>
<td>Avoidant</td>
<td>14.64(5.9)</td>
<td>13.48(6.7)</td>
<td>15.29(5.9)</td>
<td>14.10(6.7)</td>
<td>3.74</td>
</tr>
<tr>
<td><strong>Neo-FFI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreeable</td>
<td>42.26(9.8)</td>
<td>43.84(1.30)</td>
<td>42.93(9.8)</td>
<td>44.61(1.30)</td>
<td>2.35</td>
</tr>
<tr>
<td>Conscient</td>
<td>43.52(1.25)</td>
<td>44.06(1.18)</td>
<td>44.31(1.25)</td>
<td>44.03(1.18)</td>
<td>.01</td>
</tr>
<tr>
<td>Extravert</td>
<td>41.61(1.30)</td>
<td>44.48(1.18)</td>
<td>40.39(1.30)</td>
<td>43.64(1.18)</td>
<td>7.35**</td>
</tr>
<tr>
<td>Neurotic</td>
<td>29.90(1.43)</td>
<td>33.13(1.30)</td>
<td>31.55(1.43)</td>
<td>34.77(1.30)</td>
<td>5.84**</td>
</tr>
<tr>
<td>Open</td>
<td>42.13(9.8)</td>
<td>40.00(9.8)</td>
<td>40.14(9.8)</td>
<td>41.71(9.8)</td>
<td>.25</td>
</tr>
<tr>
<td><strong>RBS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intimacy</td>
<td>43.17(7.7)</td>
<td>43.23(7.5)</td>
<td>42.99(7.7)</td>
<td>42.21(7.5)</td>
<td>.43</td>
</tr>
<tr>
<td>External</td>
<td>18.93(6.2)</td>
<td>17.98(4.5)</td>
<td>17.72(6.2)</td>
<td>17.82(4.5)</td>
<td>1.21</td>
</tr>
<tr>
<td>Passion</td>
<td>9.22(2.6)</td>
<td>8.89(2.6)</td>
<td>8.30(2.6)</td>
<td>8.51(2.6)</td>
<td>.10</td>
</tr>
<tr>
<td>Individual</td>
<td>9.51(2.2)</td>
<td>9.58(2.0)</td>
<td>9.01(2.2)</td>
<td>9.31(2.0)</td>
<td>.94</td>
</tr>
</tbody>
</table>

**Abbreviations:** MMQ-satisfact = satisfaction; CPQ-construct = Constructive communication; CPQ-MD/WW = Man-Demand/Woman- Withdrawal; CPQ-WD/MW = Woman-Demand/Man-Withdrawal; RAM-respons = responsible; AAS-Ambival= Ambivalent Attachment; NEO-conscient=conscientious

* *p < .05  ** *p < .01
Discussion

The main goal of the present study was to analyse the effect of mood on self-reported measures, evaluating the concordance of depression and marital distress under condition of neutral and negative emotion in a non-clinical population. During the experiment, we applied a combined experimental mood induction procedure, based on music, autobiographical recall and environmental manipulation. However, the music and environmental manipulations were not limited to a small time interval (7 minutes). Instead, all participants listened (in the same room) to the selected music for the time required to fill out the questionnaires, maximising the potential mood induction effects. Consequently, the mood manipulation was highly effective, resulting in specific effects on the mood measures and significant group differences that were sustained during the entire experiment. The participants in the depressed mood condition reported significantly more depressed and less vigorous feelings, compared to participants in the neutral mood condition (see also Gerrards-Hesse et al., 1994; Martin, 1990). The negative music also induced small effects of anger, replicating other findings (see also Martin, 1990; Williams et al., 2001). There were no significant group differences between the depressed and neutral MIP groups at baseline and after the mood booster, at the end of the experiment.

As stated earlier, we aimed at varying participants’ mood states in order to analyse the effect of mood on the selected self-reported measures (attachment style, personality traits, attribution style, communication patterns, dyadic adjustment, relationship satisfaction and relationship beliefs), comparing the findings in the two conditions. If these indicators reflect a stable concordance between depression and marital distress, then there should be no difference between depressed-mood and neutral-mood participants. Instead, if these associations are in part mood-state artefacts or based on mood-congruent recall, then the depressed-mood condition group should score significantly differently in comparison with the neutral-mood participants. The consistent finding in this regard was that the depressed-MIP and neutral-MIP groups did not differ in their self-rated scores on attachment style, personality traits, attribution style, communication patterns, dyadic adjustment and relationship satisfaction. The present study therefore supports the hypothesis that these variables represent a stable concordance between depression and marital distress, and the recognition of this comorbidity has important clinical significance.
For relationship beliefs, results were almost all similar across the two mood induction conditions, with one exception, namely the “passion-scale”. In other words, participants in the depressed-MIP group found passion less important in successful relationships, compared to the neutral–MIP participants.

Taken together, this study is the first demonstration of experimental mood induction used to analyse the effects on several selected individual and relationship measures at once. Our results imply that if clinicians assess specific attachment style, personality traits, attribution style and communication deficits among depressed and/or maritally distressed people, they can be confident that the results do not solely reflect reactions to transient mood states. In other words, our data suggest that the reported individual and relational measures are not mood-state dependent artefacts but stable findings, with no group differences between the depressed and neutral mood condition.

As stated earlier, the music and environmental manipulation were continued during the time required to fill out the questionnaires, with significant group differences that were sustained during the entire experiment. However, the combined depressed MIP give rise to a depressive mood that decreased, resulting in a smaller level of depressive mood before the second mood induction. One explanation could be that participants’ attention in the depressed mood condition was diverted from the negative music and environmental manipulation during completion of the questionnaires. It could be suggested that subjects needed all their attention to fill out the questionnaires, with a significant decrease of depressed feelings. This result parallels previous research with clinical depression, showing that a diversion of attention - through an increased activity level - can benefit the mood state of depressed patients under certain conditions. In this context, passive behaviour led to a lower reinforcement in the maintenance of a depressed mood, and an increase of activity level was associated with improvements in mood (e.g. Beck, Rush, Shaw et al., 1979; Lewinsohn, 1975; Jacobson et al., 1991). This finding supports the stability of self-reported measures of induced and clinically depressed subjects. However, future research including a (clinical) control group without questionnaires might provide even stronger evidence.
The present study raises some methodological concerns that warrant consideration in the interpretation of these findings. First, the total sample size was fairly small, and some caution must therefore be exercised in any attempts to generalise these findings. Second, there are some drawbacks concerning the use of mood induction techniques. One criticism that could be made is that, although significant group differences were sustained during the experiment, only a small level of intensity of mood was produced. It would be of interest to compare the intensity of naturally occurring clinical depression with that of an equivalent induced state (Martin, 1990). Nevertheless, the usefulness of a laboratory induced mood as an analogue to clinical depression in adults depends in part on confidence in generalising from lower levels of depression to higher levels (Fox et al., 1998). In this context, Clark (1983) reviewed evidence for similar effects of music procedures over a wide range of behaviour, including psychomotor retardation, loss of pleasure, helpfulness, behaviour in social situations, illusion of control, facial electromyography etc. (Clark, 1983; Martin, 1990). Previous research also indicated that induced depressed mood levels are within the range found in participants with clinical depression, equivalent to a small – intermediate clinical level (Fox et al., 1998; Goodwin & Williams, 1982; Martin, 1990; Matt et al., 1992).

Furthermore, it has been suggested that the effects observed may be artefactual in that subjects may not really change mood but simply report doing so in order to comply with experimental demands (demand-effect of the instructions, see also Buchwald, Strack & Coyne, 1981; Kwiatkowski & Parkinson, 1994; Martin, 1990; Polivy & Doyle, 1980). However, there is sufficient evidence against the demand-effects hypothesis, such as the occurrence of mood effects that subjects are unlikely to simulate (e.g. eye movements, skin conductance), or the occurrence of mood effects even when subjects are unlikely to know that their behaviour is being observed, or when they are asked to simulate depression (Alloy, Abramson, & Viscusi, 1981; for review, see also Martin, 1990). Thus, although it is possible that demand characteristics can contribute to the power of the mood induction procedure (indeed “demand” is explicitly used in our instructions to become fully involved in the depressed mood), it has not been shown that participants are simply pretending to feel depressed (Goodwin & Williams, 1982). When a subject is aware that a particular mood is being induced, there is a higher success rate (see also our pilot
study), with the advantage, ethically, that the subject is aware of the way in which his or her mood is being manipulated (Martin, 1990).

In conclusion, this study confirmed the stability of the concordance between depression, marital distress and several psychosocial concomitants. The use of a combined mood induction procedure is clearly supported, and our findings suggest a direction in which future empirical studies could occur. For example, continued exploration of these associations could extend our knowledge of depression. What mood induction research offers is a method of studying the covariation of different components of depression under controlled conditions. In this context, there seems to be consensus that integrating psychosocial and cognitive perspectives will enhance the knowledge of the processes involved in the onset, maintenance and relapse of depression (Martin, 1990). Furthermore, research on mood-congruent recall also indicated incongruent recall in specific situations, with no evidence of effect of depressed mood in recall of early childhood memories, and a bias confined to events that had taken place in the recent past. It is suggested that mood may only be an effective extra cue in the search for memories that do not so readily come to mind (Williams et al., 1997). Future research is needed to determine the specificity of these differences, analysing the impact of the content of recalled material and the mood of the subjects on memory and other measures (Williams et al., 1997).
References


Mood Induction


Chapter 7

General Discussion
Introduction

This dissertation moved beyond the simplistic suggestion that marital distress alone is a sufficient explanation for depression, or vice versa. Instead, a particular class of third variables was emphasised. We decided to select conflict communication, attribution style, attachment, and personality traits – all potentially specific concomitants of depression, marital distress, or of the relationship between them. The different studies reported in this dissertation were all aimed at investigating our main research question: what is the role of the selected third variables in the association between depression and marital distress? More information about each of these third variables and their mutual relationships was gathered, as well as information about their mediational and moderational role in the association between depression and marital distress (chapter 5). In addition, several recent caveats from previous studies were considered.

Firstly, both a categorical and dimensional perspective was taken into account, studying depressive symptoms (dimension) as well as diagnosed depression (category) in association with marital distress. This also implied different research designs, with group differences - (chapter 2, 3, 5) for a categorical perspective and correlation and factor analyses for a dimensional perspective (chapter 2, 4, 5).

Secondly, we assessed both spouses’ perceptions and included several individual and relational variables, as well as the level at which they occurred, i.e. at individual or at couple level.

Finally, this dissertation concluded with the second research question about the validity of self-report measures (chapter 6), addressing the issue that mood or marital distress can act as a distinctive “state” or “context” which affects self-reported scores. The restrictions with regard to the different studies are discussed in the respective chapters of this dissertation. In this final chapter, the five studies are reviewed and general conclusions are drawn.
Main Findings

In order to confirm the distinction between the *individual* and *relational* measures, a global factor analysis was conducted in *Chapter 2*. In addition, we studied the relationship between marital distress and depression as a *variation in symptoms*, allowing us to see depressive complaints in terms of severity. We found that the individual characteristics co-varied with mild depression, whereas couple characteristics only came into the picture in function of the degree of depressive complaints. In other words, the lowest levels of depressive complaints were merely associated with individual comorbidity, whereas increasing complaints went along with additional relational complaints, suggesting negative reciprocity in distressed couples across levels of depression. Moreover, couples with a depressive spouse presented significantly higher levels of demand-withdrawal, higher levels of dysfunctional attributions, lower levels of constructive communication, and a lower level of marital adjustment, all occurring at couple level. These results underscore the burden experienced by the partner. The need to focus on the “depressive couple” in terms of clinical practice is discussed in a later section.

*Chapter 3* identified correlates of depression, marital distress as well as for both of these conditions, separating marital distress from depression as a *diagnosable* disorder, and *individual from couple* effects. Although couples suffering from depression revealed dysfunctional relational patterns, we found no evidence for dysfunctional relational patterns associated with depression. Nor did we find dysfunctional individual variables unique to marital distress. More specifically, congruent with our analyses, neuroticism and extraversion were found to be individual correlates of depression. Dysfunctional, causal and responsible attributions were relational correlates of marital distress, whereas avoidant attachment, ambivalent attachment, woman-demand/man-withdrawal communication and mutual avoidance were concomitants of depressed subjects in distressed relationships. In other words, depression and marital distress are associated in several ways. It is therefore important to recognise the interaction of individual vulnerabilities and relational processes.
Chapter 4 intended to examine the validity of the previous model of concomitants in clinical and non-clinical samples. We analysed the stability of a two-factor model based on our previous findings and found that this model of depression and marital distress provided a good fit to the data in all samples. In addition to the general fit, values of individual parameter estimates confirmed that neuroticism and extraversion were significantly by depression, whereas causal and responsible dimensions of attribution were significantly by marital distress. However, results were more complicated for attachment style and communication, with different factor loadings across the four subsamples, both with regard to depression and marital distress. Although the two-factor model has served as a useful model with a good fit to the data, future studies hould focuss on new models, especially with exclusive tests of the patterns of associations between attachment, conflict communication, depression and marital distress.

Obviously, our data are by no means conclusive. Future studies are needed to investigate the association between these variables as well as their contributions to the relationship between depression and marital distress. Therefore, in chapter 5, we looked for common antecedents, mediators and moderators of the association between depressive symptoms and marital adjustment. This study found evidence for the mediational role of demand-withdrawal and causal attributions, suggesting that these variables account for the association between depressive symptoms and lower levels of marital adjustment. In addition, extraversion was found to be a common antecedent of depressive symptoms and marital distress. However, although the significant relationship between depressive symptoms and marital adjustment became nonsignificant when the antecedents and mediators were introduced, the reduction in significance was not significant. Our results should therefore be interpreted with caution.

In general, our findings pointed to the same conclusions, and progress in our understanding of the link between depression and marital distress can benefit from considering them together. Firstly, neuroticism and extraversion were concomitants of depression, consistently situated on an individual level, as characteristics of depressed individuals. Based on personality studies, these traits might most profitably be viewed as a marker, an initiating condition that might lead to later depression, even marital distress. In addition, extraversion was found to be a
common antecedent of both variables. Introversion might lead to depressive symptoms and marital conflicts, based on overlapping paths of depression and marital distress. However, individual vulnerabilities do not directly cause pathology, they might confer an additional vulnerability to individual or relational distress, which will be discussed later.

Secondly, dysfunctional attributions were concomitants of marital distress on a couple level, as a characteristic of distressed relationships. This is in line with previous studies, and the causal status of attribution in association with marital distress has well been documented. Bradbury & Fincham (1990) also concluded that negative attributions by one spouse, regarding his or her spouse’s behaviour, are cross-sectional and prospectively associated with marital dissatisfaction. Moreover, the present study focussed on attributions for spouses’ behaviour for negative relationship events, and higher scores on the RAM reflected a tendency to judge the partners’ actions critically. Furthermore, until now, results offered no consistent support for the idea of enduring relational attributional styles or traits, and they seem to change linearly, strongly associated with changes in marital satisfaction within each spouse and relationship. Nevertheless, according to Bradbury & Fincham (1990, 1993), initial levels of attributions predicted changes in marital satisfaction more than initial satisfaction predicted changes in attributions, and further replication is needed. In addition, causal attributions were found to be significant mediators of the link between depressive symptoms and marital distress, and it is tempting to assume that similar distorted cognitive processes may underlie both depression and marital distress. As stated before, other studies indicated that those variables that are most relevant for depression do not necessarily overlap with the cognitive variables relevant to marital distress, suggesting cognitive specificity.

Thirdly, results were more complex for attachment style and communication as they demonstrated some of the complex issues that occur when studying individual differences in close relationships. Ambivalent attachment operated both at individual and at couple level, as a characteristic for depressive symptoms/clinical depression and marital distress. Avoidant attachment occurred only at individual level as a characteristic of depressed subjects in maritally distressed relationships. Conflict communication also occurred at both levels, being a characteristic of couples with a depressed partner and of depressed individuals in maritally distressed couples. Moreover, dysfunctional attachment and conflict communication had different factor loadings on both depression and marital distress. In addition, we found evidence for
the mediational role of demand-withdrawal for the association between depressive symptoms and marital distress. What do we learn from these findings? They seem to be in line with research and theory on individual differences in relational schemas, representing an interaction between depression and marital distress on both individual and relational level. For example, in terms of attachment theory, the adult romantic relationship serves the same base functions as the childhood relationship, and individuals with insecure attachment styles are at high risk for frustrating and tumultuous relationships, as well as depressive symptoms. In other words, individuals with negative, rejecting early experiences develop mental models of others that lead to discomfort with intimacy and beliefs that others are undependable. These internal working models may influence individuals’ cognitions and behaviours in a variety of interpersonal situations, engaging them in more or less stable interaction patterns, represented on an individual level, as more or less “trait like” patterns of security seeking and coping with anxiety (see also Reiss, Capobianco & Tsai, 2002). However, although individuals have a preferred style of relating to others within their close relationships, they do not have one single style, and characteristics such as attachment “styles” are not mutually conclusive. Based on the attachment theory, the attachment system is theorized to operate when the individual’s safety and security is threatened. Therefore, the typical expected behaviours and cognitions might be limited to those situations in which interpersonal conflict has occurred (Reiss et al., 2002). In other words, consistent with the assumption that individuals have various mental models, the situation partially influences which mental model is activated at a particular time (Zayas, Shoda & Ayduk, 2002). In this context, each partner within a close relationship is a significant part of the other partner’s situation, and there is a dynamic and interactive interplay between the individual and his or her close environment (Zayas et al., 2002). Moreover, individuals manipulate and shape their environment in order to confirm their views of self and others (Zayas et al., 2002). For example, a person with an avoidant attachment style will engage in less support-seeking behaviours, resulting in less helpful behaviour from his or her spouse. Secure individuals reported significantly more intimate behaviour with romantic partners (Reiss et al., 2002). Another example is the rejection and negative mood that depressed individuals tend to elicit over time from his or her spouse, who becomes frustrated (Benazon & Coyne, 2000). Furthermore, dysfunctional interaction patterns such as demand-withdrawal elicit reactions from the spouse that consolidate and elaborate these patterns, and this is a perfect example of an interaction pattern in
which one’s partner’s behaviour is a significant part of the other partner’s situation. These findings generally emphasize the importance of the dyad as the unit of analysis rather than on the individuals of the dyad in isolation, describing interpersonal behaviour in terms of “if...then....” contingencies, as a interaction between individual - more or less stable – properties and the situational input (Reiss et al., 2002, Zayas et al., 2002). Partners do modify their behaviour in response to the other, and after repeated encounters with the same type of behaviour, their mutual interdependence and influence grows. In this context, distressed couples often show negative reciprocity, also demonstrated in the present study, with relational dysfuctioning at couple level.

In summary, the present findings are consistent with other theories of individual and relationship functioning (e.g. the attachment theory, personality-in-context theory), hinting an integrative framework of behavioural interactions, cognitions and interpersonal processes. From these perspectives, personality traits such as neuroticism and introversion conferred a vulnerability to depression and anxiety, and several studies placed an emphasis on attachment in understanding the developmental trajectory of vulnerability of depression and marital distress. However, these characteristics must be seen as initiating conditions that might lead to later depression or marital distress, and psychopathology is not the simple sum of negative experiences. Similarly, individual vulnerabilities do not directly cause pathology, but for some individuals, the overlapping paths of depression and marital distress began early in life (Davila, 2001). These subjects may be more likely than others to evidence strong, ongoing associations between depression and marital distress. Vulnerability to depression may shape individuals’ circumstances and how they negotiate the course of their life or handle interpersonal difficulties (Coyne & Benazon, 2001) as well as the interpretation of these problems (Joiner, 2001). In other words, there are more or less stable differences in one’s relational schemas, and these differences are related to behaviours, sensitivities, susceptibilities and outcomes. As noted by Karney & Bradbury (1995), it would be difficult to imagine a marital model without individual histories and enduring traits that each spouse brings to the relationship (Reiss et al., 2002; Zayas et al., 2002). Nearly all relationship theories incorporate mechanisms by which experiences in past relationships affect current relationships, and internal working models and relational schemas based on prior relationships may apply to interaction with current partners (Reiss et al., 2002; Zayas et al., 2002).
On the other hand, these perspectives also suggest that these individual aspects are characteristics of an interpersonal system, not of an individual in isolation. As stated before, there is a dynamic and continuous interplay between individuals in close relationships, and one partner’s behaviour is a significant part of the other partner’s situation, and vice versa. This interactive dyadic system might influence the activation of specific cognitions and behaviours, the way in which interpersonal patterns become internalised as cognitive vulnerabilities, and the kind of interaction patterns that become established. Moreover, behaviours attributed to an individual arise out of the interactions between the individual and relational contexts, rather than form the qualities of each individual alone (Reiss et al., 2002). Individual characteristics unique to each person are embedded in a social context from which each person’s behaviours, as well as the behavioural patterns, emerge. Furthermore, it could be suggested that individual differences in the situations that people encounter are equally important processes contributing to stability in behaviours, especially for studies of individual and marital functioning. In this context, the personality-in-context framework (Zayas et al., 2002) suggests that there are intraindividual differences, as well as stable situational differences (if-then-contingencies). Individual behaviours influence the situations likely to be encountered in the future, and future situations to be encountered not only depend on one’s behaviour but also on how the person’s environment responds to the behaviour (Reiss et al., 2002: Zayas et al., 2002). In line with these findings, the concomitance of depression and marital functioning can be conceived as following relatively parallel courses and exerting reciprocal influences on one another through both intrapersonal characteristics, experiences and interpersonal interactions, embedded in a specific relationship and social context. Individual differences infer different conclusions about the organization accountable for individual differences in behaviour, and future studies should focus on the connection to how these individuals function in specific close relationships.

Finally, it could be inferred that individual vulnerability might originate in maladaptive interactions, thereby supporting the hypothesis that an identifiable group of individuals run an elevated risk of increased depressive symptomatology in response to marital difficulties. Of course, the hypotheses about individual styles, maladaptive patterns, mediators and moderators in the association of depression and
marital distress raise a number of issues that must be addressed in future studies (Davila, 2001). Investigations are needed to evaluate the risk of depression. This must be seen independently of the shared association with personality functioning, attachment style and other possible confounds, adding these variables to the marital models of depression. However, when interpreting the results of this dissertation, we should consider the fact that our cross-sectional data cannot uncover causal links. The present dissertation avoided the causality impasse between depression and marital distress. Also, we did not postulate any definitive conclusions about the susceptibility to depression or marital distress. Significant correlations do not indicate causal effects and we were unable to infer the direction of the effects. In future research, our findings need to be applied to longitudinal data, as discussed in a later section.

**Methodology**

The validity issue of self-report measures as described in our second research question was also addressed. As stated previously, it could be argued that the observed association between those two constructs could, at least in part, be an artefact of the use of self-report measures, for example as a result of depressed mood (Whisman, 2001). The measures used in this dissertation were based on spouses’ own report, and could be due, at least in part, to mood effects secondary to the presence of depression or marital distress. The reliance on cross-sectional, self-report data is an obvious limitation, and our findings might stem from both stable and context-dependent characteristics. We were sensitive to this psychometric issue. Chapter 6 described a study with an experimental mood induction procedure in a non-clinical population, applied in the laboratory, aimed at changing mood. If the association between depression and marital distress reflects a stable concordance, then there should be no difference between depressed-mood and neutral-mood participants in the self-rated measures. If these associations are in part mood-state artefacts, then a depressed-mood condition group should score significantly differently on the selected measures in comparison with the neutral-mood participants. We found that the mood manipulation was highly effective, resulting in reports of significantly more depressed and less vigorous feelings in the depressed mood condition. These significant group differences were sustained during the entire experiment. In addition, the results supported the hypothesis that these variables
represented a stable concordance between depression and marital distress, thereby suggesting that the reported individual and relational measures were not mood-state dependent artefacts but stable findings. Although significant group differences were sustained during the experiment, only a small level of intensity of mood was produced. We also discussed some methodological concerns that warrant consideration in the interpretation of these findings. In conclusion, this study confirmed the stability of the concordance between depression, marital distress and several psychosocial correlates, and the use of a mood induction procedure is clearly supported.

**Implications for Assessment and Clinical Practice**

Our findings were situated in one of the most fundamental issues in the nosological literature, namely the *continuity controversy* of psychopathology. However, the present dissertation did not intend to determine whether the structure of depression is categorical or dimensional. This issue is after all far more complicated. In this context, the relationship between self-reported distress and a diagnosis of depression has already been questioned (e.g. Fechner-Bates, Coyne, & Swenk, 1994; Coyne, Thompson, Palmer, et al., 2000, Coyne, Thompson & Racioppo, 2001). Moreover, certain research findings supported a dimensional model of depression, suggesting that depression may differ only quantitatively from normal emotional experience (Flett, Vredenburg & Krames, 1997). In contrast, others argued that symptoms of depression and diagnostic depression differ qualitatively, with different characteristics, causes and courses (Coyne, 1994; Whisman, 2001). Further research is clearly needed to clarify these differences and the disagreement regarding the latent structure of psychopathology is far from resolved (Ruscio & Ruscio, 2000). As noted by Meehl (2001) and several other researchers (e.g. Brown, 2001; Widiger & Clark, 2000), we believe that our results point to the importance of incorporating *dimensional elements into formal classification systems*. The concept of comorbidity and categorical syndromes is clinically meaningful, characterising important clinical phenomena with regard to non-psychopathological states. In addition, a dimensional perspective might add meaningful dimensional differences within typological entities. More specifically, we believe that a thorough assessment should incorporate the strengths of both perspectives, recognising the importance of *clinical comorbidity* as well as dimensional aspects such as *symptom severity*. 
Secondly, our findings support the need for assessing both spouses’ perceptions: it is important to examine couples’ data of both intra- and interpersonal characteristics. In order to understand a relationship, one must consider the perspectives of both partners. As stated by Reiss et al. (2002), a clinician cannot predict how often a client will behave in a particular way unless he knows something about the types of situations the person is likely to encounter in everyday life. In other words, it is important to know something about the person as well as the situations he or she is likely to encounter every day., taking into account both individual differences, interpersonal processes and the situational input. To understand a relationship, one must understand its typical interactions, which requires first an understanding of how the interplay of both partners’ predispositions affects interaction patterns (Reiss et al., 2002). Second, one needs to study how this interplay is influenced by the situational context (see also Zayas et al., 2002). This broader framework offers researchers and clinicians also a better way of understanding who is most likely to be at risk for depression and marital distress. In this context, a detailed assessment prior to treatment can inform the clinician whether more regular monitoring of depressive symptoms may be necessary. For example, clinicians treating partners who score high on dysfunctional conflict communication may want to include efforts to educate partners about the symptoms of depression, the potential association between communication and depression, and measures for preventing the onset of depressive symptoms (see also Cordova & Gee, 2001). If chronic maladaptive interpersonal patterns keep individuals at risk for depression and marital distress, then prevention programmes might want to assess individuals for the presence of these patterns, help couples identify their existence and implications, and include techniques designed to disrupt such patterns (Davila, 2001). In other words, targeted interventions should be developed with couples at risk because of certain susceptibilities. An assessment may provide clinicians with information about these characteristics when confronted with relationship deterioration, offering a potentially important point of intervention (see also Cordova & Gee, 2001).

Research also indicated that couples can gain an insight in or an understanding of the issues and needs underlying their destructive interaction patterns, which could be an important component for long-term maintenance of progress (Baucom, Shoham, Mueser, et al. 1998). Overall, a re-evaluation of treatment options and alternatives is an appropriate focus. Our results also suggested the potential of marital interventions
to influence an existing level of depressive symptomatology. The association of marital discord and depression has already led to several attempts to use *couple therapy as a treatment of depression* (Denton, Golden, & Walsh, 2003), classified into three types, based on the degree of involvement of the spouse. Firstly, some interventions are viewed as *partner-assisted interventions*, in which the partner is used as a coach to assist the identified patient (Baucom et al., 1998; Emmanuels-Zuurveen & Emmelkamp, 1996, 1997). Secondly, a *depression-specific couple intervention* targets the relationship when it appears to influence the depression directly, involving partners with the aim of educating them about the course, maintenance and nature of depression (Baucom et al., 1998). Thirdly, *couple therapy* is used when the relationship is viewed as a stressor that exacerbates the individual’s disorder for couples who experience co-occurring marital discord. Couple therapy is also considered when the depressed partner is more concerned about the marital problems, as having preceded and perhaps caused the depressive symptoms (Beach, Fincham, & Katz, 1998). In general, these treatment strategies seemed as effective as individual therapy in improving depression ratings, and better at improving marital functioning (Emmanuels-Zuurveen & Emmelkamp, 1996, 1997; Denton et al., 2003). However, some couples do not receive treatment that takes into account the nature of the specific problems they present and that is adapted to their needs. In this context, it should be possible to identify the individuals that respond better to a specific condition prior to treatment on the basis of the assessment of a small set of *individual and marital variables*, described in a previous section. In addition, specific interventions should incorporate the effects of depression on the lives of both the depressed individual, his or her spouse, and their daily life environment (see also Denton et al., 2003). Also, depression both affects and is affected by the couple’s ongoing day-to-day interactions (Coyne & Benanzon, 2001). Considering the degree of overlap of depression and marital distress, the therapist will be treating a dual diagnosis in more or less 50% of the cases. However, even when marital distress and depression co-occur, this observation should be the starting point for developing an understanding of a *particular case* (and not the conclusion) (Coyne & Benaznon, 2001), thereby resulting in specific interventions for certain vulnerabilities.
Implications for Future Research

Several lines for future research can be drawn. As stated previously, all variables were measured at one point in time, and our findings cannot be generalised across time or context for any given individual. Longitudinal evidence is required to determine the extent to which these findings show stability or change in time. Moreover, the degree of continuity of the present results cannot be determined from cross-sectional research. Longitudinal studies are needed to demonstrate the predictive value of these characteristics for the development of psychopathology. A further study of individual vulnerabilities promises to illuminate the pathways leading from vulnerable individuals to depressive symptoms and marital distress. The reciprocal influences between depression and marital distress will be best understood by integrating on the development of depression and previous relational dysfunction in addition to depression in the context of existing marriages (Davila, 2001). Theory and research concerning marital problems and depression need to acknowledge the powerful effects of depression on the course of a life and the current circumstances of those individuals who are vulnerable to the disorder. Such designs should take into account the influences of past depression as seen in current marital problems and of past marital problems as seen in current depression (Coyne & Benazon, 2001). In order to understand the sources of stability and instability of clinical depression in adult relationships, we need to consider these indicators in some detail. For example, although working models such as attachment may show some continuity in content over time, their structure is likely to evolve substantially from infancy to childhood and adulthood. Little empirical evidence exists about how life events might lead to change or stability in working models such as attachment style. The precise nature of the causal link between working models and depression remains to be determined. The degree to which continuity exists from childhood through adulthood remains an open question.

In addition, a controversial question remains whether variables such as attachment, communication and attributions are properties of individuals or of relationships. For example, a debate exists in literature regarding the conceptualisation of attachment as an intrapersonal or interpersonal phenomenon, in line with the present findings. Some researchers believe that the greatest benefits will come from examining it as a perceptual variable, reflecting stable internal working models. Others acknowledge that attachment may mediate interactions between spouses, representing a relational
process. For example, several studies have shown that attachment representations may vary significantly from one partner and relationship to another, and future investigations should focus on dispositions relevant in that type of relationship and with that specific partner (Reiss et al., 2002). In this case, it is important to make use of research designs that examine both trait and state aspects of attachment style simultaneously, described in the present dissertation. However, resolutions of this question also require longitudinal studies that follow couples over the course of long-term relationships, and, just as importantly, study those individuals who move from relationship to relationship. As an individual variable, working models would be associated with a consistent pattern of attachment-related behaviours across relationships with different partners. If working models are more of a relational variable, then they should be relationship-specific, and show some variability across different attachment partners. Another important goal for future work will be to determine the extent to which internal working models such as attachment are a cause or a consequence of depression. Beck, Epstein, & Harrison (1983) also proposed sociotropic versus autonomous personality styles that appear parallel to insecure models of attachment. All of these personality styles are thought to predispose individuals to depression. An important step for future work will be to identify differences and overlap among these styles and the conditions under which they predict the onset of depression. In other words, future studies should study how interactions are influenced by the properties of the individuals involved, how interactions contribute to ongoing relationships, and how these relationships are embedded within a social network, with different analyses on different levels (see also Reiss et al., 2002). Research should focus on the manner in which interaction patterns are shaped by the partners’ personal qualities.

Thirdly, it should be noted that the present findings underscore the importance of several dysfunctional characteristics at couple level, indicating a correspondence between both spouses with regard to several problems. Recent studies have found some assortative mating and concordance effects for major depression, whereby the spouses of depressed patients were found to have higher levels of depressed moods when compared with population norms (Benazon & Coyne, 2000; Van den Broucke & Vandereycken, 1996). This means that the social costs of depression are not limited to the impairment of the depressed person. Future studies should continue to investigate both spouses’ functioning. The present findings, together with previous reports in literature, point to interesting directions for future research in the area of
spouse burden. Partners may e.g. develop the negative working models of the partner as a result of their interactions with a spouse who is hostile and self-absorbed. Thus, when one partner is depressed, both partners may develop negative working models (Whiffen, Kallos-Lilly, & MacDonald, 2001). According to some research, spouses’ attributions about the nature of each other’s behaviour may account, in part, for contagious depression among spouses (Joiner, 2001). Spouse burden can be an important focus of intervention, and interactional studies could be designed to identify the behavioural correlates of burden on the part of both patients and spouses (Benazon & Coyne, 2000).

Additionally, by incorporating individual differences in the marital context of depression, the impact of marital interaction on depression may be more fully understood. The population of depressed individuals is very heterogeneous, and subjects can differ in personality style, symptom severity and sex. Research and practice may need to consider these individual differences carefully, as they can have implications for empirical developments and treatment of depressed patients, with or without marital distress. In addition, further research is needed to understand the puzzle of how marital interaction patterns evolve in the context of depression, and for whom they are most important. In future research, mediational and moderational hypotheses also need to be applied to longitudinal data, in order to provide firm evidence on the causal relations between the variables. Such studies should increase the understanding of the onset and course of depression and marital distress, and have important implications regarding prevention and treatment (Whisman, 2001).

Finally, from a methodological perspective, the reliance on self-report data is an obvious limitation. It is possible that this commonly used method has biased the results, which could be influenced by demand effects, psychometric properties or potential content overlap between instruments. Future research on the association between depression and marital distress would benefit from a multimethod assessment of both constructs, based on findings from self-report, interview and observational measures. In this context, observational studies have indicated that the marital interventions of couples with depressed spouses are more negative than those of couples without a depressed spouse (e.g. Biglan, Hops, Sherman, et al., 1985; Nelson & Beach, 1990; Schmaling & Jacobson, 1990).
References


